

Electric Railway Journal

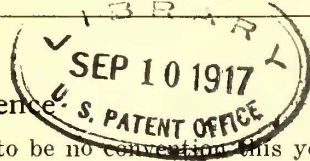
Published by the McGraw-Hill Publishing Company, Inc.
Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

Volume 50

NEW YORK, SATURDAY, SEPTEMBER 8, 1917

Number 10

Oct. 9 the Day of the 1917 Conference



ALTHOUGH there is to be no convention this year, there are more problems upon which mutual advice and discussion would be helpful than ever before in the history of the industry. There is every reason why this should be the case. The war has upset the orderly arrangement of every kind of business, but probably none to a greater extent than that of the electric railways, because the rate which they have to charge for what they sell is on so inflexible a basis. It was proper in these times of national stress and anxiety to abandon the usual form of annual convention. Such a gathering would not seem to have accorded with the spirit of national economy and whole-hearted concentration upon the most expeditious prosecution of the war. But the one day's conference proposed will be of national benefit if it will help the railways more successfully to fulfill the obligations which they owe to the nation and to the communities which they directly serve. This is contemplated in the program published elsewhere in this issue. We trust that the attendance at the conference on Oct. 9 in New York will be large and that the results of the meeting will be of material assistance to an important industry, now greatly hampered in the service which it should render to the public.

Drawing Coal from New Sources of Supply

THE disturbance which has occurred in the production and distribution of coal has not only increased its cost tremendously, but is causing secondary expense of no small magnitude. An example of this is furnished by the case of the Milwaukee Electric Railway & Light Company, which has just spent \$75,000 for temporary storage and handling facilities made necessary by a change in the source of supply. This situation brings to mind a statement made in a memorial recently addressed by the coal interests to Congress in connection with the discussion on federal regulation of their industry. The point of this was that the movement of coal through unusual channels and over unusual routes of transportation greatly increases its cost, even if the supply at the mines is ample. For instance, last year Michigan, northern Ohio and northern Indiana, which had habitually used Eastern coal, suddenly found their supply cut off. The East absorbed practically all of it, and in addition transportation between the two sections was greatly impeded. The Middle West had to go to Indiana and Illinois for coal, where the market conditions were not understood. Lack of confidence caused

feverish competitive bidding and consequent high prices. It is to be presumed that such a condition will not obtain this year under federal regulation, but so vital is the coal supply in our industry that operators must keep a most watchful eye on the precious mineral from the mine to the power house bunker. They are, therefore, wise in providing for handling their fuel from any possible source of supply. But this costs money and furnishes still another argument for an increased income.

The Public Does Not Know It Unless You Explain

WHEN Roswell C. McCrea, professor of economics at Columbia University, testified before the Public Service Commission for the Second District of New York at Albany in the hearing on the application for 6-cent trolley fares that "prevailing tendencies as to wages suggest a continued rise," he spoke by the book. Current news items are verifying his prophecy every day. He indicated as causes pointing toward a further advance: the expansion of war-time industries, the low ebb of immigration, the operation of the new literacy test to immigrants and the efforts of foreign governments after the war to prevent emigration. James S. Thompson, vice-president of the American Brake Shoe & Foundry Company, testified at the same hearing that from studies made by him and his company he fully expected both wages and prices of products for electric railways to make material and early advances. Both the professor and the manufacturer spoke as true prophets. In a late issue of the ELECTRIC RAILWAY JOURNAL a series of news items appeared under these headlines: "Increase in Wages in Savannah," "Jersey Company Increases Wages," "Increase for Geneva Men," "Increase in Pay on Utah Lines," "Increase in Wages by Washington-Virginia Railway," "Richmond Bonus to Men Increased." This was the crop of one week. Similar items have become so commonplace that some electric railway men suppose that of course the public is aware of the constantly mounting wage bill. They were never more mistaken. It is a time-worn adage that no one worries very much about any one's troubles but his own. The public will not learn the facts unless told. And someone must keep telling them at every opportunity. If the steady increases in costs of materials could be known by all, and the combination of mounting costs of labor and supplies could be kept before the public constantly, the people would be found in a far more sympathetic mood when an increase in fares is proposed by the electric railways. And there is no one to tell them except the railways themselves.

Army Cantonments

Present Traffic Possibilities

ADEQUATE transportation to serve the various cantonments during the construction period as well as after the arrival of the soldiers is one of the particular necessities of the government which the electric railways, in many cases, are in a position to provide. From 2000 to 7500 workmen are engaged in building each of these various military plants, which are usually located within close proximity of some electric line. Practically all of these men would ride back and forth to the near-by city each day if suitable transportation were available. Then there is the haulage of construction material and supplies and the movement of troops to and from the camps after they are completed. The steam roads have tried to monopolize this business, but with the material advantages which frequently occur for the electric railways, the latter should be persistent and diligent in securing that traffic, which should legitimately, from a cost basis, be given to them. Successful pursuit of this competition with the steam roads is not impossible, as the aggressiveness of a few traffic men in the electric railway industry has already proved. What is necessary is a special man detailed to co-operate with the military authorities, cater to them and be ready to supply their special transportation needs.

When the draft army shall have arrived at the various cantonments, each will represent a city of 20,000 to 30,000 inhabitants. A town of this size is ordinarily considered sufficient to support a small electric railway property of its own with a staff of operating officials to look after it. From this it would seem that a large military establishment would warrant considerable special attention on the part of the railway men in order to keep in close touch with the goings and comings of the army men. The traffic men should be alert to the transportation needs in advance and should have plenty of equipment in the way of terminals, cars and power in readiness for the service of the soldiers. Taking into consideration the traffic from the soldiers themselves, from visitors and from the supply of food and other necessities, a very considerable business for the local electric railway company should result.

Finally, it seems to us that more capital might be made of the presence of a cantonment or army division fort within reach of the car lines than has been made. The army officers have thus far welcomed visitors on the grounds, some during certain hours only, but others at any time. Sufficient advertising value is derived from the visits of citizens that it may be counted as a service to the government to induce greater visitation. This could be done by carrying a card on the cars running to the camps and posting notices of special events and carrying posters advertising them on the cars. Increased interest in the camp affairs would, of course, induce more car riding at the same time it created interest in the government service and stimulated enlistment.

By taking advantage of these exceptional opportunities for increased traffic which are coming to a number of properties, these properties at least will be able in a

measure to offset the high costs of material and labor due to the war. The full measure of this business can only be secured by an aggressive attitude on the part of the railway officials. The assumption that the business is theirs anyway, and that it requires no special attention, will bring in only a small measure of the earnings possible.

Addressing Commissions

Through Operating Officials

THE increased amount of public relations work thrown upon electric railway men during the last few years has inclined some operating officers to make disparaging remarks about the small amount of time left in these days for plain straight railroading. No doubt there have been many occasions where high officials have been obliged to give too much valuable time to matters of minor importance from the company standpoint at commission hearings, and sometimes it has greatly overburdened executives to have to put into frequent hearings and conferences energy which they prefer to devote to the more intimate problems of their properties. On the other hand, however, the commission hearing provides a plane of contact between the public and the management of an operating company which should yield results of the highest value in the direction of increased mutual understanding and respect. These are days in which progressive street railway managers are doing everything feasible to get into closer touch with their patrons, and it should never be forgotten that even a hearing upon a petition of very local importance may often prove well worth while as an occasion for getting together.

Sometimes a company's executives are tempted to leave too much to counsel at commission hearings bearing upon operating matters, remaining at their offices to handle the regular business. In a case where a commission was petitioned to grant authority to operate one-man cars, for instance, a lawyer with offices outside the company headquarters presented the facts. He outlined the districts where it is proposed to use these cars, touched upon their general design, and commented upon their safety features in a most creditable manner. None the less, we are inclined to believe that the better course would have been to have the superintendent of rolling stock and perhaps someone from the manager's office "stand up to be counted" in favor of the petition, presenting the same facts that were brought forward by counsel for the benefit of the commission, the representatives of the employees present and the public at large. So far as we are aware, no questions of law were involved, and if counsel had merely introduced the officials most concerned, leaving the actual discussion of the rolling-stock problem to them, the matter would have been handled by those most fitted to discuss it.

It is a good thing for the local public to see various company officials at hearings, and very often such occasions afford unusual opportunities for questions and answers which go far to clear up misunderstandings about service and other problems. Irsome as it is at times to have to sit through long drawn-out proceed-

ings when heavy cares press upon one for immediate consideration at the office or on the system, it is none the less an opportunity in doing public relations work of the very best character. Here the public sees the men best posted on company affairs face to face, or at least their responsible assistants, and much good may come from such association.

Power Developments at Springfield Represent Several New Features

AN interesting power contract recently concluded between the Springfield (Mass.) Street Railway and the Turners Falls Power & Electric Company marks a radical change in the method of energy supply for traction service on a system long identified with direct current production and distribution. It is nothing new, of course, for a railway to buy power from a hydroelectric company, but in the Springfield case the arrangement is unusually advantageous. The growth of traffic makes new power facilities imperative; the existing main steam plant of the railway company has reached its economic limit of capacity development, and the erection of a new station for railway service alone would be very costly under present conditions. On the other hand, the Turners Falls company has recently completed a large hydroelectric plant near Turners Falls; it is now building a steam turbine station in Chicopee to serve as a relay plant in its rapidly growing system, and it is in an exceptional position to take on a load of the magnitude and character furnished by the Springfield company. Thus the contract exemplifies the best type of an agreement, viz., one in which both parties are benefited to a substantial extent, neither, apparently, getting any noticeable advantage over the other.

The agreement takes the work of power production entirely away from the railway company through the transfer of its present steam plants to the Turners Falls company. This is an unusual arrangement contrasted with the more common practice of holding the energy purchaser's plants in his possession and in reserve outside the direct control of the power company. Since the latter is an organization specializing in energy production on a wholesale basis, it is good engineering from the operating standpoint to require it to assume entire responsibility for the delivery of energy to the substation buses.

With energy supplied to the railway company from outside the system it follows that the suburban losses

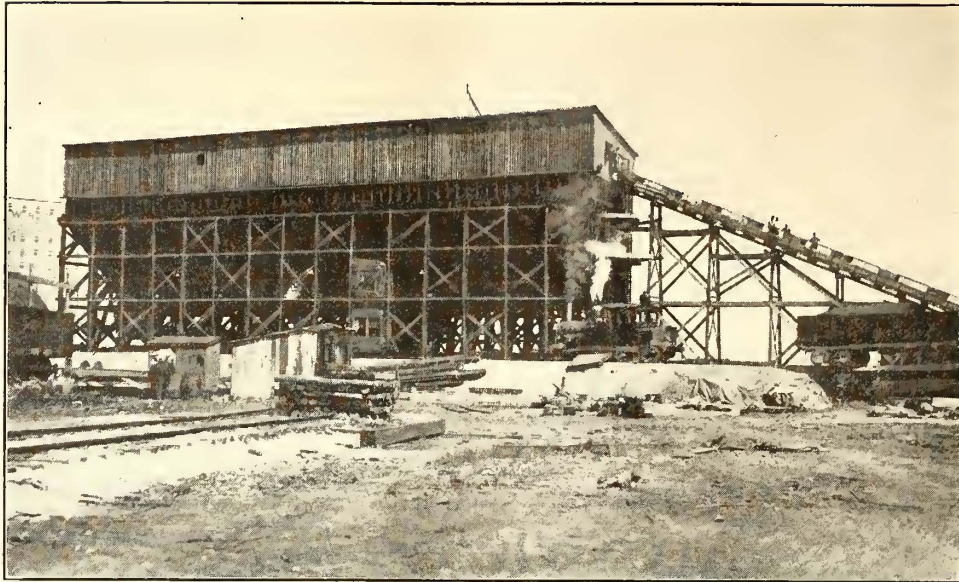
in high-tension transmission may be kept at the minimum, since the lines of the power company will reach various substations in the outlying districts before they enter the principal substation to be built at Margaret Street, Springfield. The transmission network is being developed along lines calculated to insure continuity of service, and the establishment of the new steam plant of the power company at Chicopee, in the Springfield district, will prove an excellent safeguard against interruptions due to line or station trouble farther up the Connecticut Valley. Finally, the interconnection arrangements between the Turners Falls company and the New England Power Company at a switching station in Lev-erett, Mass., provide further insurance against any protracted interruption of supply to the important customers of the hydroelectric organizations in the central Massachusetts district.

To the electric railway man one of the most interesting points about the Springfield power development is the proposed use of the three-wire system of overhead distribution on the city lines. The details of this work are not yet available, but the use of three-unit motor-generator sets with switching arrangements designed to permit operation of generators on either side of the system is certain to prove a flexible and economical combination. The direct-current line losses for a given traffic load should be enough less, also, to make a decided saving in the use of energy. It will be remembered that the decision of the Springfield Street Railway to try out this plan was announced in the issue of the *ELECTRIC RAILWAY JOURNAL* for Dec. 18, 1915, page 1228, and the engineering aspects of the situation were discussed editorially in the same issue. The principle is the same as that used on the Pacific Electric Railway as described in the Feb. 26, 1916, issue. The plan is to divide the overhead into alternately positive and negative sections, reducing to a minimum the return of current through the rails and earth. The use of 13,200-volt synchronous motors to drive the generator pairs is to be another desirable feature of the new service, very attractive at present costs of copper for interior as well as for exterior wiring. These features make for conservation of material, fuel and water; the contract saves the railway from a large capital investment added to its present outstanding securities, and provides a load with a very desirable power factor for the vendor of energy, many of whose customers' installations offer a far less desirable business.

Watch for our September 22 issue. It will be our

PRE-CONFERENCE NUMBER

and will be devoted largely to the operating advantages of the one-man, light-weight safety car. It will appear two weeks from to-day



MILWAUKEE COAL HANDLING—1500-TON COAL BUNKER ON KINNICKINNIC RIVER

Rearranging Facilities for Receiving Coal by Rail Instead of by Water

Market Conditions Necessitating Use of Central States Coal in Milwaukee Instead of Eastern Coal Brought About Need for New Storage Yard and Special Facilities for Transferring from the Storage to Barge—Plan Adopted Retains Former Equipment in Service, Keeping New Investment as Low as Possible

WITH the marked changes which have taken place during the last year in the coal market generally, The Milwaukee Electric Railway & Light Company has found it advantageous to use coal from the Central States instead of from the Eastern mines. To make this change in market, however, meant that it would be necessary to provide facilities for receiving this coal by rail instead of by water, as it had been handled from the East. To provide arrangements suited to this purpose at the same time avoiding scrapping of good equipment, and also to make it readily possible to change back to the old practice should market conditions warrant, was the particular problem before the company's engineers in taking care of the new conditions.

Formerly coal was received by way of the Great Lakes and stored in a local coal company's yard; thence it was moved to the power houses as needed on a self-unloading barge, 200 ft. long and 14 ft. deep with a 34-ft. beam. It has a longitudinal double-hopper hold, and is equipped with a conveyor underneath each hold. These conveyors carry the coal to two elevators which in turn discharge onto a 36-in. rubber belt traveling over a movable boom about 50 ft. long and capable of elevating the coal about 26 ft. This belt unloads the coal directly into the power-house bunkers at a rate of about 200 tons per hour. It is driven by a 20-hp. motor, and the barge conveyors are driven by a 65-hp. motor, both of which are supplied with direct current through special water-side connections at the power houses.

The first problem confronting the company in its

plan to buy Middle States coal, was that of finding a water-side yard large enough to provide adequate storage space in addition to the space to be occupied by the necessary handling equipment. For this purpose it was decided to use the company's general storage yard on the Kinnickinnic River, 680 ft. x 280 ft., which was accordingly vacated. This yard lies with one of its short sides along the water front and is surrounded by property already occupied by industrial plants. For this reason it was impossible to enlarge the space already owned and the problem was to utilize efficiently the 190,400 sq. ft. of area available.

At the outset the capacity of the bunker was fixed at not less than 1500 tons, the capacity of the barge which the company would continue to use in the new arrangement. This bunker had to be located along the water line since it was necessary to distribute the coal fairly well along the hold of the barge and at the same time to allow 25 ft. at the north end of the property in order to keep the bow of the barge within the property line. The coal crusher was then located as far south as possible. From the point of delivery of the coal from the crusher, an imaginary line inclined $22\frac{1}{2}$ deg. to horizontal, which is about the steepest practical incline up which coal can be carried on a belt conveyor, was extended upward to determine the location and height of the top of the bunker. The height of the bottom of the bunker was fixed by the elevation of the top of the barge when empty. With the upper and lower limits of the bunker and its capacity settled, and in view of the fact that a 45-deg. angle is required to assure a free

sliding movement of coal down a chute, the necessary width of the bunker was calculated at 29 ft.

The bunker and conveyor equipment was laid out to occupy the space at the end of the property. The track serving the yard was placed as close to the bunker as possible, and this necessitated the use of the shortest radius curve (188 ft.) permitted for switching in Milwaukee. This fixed the location of the outgoing track under which the track hopper is located. The end track of the double "Y" is long enough to accommodate a locomotive and one car.

COURSE OF COAL THROUGH RECEIVING YARD

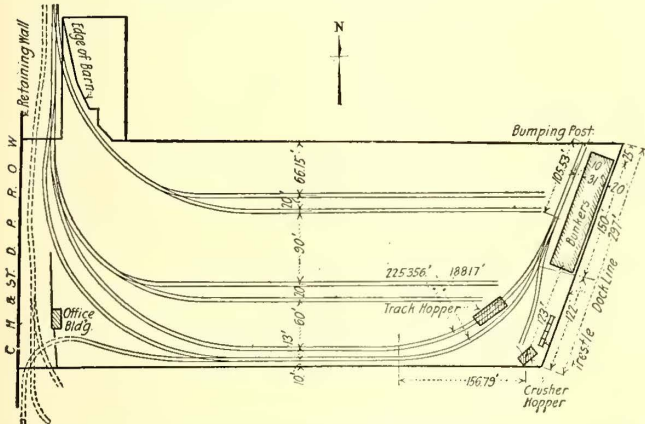
Coal received at the yard may either be unloaded by the two movable motor-driven locomotive cranes and stored in the yard, or it may be taken immediately to the 1500-ton bunker. This latter is possible because a clause in the company's coal contract provides for separation of the mine-run coal at the mine into screenings and lump coal. Under normal conditions, with this presorting of the coal, only the screened lump coal is stored, and the screenings are used immediately. This



MILWAUKEE COAL HANDLING—BELT CONVEYOR AND LOCOMOTIVE CRANE DUMPING COAL INTO CRUSHER HOPPER SIMULTANEOUSLY

with three sides sloping at 45 deg. and with one at 30 deg., in order that coal dropped into it from the belt conveyor would slide freely to the crusher, while that dropped from the 1½-yd. locomotive crane bucket would slide more slowly on the 30-deg. slope and thus prevent unnecessary overloading of the crusher.

A grillage underneath this hopper separates the screenings and by-passes them around the crusher, tending to prevent clogging of the machine. The fine coal leaving the crusher falls on a rubber belt, 30 in. wide and 150 ft. center to center, which ascends to the water-side bunker at an angle of 22½ deg. This belt is driven by a 25-hp., 1800-r.p.m., type-I motor at the rate of 325 ft. per minute and delivers the coal to a 30-in. flight conveyor running the full length of the bunker. The flight conveyor travels at the rate of 100

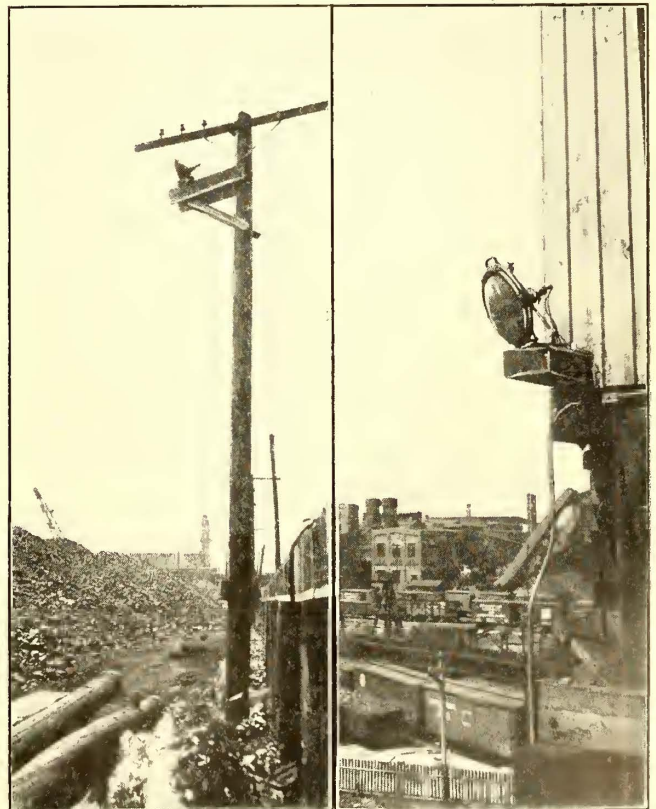


MILWAUKEE COAL HANDLING—GENERAL LAYOUT OF COAL-HANDLING FACILITIES IN NEW MILWAUKEE YARD

practice, of course, tends to reduce the liability of spontaneous combustion in the stored coal.

When coal is received in bottom-dump cars it is switched over the 41-ft. x 20-ft. track hopper shown in the general layout drawing, and from there is delivered to a belt conveyor by means of two shakers in the bottom of the hopper, driven through reduction gears by a 15-hp. squirrel-cage motor. This conveyor dumps into the hopper above the coal crusher. The shakers have a travel of about 4 in., which may be increased to about 10 in. for faster operation by shifting the eccentric settings. The motor driving these eccentrics runs at 720 r.p.m., and this speed is reduced through the gears to make twenty strokes per minute at the shakers. The belt between the track hopper and the crusher operates over rollers 67 ft. apart and rises at an angle of 19.5 deg. to the horizontal. This belt is 36 in. wide and is driven at the rate of 240 ft. per minute by a 15-hp. motor.

Coal coming to the yard in gondola cars without bottom dumps is switched to the short siding near the crusher and from there is handled into the crusher hopper by means of a locomotive crane. Coal may be delivered into the crusher hopper by both the belt conveyor from the track hopper and the locomotive crane at the same time. The hopper in the crusher was built



MILWAUKEE COAL HANDLING—EIGHT FLOODLIGHTING UNITS ILLUMINATE THE COAL PILES WHILE TWO OTHERS PLAY UPON THE CONVEYING MACHINERY FOR NIGHT OPERATION

ft. per minute and is connected through reduction gears to a 20-hp., 1200-r.p.m. motor. By utilizing the return side of this conveyor to trim the top of the coal piled in the bunker, the capacity of the bin has been increased by about 150 tons. Under ordinary conditions the conveyor and crusher equipment will fill the 1500-ton bunker in eight hours.



METAL CHUTE FOR DISCHARGING COAL ONTO BARGES

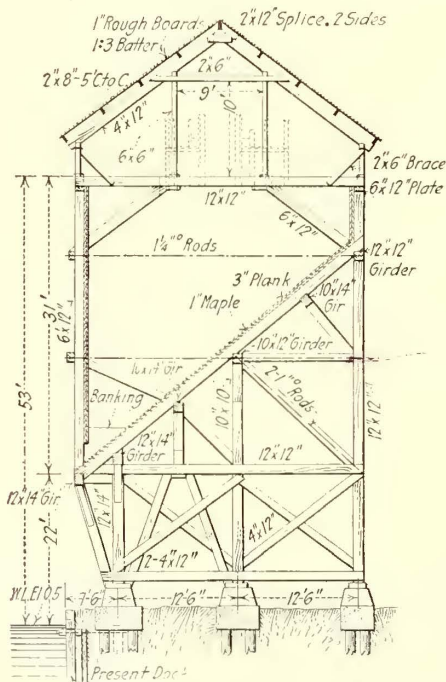
The crushing outfit is of the single-roll, 36-in. x 36-in. type. It is belt-driven at 60 r.p.m. by a 100-hp. 720-r.p.m., slip-ring motor. At this speed it will handle 250 tons of coal per hour, reducing the Illinois or Indiana run-of-mine coal to a 1½-in. size lump. The slip-ring motor was selected for this service because of its excellent starting characteristics, and also because it permits of reversing the crusher at times to free the rolls. The single-roll type of crusher was used, because the company had previously made use of it at other plants and it had given satisfactory service with low maintenance costs, even when it was used with hard grades of coal.

Coal is delivered from the water side of the bunker by gravity into two sets of spouts and thence into the barge on the river. Spouts are also provided whereby it will be possible to deliver coal from the bunker into cars on the tracks below. These spouts will not ordinarily be used, but are provided as an emergency measure. In ordinary practice, the water-side spouts are

The floor of the bunker, which is laid at an angle of 45 deg., is constructed of a double layer of 1-in. hard maple lumber, in order to provide a smooth surface and to permit of easy repairs inside of the bunker. The entire bunker structure is supported on piles driven 65 ft. into the ground and capped with concrete. The structure measures 150 ft. long by 53¾ ft. high and 29 ft. wide. The substructure is a mill-type construction made up with 10-in. x 10-in. x 12-in. yellow pine members capped with ½-in. steel plates.

DETAILS OF SYSTEM FOR SWITCHING COAL ABOUT YARDS

For the switching of coal about the yards it was not thought advisable to use an electric locomotive since the trolley lines would interfere with the free action of the locomotive cranes. In the general considerations of machine and conveyor drive, it was the aim to provide liberal ratings so that greater tonnages could be handled in the future, if necessary, by speeding up the existing machines. Individual drives were used throughout to provide greatest flexibility of control and to limit and localize trouble. All yard motors except the crane motors operate from a 220-volt, three-phase, 60-cycle circuit, and are of General Electric make. The 1½-yd. bucket locomotive cranes were furnished by the Link Belt Company, and the 1½-yd. stationary crane by The Browning Company. These cranes are operated by 500-volt railway-type motors. The coal crusher was purchased from the Jeffries Manufacturing Company, and the conveyor belts from the B. F. Goodrich Rubber Company. The entire plant, exclusive of real estate, entailed a capital expenditure of \$75,000. The design and construction of the coal-handling facilities was handled by the company's own forces under the direction of John Anderson, chief engineer of power plants.



MILWAUKEE COAL HANDLING—CROSS-SECTION OF 1500-TON BUNKER, SHOWING DETAILS OF FRAMING (See photograph on page 384)

set and the gage is opened by the barge crew from a gallery approximately at deck level. These spouts will deliver a complete load of 1500 tons to the barge in about ninety minutes.

Pennsylvania Railroad's Quota for Military Service

Up to Sept. 1, 2540 employees of the Pennsylvania Railroad, lines east of Pittsburgh, had entered the army and navy of the United States as volunteers, and were granted furloughs from the railroad service. Of this number, seventy-five have been appointed commissioned officers and thirty are student officers in various officers' training camps. The remainder, numbering 2442, are enlisted men in the army and navy. The commissioned officers include one colonel, one lieutenant-colonel, two majors, twenty-one captains, twenty-three first lieutenants, twenty-two second lieutenants, three ensigns and one pay clerk. In addition to the employees of the Pennsylvania Railroad who have entered the military and naval service as volunteers, many more are certain to be taken for the national army under the draft. The exact extent by which the working force of the railroad will be further reduced in this manner will not be definitely known until the final draft lists are compiled. However, it has been ascertained that there are in the service of the Pennsylvania Railroad, lines east of Pittsburgh, 60,000 men who are liable to military service under the selective draft law, and based upon the average proportion of the eligible men who will be taken in the first draft, approximately 3000 of these will be called.

Serving the Absent-Minded Patron

The United Railways & Electric Company of Baltimore Makes Use of a Simple Tag System for Identification of Property Left Upon Its Cars—About 50 per Cent of Turned-In Articles Are Claimed, and 65 per Cent of All Inquirers Find Their Property

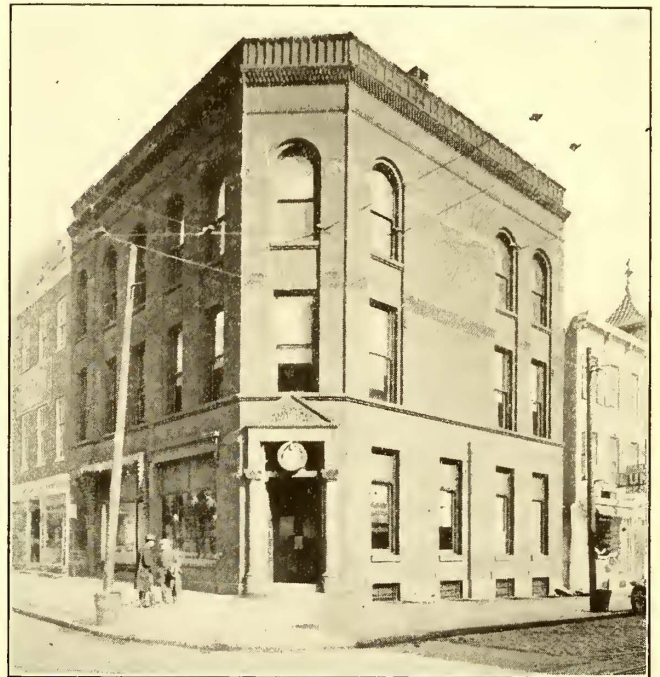
THAT the car riders of Baltimore are subject to a full share of the absent-mindedness seemingly characteristic of all surface-car patrons is evidenced by the books of the lost-and-found department of the United Railways & Electric Company. Within the last few years thoughtless riders have left upon the company's cars articles ranging all the way from a keg of beer to a cage of canaries. At present the record performance in carelessness stands as a tie between two passengers, of whom one abandoned \$5,000 in bank notes and checks upon a car and, when the property was promptly returned to him through the railway company's lost-article department, forced 50 cents into the calloused but expectant palm of the conductor who retrieved the bundle. The other entry tied for first place in the competition for absence of mind managed to leave his infant son on a street car and did not recognize his loss until the lack of noise about his home impressed the fact upon his mind. The baby, it must be remarked, was not actually handled by the railway company's lost-and-found department, because the dispatcher at the carhouse where the find was turned in lacked the necessary commissary facilities and handed the child over to the local police, from whom it was shortly recovered by the breathless father.

Under normal circumstances, however, all articles that are found upon Baltimore cars are passed through a department whose method of operation and system of records are characterized by an unusual degree of simplicity and freedom from red tape. That it is nevertheless effective in producing results is demonstrated by the fact that approximately 50 per cent of the articles of all classes that are turned in by trainmen are eventually returned to their owners, and this percentage is materially greater in the case of articles having more than a nominal value. Practically all articles of an appreciably costly character are claimed. At the same time, an average of 65 per cent of all surface-car patrons who appear at the department to inquire for lost articles have their property returned to them at once, this figure including the inquiries for missing property that are made without definite knowledge that the lost article has been left upon a car.

PROCEDURE IN HANDLING LOST ARTICLES

The procedure under which lost articles are handled is as follows: Anything that is found on a car is turned in by the conductor at the end of the trip to the dispatcher at the carhouse. The dispatcher then fills in and attaches to the article a tag which shows the line upon which the article was found, the number of the car and the number of the conductor or the name of the passenger who may have recovered the article and turned it over to the conductor. On the back of the card is stamped the name of the carhouse in which the

tag is applied. This tag is stamped with a serial number, and to it is attached a coupon that may be torn from the body of the tag, the coupon containing the same serial number as the tag and also space for entering the date. The object of the coupon is to provide a means for identifying the finder of the lost article to whom it is eventually returned in case no claimant appears to identify the property. Therefore, after the filled-in tag has been tied to an article that is turned



BALTIMORE LOST-AND-FOUND DEPARTMENT—EXTERIOR VIEW OF CENTRALLY LOCATED BUILDING IN WHICH DEPARTMENT IS HOUSED

in, the dispatcher detaches the coupon and hands it to the conductor, who retains it.

All articles that are left with the dispatcher in this manner are held at the carhouses until the following morning, when they are forwarded to the company's lost article department. This department is located at an easily accessible place, approximately at the center of the city's business district, in one of the railway company's buildings. The department occupies part of one floor, and the rest of the building is used for a waiting station and for an employees' club that provides a reading room as well as pool tables and other amusements for platform men when they are off duty.

A manifest containing a list of the articles that have been turned in is forwarded each morning by the dispatcher with the articles sent to the lost article department, and this manifest is signed upon receipt by the agent in the lost-article department and returned to

the dispatcher after it has been copied. This copy is made in a record book that is kept by the agent at the lost-article department. The record book has large numbered sheets containing vertical columns for entering the agent's file number for storing the article, the date, the tag number, a description of the lost article, the car number, the line, the name of the finder and space for the date of return and the signature of the

all of the entries in the column where the descriptions of the articles are entered. Its location in the storage racks of the department is shown by the file number given to it when it was first sent in.

RECOVERY OF PROPERTY BY PATRONS

After receipt of the lost articles that are sent in from the various carhouses each day, the agent in the lost-

Form L-114
The United Railways & Electric Co.
 Lost Article No. **19285**
 Line Car Time M.
 Found at
 Article and Contents
 Found by Badge.....
 Agent's File No.

Received the above articles:
 Name
 Address
 Counter/Signed:
 Lost Article No. **19285**
 Date
 If Not Claimed Within Ninety Days Present This At Lost Article Department, Howard and Franklin Streets.

BALTIMORE LOST-AND-FOUND DEPARTMENT—TAG WITH DETACHABLE COUPON THAT IS FASTENED TO LOST ARTICLES UPON RECEIPT

recipient in case the article is claimed. The original manifest which is returned by the agent to the dispatcher is entered by the dispatcher in a record book that is similar, except that it is somewhat condensed and is single-ruled horizontally, while the agent's record is double-ruled horizontally for the purpose of providing sufficient room for a moderately complete description of articles turned in.

Articles are entered in the agent's record in order according to the dates on which they are found, and they are segregated only as to the respective lines from which they were turned in. They are not classified as to the character of the article. The latter information, however, is shown on the agent's record as previously mentioned, and in the rather rare event of a person not being sure as to the date when an article was lost or the line on which it may have been left, the agent runs over his records from the date of loss up to and including the date of inquiry, going through

Form L-114
200 The United Railways and Electric Company of Baltimore, Md.
 RECORD OF LOST ARTICLES.

FOUND	No	ARTICLES	Car No.	LINE	CONDUCTORS	RETURNED	BY WHOM RECEIVED

BALTIMORE LOST-AND-FOUND DEPARTMENT—RECORD FORM USED BY DISPATCHER

Form L-114
198 THE UNITED RAILWAYS AND ELECTRIC COMPANY OF BALTIMORE.
 LOST ARTICLE DEPARTMENT—HOWARD AND FRANKLIN STREETS

AGENTS FILE No.	DATE	No.	ARTICLE	CAR	LINE	BY WHOM FOUND	DATE RETURNED	BY WHOM RECEIVED

BALTIMORE LOST-AND-FOUND DEPARTMENT—RECORD FORM USED BY AGENT IN LOST-ARTICLE DEPARTMENT

article department prepares a complete list of the newly-received articles and forwards it to the general offices of the company, where duplicate lists are made out and then sent to the local daily newspapers for publication.

Owners may recover lost articles by applying to the lost-and-found department agent, after furnishing a proper identification and signing the record book as well as the tag for a receipt. Unclaimed articles of small value are held for ninety days, after which time they are returned to the finder. Valuable articles, such as money, jewelry and the like, are sent to the office of the company's cashier and are held in this safe for one year, after which these articles also are returned to



BALTIMORE LOST-AND-FOUND DEPARTMENT—INTERIOR VIEW OF WAITING ROOM SHOWING RECEIVING COUNTER FOR LOST ARTICLES



BALTIMORE LOST-AND-FOUND DEPARTMENT—VIEW SHOWING NUMBERED RACKS IN WHICH LOST ARTICLES ARE STORED

the finder, who is, of course, expected to produce the coupon that was detached from the lost-article tag when the article was originally turned in. Articles that are unclaimed by the finders are delivered to the purchasing department of the company and sold.

Inquiries from persons living outside of the city of Baltimore concerning lost articles are handled through the general offices of the company, and if the articles in question are being held at the lost-article department, they are forwarded promptly to the owner. Many letters have been received by the railway company from such persons who have had their property forwarded

to them by parcel post or express, and these invariably express appreciation of the efficient manner in which the company met their applications.

The direct expense of maintaining the department, owing to the simplicity of the system, is not large, and the indirect expense is moderate, although there is, of course, no direct return for any part of the expenditure. As a convenience to patrons, however, the management considers that the outlay is well worth while, and it has always been the policy of the company to make a special point of commending employees who turn in articles of value.

An Electric Railway Efficiency System

B. E. Tilton, General Manager New York State Railways, Syracuse and Utica Lines, Has a System of Watching the Efficiency of His Lines by Means of "Surprise Checks"

THE New York State Railways, Syracuse and Utica lines, employ a plan of checking the extent of adherence to essential rules somewhat similar in principle to the efficiency system of the Pennsylvania Railroad. The latter has an efficiency committee with the function of raising the standards of operation through tests and checks of the observance of the company's rules by employees. Records are kept of all tests, and the number of perfect scores divided by the number of tests is considered to be the efficiency. The record is now 99.98 per cent.

In the plan devised for the New York State Railways by B. E. Tilton, general manager, only failures are recorded. These are brought to light by means of "surprise checks" or tests made without the knowledge of the employees. The results of these checks and other matters of importance are discussed at departmental meetings.

SCOPE OF SURPRISE CHECKS

The surprise checks were inaugurated in 1914 and cover transportation, maintenance of way, mechanical, and building and line departments. A glance at the "Manual of Surprise Checks," shown on page 390, will show the scope of the system. When it was first put in operation there was, of course, some criticism, as a few of the men felt that they were having someone "butt in" on their work. But it was soon made plain that the new system was not a plan for spying upon or criticising their work, but rather it was simply another way of making the departments of the company more efficient by checking up the work from a new angle. After this there was no further complaint.

The checks are all of non-technical matters; that is, just the common-sense rules about which there can be no argument as to the necessity for enforcing them. The tests can, therefore, be made by non-technical men, practically anybody whom the company wishes to assign to the work. A transportation department check is made every month, and checks on the other departments are made periodically or whenever considered advisable. The lists of failures are sent to the departments affected. The department head makes repairs of

defects noted or administers discipline where needed, and reports back to the man in charge of the surprise checks as to the action taken. A summary of the checks is made up in the form of a report, an abstract from which is shown on page 391, which is submitted at each department meeting. Here there is an informal discussion with the general manager presiding.

MONTHLY CONFERENCE OF DEPARTMENT HEADS

The departmental meetings are held once a month, the following officials being present or at least members of this conference: General manager, general superintendent, superintendent of interurban lines, auditor, claim agents, master mechanics, electrical engineer, cashier, general express agent, superintendent of line and buildings, engineer maintenance of way, purchasing agent and general passenger agent. This conference covers the two cities of Syracuse and Utica, and for this reason there are two claim agents and two master mechanics present. Meetings are held alternately at Utica and Syracuse, at which C. R. Gowen, general passenger agent, acts as secretary and keeps a permanent record of the proceedings.

Besides receiving and discussing the surprise check

PARTIAL INDEX OF SUBJECT HEADINGS DISCUSSED AT DEPARTMENT MEETINGS

Accidents, reporting to commissioner of labor.	Loaning material.
Advertising on windows.	Lost articles.
Authorizations.	Mileage system.
Budget.	Material for 1917.
Contracts, standard form of.	News items to press.
Coke for car heaters.	Orders, inter-department.
Car specifications.	Platforms, construction.
Courtesy.	Records, mechanical department.
Compensation Law.	Requisitions for material from stock.
Derailments.	Rules — all departments except transportation department.
Examining employees.	Stockroom for forms.
Estimates for authorization.	Shop efficiency.
Flat wheels.	Surprise tests.
Fare boxes.	Telephone system.
Guard rails, extension of.	Traffic checks.
Holidays.	Water bills.
Instruction of shop and barnmen.	Work for other companies.
Insurance.	
Line trouble, reporting of.	

reports at each meeting the men at the departmental meetings discuss various questions of policy and possible economies. Indeed, the minutes of these meetings show a very wide range of discussion. Sometimes matters are set aside for a report at the next meeting, and in very important cases special rulings are made which then become rules of the company. An index of the first thirty-five meetings shows that 172 subjects were brought up and discussed. Of these 100 were discussed at more than one meeting. A few typical headings taken from the index are as shown in the list on page 389.

A particular economy that has been effected through the departmental meetings is a reduction in the number of blank forms. Each department head had been ordering his own forms, and it was found that 1144 different forms were being printed. After investigating the subject in several departmental meetings it was decided that all the forms should be ordered by the department head through the storekeeper, who should in turn order them through the general purchasing agent. Before any form is ordered, however, the approval of the auditor, who is chairman of the form committee, must be obtained. This prevents any possibility of a duplication in forms or an increase in the number. It was found by the auditor that in many cases one form could be used for similar work in several departments and in

this way the number of forms was reduced from the 1144 previously mentioned to 430.

DERAILMENT REPORTS

Besides the surprise check reports another subject which is taken up at each meeting is derailments. The claim agents in Syracuse and Utica are in charge of the derailment reports. These are made out by the car crews and are sent to the claim agent, who on receiving them writes a letter to the mechanical, track and transportation departments, calling attention to the derailments and asking to be advised as to the cause. In case of a dispute the general superintendent decides the cause and advises the claim agent and the other departments affected. The department responsible has to remedy the fault. The claim agent then prepares a monthly report of derailments which shows the location, date, car number and the cause of each derailment.

These reports are summarized to show the points at which more than one derailment has occurred, and the cars derailed more than once, to indicate respectively the points where the track is defective and defective cars. Another summary is made in which the derailments are classified as to specific causes. Finally the number of derailments is compared with the number

Manual of Surprise Checks

Transportation Department

1. Safety stops at railroad crossings: Conductor shall look both ways for approaching trains before pulling the derail lever and giving the motorman proper signal to proceed. Motorman to ascertain whether or not passengers are boarding or alighting before starting. After second stop is made just before the crossing is reached, conductor to give proper signal to proceed from the center of the crossing, after ascertaining that there are no trains approaching.
2. Stopping cars at unsafe landing places, to wit: Where defects exist in pavement; stopping too close to excavations or obstructions; running by crosswalks and running by platform stops on suburban lines.
3. Keeping steps and platform sanded and free and clear from snow and ice.
4. Motorman reducing speed and sounding gong while passing standing car.
5. Motorman ringing bells at cross streets.
6. Passengers riding on rear platform or step of interurban cars when there is room inside of car.
7. Operation of doors on pay-as-you-enter cars when car is in motion.
8. Starting cars before passengers are on or off.
9. Starting and stopping of cars with a jerk.
10. Operating city cars in and out of sharp curves at greater speed than 6 m.p.h.
11. Crossing over switch points when passing another car.
12. Operating cars over special work at a speed greater than 6 m.p.h.
13. Safety stops other than at railway crossings.

Maintenance of Way Department

1. Condition of landing places, both permanent and those used during construction work. Platforms should be even and planking not broken or warped.
2. Condition of pavement at cross walks and at street intersections. Pavement should not be in such condition that there are depressions more than 2 in. in depth, or elevated obstructions, such as paving brick or paving stone, more than 1 in. in height above the surface of the pavement.

3. Planking on bridges and steam railroad crossings should be in their proper place and even with the surface of the street, and with no broken or defective planks.

4. Surplus material should be removed after completion of work.

5. Excavations at street intersections should be guarded in day time by barricade, and at night by barricade and red lights.

Mechanical Department

Condition of grab handles, steps, platform and floor slats, etc.:

a—Grab handle fasteners should be securely fastened with no screws projecting beyond the socket and free from splinters or projecting pieces of metal.

b—Tread of step should be securely fastened and free from projections such as loose edges, screw heads, bolt heads, etc. Step fasteners or brackets should be firmly attached to the car body.

c—Platforms should be free from projecting screw heads, bolt heads, warping boards and cracks of sufficient width to catch clothing of passengers while entering the car.

d—Floor slats should be securely fastened and free from projecting screw heads and broken slats.

e—Seats should be free from projecting tacks, screws and broken rattan.

f—Window fasteners should be securely fastened.

g—Curtains on open cars should be securely fastened.

Line and Building Department

1. Holes opened in streets for poles, bonds or cables are to be protected, and after work is completed, they are to be closed at once even with the surface of the street.

2. Guy wires in streets are to be of sufficient height to clear traffic.

3. Platforms should be so maintained that the surface is even; no cracked, broken, defective or warped planks should exist in floor.

4. Railings should be securely fastened.

occurring during the same months of the previous five years. A typical summary of derailments is shown in the table below.

The surprise checks and departmental meetings have been very effective in bringing the efficiency of the system up to a high standard by keeping the men alert and developing loyalty and team work. The records are also useful in meeting the inquiries or criticisms of the public and the regulative commissions. The surprise check tests show how closely the company is watching

NEW YORK STATE RAILWAYS—SYRACUSE LINES—SURPRISE CHECK REPORT

RAILROAD CROSSINGS

Check No.	Date	Car	Crew	Place	Incident	Action Taken
37	12-14-14	670	918	Onondaga St. & D.L.& W	Signalled 10 feet from crossing.	Warned
42	12-14-14	610	990	Onondaga St.& D.L.& W.	Did not look in either direction.	Warned
78	1-11-15	937	1195	Salina & W.S.R.R.	Did not see if rear was clear.	Warned

SAFETY STOPS

49	12-16-14	802	845	West Genesee & Wilbur	Used air instead of hand brakes.	Warned
71	12-23-14	666	999	W. Genesee & Milton	No safety stop made.	1 day on list
40	12-14-14	907	1015	Jefferson & Salina	Did not sound gong when passing standing car.	Warned
56	12-19-14	792	699	Park & Butternut	Passing standing car at 8 miles, gong not sounded.	1 day on list

OPERATING OVER SPECIAL WORK

90	1-20-15	744	1265	Warren & E. Genesee	Operated 8 to 10 miles per hour	1 day on list
----	---------	-----	------	---------------------	---------------------------------	---------------

SNOW AND ICE

44	12-15-14	650	1176	Warner Ave.	Snow and ice on steps. No sand used.	1 day on list.
----	----------	-----	------	-------------	--------------------------------------	----------------

EQUIPMENT

48	12-16-14	642		Warner Ave.	Air valve covered with grease.	Cleaned
81	1-13-15	628		McAllister	Screw used for curtain fastener.	Replaced with proper fastener

TRACKS

52	12-19-14			Townsend & James Sts. (out)	No landing place.	Taken care of
74	1-11-15			West Genesee	Depressions in paving.	Filled up
114	2-18-15			Park Ave. & Leavenworth	Planking loose.	Taken care of

DOORS

102	1-26-15	790	858	Clinton & Fayette	Closed doors after car started.	Warned
107	1-27-15	772	1244	Tallman & Salina	Opening and closing doors while car in motion.	Warned

MISCELLANEOUS

38	12-14-14	902	1227	Jefferson & Salina	Starting car too quickly.	Warned
100	1-25-15	656	1264	Wilbur & Tompkins Sts.	Children hanging on draw bar.	Warned
117	2-23-15	610	1080	Park & Wolf	Boys riding on fender	Warned

NEW YORK STATE RAILWAYS—SYRACUSE LINES DERAILMENT REPORT

SUMMARY

Defective track, switch, etc.	11
Spreading rails	3
Snow and ice	2
Obstruction in switch or groove	2
Defective equipment	3
Broken axle	1
Derailed lever dropped	2
Careless operation	3
Total	27

POINTS WHERE MORE THAN ONE DERAILMENT OCCURRED

Cortland and Griffin Streets	2
Salina and Taylor Streets	2
Highland and Graves Streets	2

CARS DERAILED MORE THAN ONCE

Number 1026	3
Number 3002	2
Number 784	2
Number 792	2

COMPARISON

December	1912	1913	1914	1915	1916
	31	14	26	20	27

its own service, while the minutes of the meetings indicate how promptly defects are remedied and what is being done in effecting economies and solving the larger problems of the company.

Paving the Way for Fare Increase

Some Fare Increase to Relieve the Situation Is Necessary—Moulding of the Public Mind to Appreciate This Is the First Essential

A PARTICULARLY good presentation of facts in connection with the operation of utilities in general and the Denver Tramway Company in particular, which make imperative a fare increase of some nature, appears in a recent issue of *Tram-O-Grams*, the

For several years the public utilities have been the sole business that have had their prices regulated by the Government. Yet the average man spends only an average of 7% of his wages for street car fare, telephone, light, gas and water. That part of his expenditure has been protected by state regulatory bodies from start to finish. Yet the other 93% of his wages is spent on food, fuel, clothing, entertainment, publications, etc., without a single item being regulated in price or otherwise by anyone. Now the average man is beginning to realize that, if he doesn't pay to let the ambitious kind of politicians and self-seekers shout so loudly about regulating the public utilities (7% of his expense) that all other types of business (93% of his expense) are overlooked and permitted to regulate themselves. The only prices that have actually been reduced in late years are prices of utilities—electric railways, gas, electricity, water, telephone. Can you think of any other things that you use that have not increased in price?

Denver company's publication for the public. Beginning in the usual way with some humorous chatter to win the interest of the reader, the editor, J. C. Davidson, soon gets down to the subject he has in mind for treatment

—the inequitableness of retaining the present car fare at 5 cents. His immediate approach to the subject is by way of "turning loose a mild chortle of glee over the regulation of food and all the other flub-dubs man requires for his living."

Comparison of Street Railways in Denver Twenty Five Years Ago and Now

	1892	1917
COMPANIES	Two Railway	One Universal Street
INVESTMENT	\$900,000	\$25,154,000
POPULATION SERVED	110,000	200,000
TYPE OF EQUIPMENT	All small single truck cars	All double truck cars (all electric)
POWER USED	Cable, Electric & Horse	Electric Trolley
MILES OF TRACK	About 60	253
NUMBER OF CARS	About 125	620
LENGTH OF RIDE @ 5¢	5 miles	15 miles
TYPE OF INTERIOR HEATING OF CARS	Stoves in some, Straw in others	Electric
ILLUMINATION OF CARS	Chiefly Kerosene	Electricity
NUMBER OF EMPLOYEES	About 250	1500
FARE	5¢	5¢

"TRAM-O-GRAMS" QUOTES GOVERNMENTAL PRICE REGULATION TO PROVE NEED FOR HIGHER FARES

one can deny that wages and prices of many materials have necessarily increased since the war began, but that "many of us have a pretty good hunch that some folks have been taking advantage of the proper and legitimate advances in some prices to boost their own prices solely for the sake of making huge profits."

Then the regulation of these matters by the government is inaugurated and "trust Uncle Sam to weed out the sheep from the goats. 'Nobody asked you to do business at a sacrifice,' says Uncle, 'but boosting your prices exorbitantly when you don't need to, just because you can say "war" and put it across on the people, is quite another matter, and you've got to cut it out!'"

The discussion is continued on the two pages of *Tram-O-Grams* reproduced herewith to give the full significance to the manner which was used in presenting the subject to the Denver riders. This is only one of many similar articles which have appeared in *Tram-O-Grams* treating upon the subject of increased costs.

During the month of June, 27,000 gal. of milk were brought into Wheeling by means of the electric express service of the West Virginia Traction & Electric Company, or an average of 200 cans per day. The express cars make the 16-mile trip from the Pennsylvania State line at West Alexander three times daily.

Purchased Power for Springfield (Mass.) Street Railway

Outline of Arrangements for Operation of System by Hydroelectric and Auxiliary Steam Plants of Turners Falls Power & Electric Company—New Substation and Transmission Facilities Designed for Ultimate Use of Three-Wire Arrangement for Direct-Current Distribution

“**B**Y our new contract with the Turners Falls Power & Electric Company,” said President C. V. Wood of the Springfield (Mass.) Street Railway at a recent hearing before the Public Service Commission of Massachusetts, “we are saved making an investment of certainly \$1,500,000 for additional power equipment required to meet the needs of our growing system.” This contract is one of the most important thus far arranged in New England electric railway circles. In large measure it provides for the transfer of responsibility for power service to the Turners Falls company, since by its terms the existing plants of the railway company at Margaret Street, Springfield, and at Westfield, are to be purchased by the power company. Hence, the railway company’s problem becomes in the main a question of distribution.

The Springfield company operates 180 miles of track in the cities of Springfield and Chicopee and various towns in the vicinity. The company serves a population of 225,000, operates 8,500,000 car-miles and carries 45,000,000 passengers annually. The present sources of power consist of two steam plants belonging to the com-

pany. There are two 2000-kw. vertical units and four horizontal units of 800 kw. each. The Westfield plant has four horizontal engines of a total capacity of 800 kw.

PROVISION OF INCREASED POWER CAPACITY

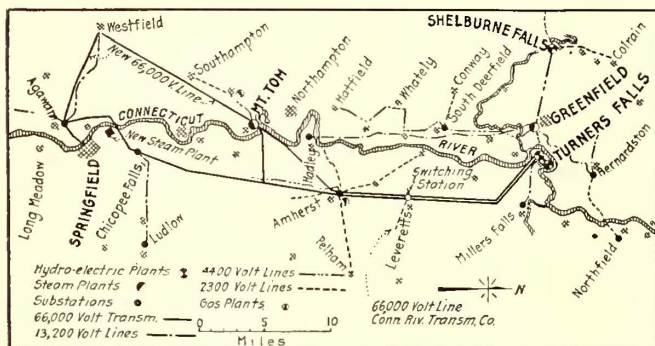
Recent growth of traffic has necessitated the provision of a more adequate power supply, the equipment at Margaret Street being loaded up to its full capacity. Various methods were considered, including a plan for the rebuilding of Margaret Street station for a.c. power generation, with high-voltage transmission and distribution from substations owned by the railway company, but after much study it was decided to contract with the Turners Falls company for the supply of all power except that purchased from the New England Power Company at Palmer.

The contract provides for the supply of direct current at 600 volts at Margaret Street, Springfield, at Ludlow, Westfield and Agawam, in addition to that now supplied at Chicopee. The Turners Falls company’s transmission system, from its main generating plant at Turners Falls, reaches all these points where substations are located, with the exception of Westfield, and negotiations are now under way for the necessary rights-of-way for its transmission lines to that point.

For the present the Margaret Street station will be held in reserve as an auxiliary steam plant and a substation will be built on the property for the railway company’s service. This substation will be reached by a branch 66,000-volt, two-circuit steel tower line 5450 ft. long, crossing the meadows of the Westfield River near the west bank of the Connecticut River to a river crossing 1640 ft. long and thence to a tower in the yard of the plant. The crossing towers are to be 130 ft. high and specially designed with balconies under the insulators to facilitate repairs and replacements. Two three-phase, 6000-kva. water-cooled stepdown transformers are to be located outdoors near the base of the tower, and these will reduce the pressure to 13,200 volts for energy delivery to synchronous motor-generator sets which will be located within the substation building.

NEW SUBSTATION AND EQUIPMENT

The 66,000-volt oil and disconnecting switches are to be located under the tower, the legs of which will be fireproofed with concrete for a distance of 40 ft. above ground. Each incoming circuit passes through two sets of General Electric, KO-26, 66,000-volt oil switches and three sets of disconnecting switches before reaching the transformers. The disconnectors enable the entire substation or any high-tension oil switch to be isolated from the rest of the system, the oil switches being of



SPRINGFIELD POWER—MAP OF TRANSMISSION SYSTEM FOR POWER SUPPLY

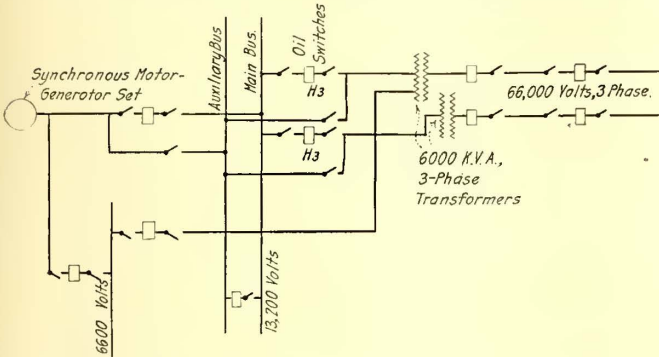
pany (at Margaret Street and Westfield) and three connections for purchasing power, one being with the New England Power Company at Palmer, one with the United Electric Light Company of Springfield, at Indian Orchard, and one with the Turners Falls company at Chicopee.

The total load on the system is about 7000 kw., the rough division between the five sources being: Margaret Street, 4000 to 6000 kw.; Westfield, Palmer and Indian Orchard, 300 kw. each; and Chicopee, 500 kw. The annual energy consumption of the system is about 40,000,000 kw.-hr.

At the Margaret Street steam plant, the chief source of power, there is a total capacity of 7200 kw. in reciprocating engine-driven apparatus delivering energy in the form of 600-volt direct current to the usual feeder

the automatic type and controlled by overload relays. By means of a disconnecting switch-set mounted above the main oil switches and connected with each line by suitable taps the two incoming lines may be cross-connected for parallel operation.

From the transformers 13,200-volt secondary leads run to the interior substation buses supplying the motor-generators. One set of leads from each transformer is carried through a set of General Electric H-3 oil



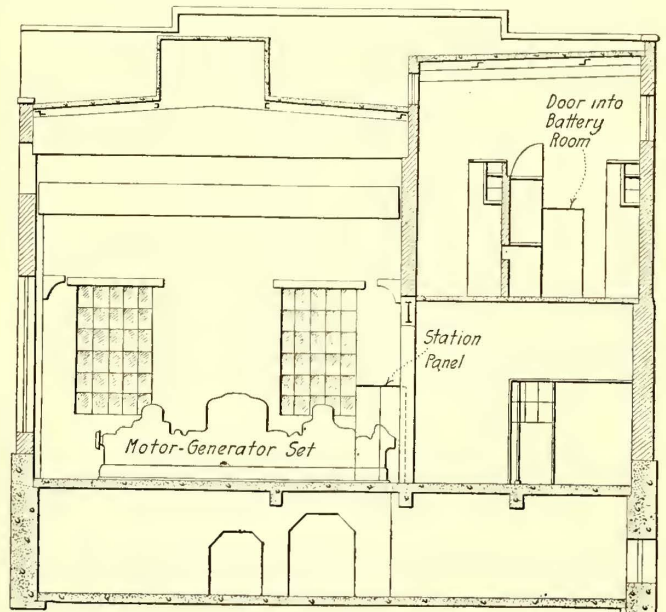
SPRINGFIELD POWER—SINGLE-LINE WIRING DIAGRAM FOR A.C. SIDE OF NEW SUBSTATION

switches to a 13,200-volt main bus, the connections to the synchronous motors being made through a similar set of switches in each case. Disconnects are provided on each side of the 13,200-volt switches, so that these can readily be isolated for inspection and repairs. On the transformer side of each adjacent 13,200-volt switch group a tap is made for each leg of each circuit through a disconnecting switch to the auxiliary bus, and from the latter corresponding taps are run through disconnects to the motor-generator sets, as shown in the accompanying single-line wiring diagram of the a.c. side of the substation. This arrangement enables the motor-generators to be supplied from the transformers directly in case of oil switch trouble and without duplicate oil switch investment. The main and auxiliary buses are cross-connected through a 13,200-volt oil switch, providing for still greater flexibility in the supply of energy to the synchronous motors. There is also a starting bus for these units connected with the transformer equipment by leads tapped into the secondary winding and insuring a supply of energy at half-voltage for starting the motors. General Electric K-12 solenoid-operated oil switches are installed in the circuits from the transformers to the auxiliary bus and from the bus to the motors.

The substation building, which is now under construction, is of brick and steel; fireproof throughout. It is 74 ft. long by 52 ft. wide, with basement, and the motor-generator room is carried up to the roof to a height of 46 ft. As the company is planning to change over its feeder and trolley system in the city of Springfield to three-wire distribution, necessitating the rebuilding of its present 600-volt switchboard, it has been arranged to combine the a.c. and d.c. switchboards into one, which will be located in the new substation. There will be thirty-three panels in this board, which will be of General Electric manufacture. Various interlocking and automatic features will be incorporated in the d.c. section of the switchboard to protect the motor-generators and other apparatus against short-circuiting and to insure the most flexible and reliable operating conditions.

The switchboard will be on the main floor and over it on another story will be the secondary a.c. switching and bus structure. A large door will be cut through the wall between the end of the motor-generator room and the steam plant. The present duct line of the railway company passes through the basement of the substation and will be connected direct to the new switchboard. The operating room, 72 ft. 6 in. x 49 ft. 3 in. in floor dimensions, will accommodate four General Electric motor-generator sets, three of which will be installed at present. Each unit will consist of a 2450-kva., 13,200-volt, 60-cycle synchronous motor of the three-phase type, direct-connected to two 750-kw., 600-volt, d.c. generators separately excited at 125 volts. The d.c. generators are arranged for operation on either side of the three-wire system by reversal of their polarity.

All transformers and oil switches in the substation will be piped for emergency draining, valves being located in the basement so that the discharge of oil can be started immediately without being obliged to approach any unit in trouble. Excellent provision has also been made for the supply of outdoor air for motor-generator ventilation through an intake about 30 ft. 8 in. x 3 ft. 6 in. at one side of the building, this being provided with a grill serving as a screen. On the gallery of the operating room are located all the 13,200-volt and 6600-volt oil switches and bus structures, each switch being mounted in a separate cell with liberal pro-



SPRINGFIELD POWER—CROSS-SECTION OF NEW SUBSTATION IN SPRINGFIELD

vision for inspection and repairs. The use of 13,200-volt energy in the operation of the motor-generator sets enabled a substantial saving to be effected in copper required for substation wiring, switch and bus construction.

ADDED CAPACITY FOR EXISTING SUBSTATIONS

The contract stipulates that there shall be provided at Agawam 1500 kw. in motor-generator sets. This will be installed in two units of 750 kw. each, with 13,200-volt synchronous motors, located in the present substation of the Agawam Electric Company, affiliated with the Turners Falls company. At Chicopee provision is

made for the installation of 1500 kw. in not less than two units. The present capacity there is 1000 kw., which consists of two units of 500 kw. each, and it is planned to install a third of 750 kw. capacity. At Ludlow provision is made for a capacity of 1500 kw., but a subsequent agreement provides for the supplying of this portion of the business by the United Electric Light Company at its present connection at Indian Orchard under a sub-contract with the Turners Falls company. Two 750-kw. Westinghouse rotary converters are supplied by the United company. At Westfield the contract provides for 1000 kw. in not less than two machines. The plans and necessary rights for the Westfield substation have not as yet been secured, but it is planned to build a new substation in this town, to be supplied by a new two-circuit transmission line with Milliken towers at 66,000 volts, running from the end of the present 66,000-volt line at Mount Tom to Westfield and Agawam. From the point of view of service, the new arrangement with more adequate supplies of power at the outlying points of the system is expected to cut down losses and add to reliability.

In connection with the large load to be acquired as the result of the railway power contract, and other increases in power demand, the Turners Falls company is now erecting a steam relay plant in Chicopee. This plant is on the east bank of the Connecticut River just south of the mouth of the Chicopee River, and it will be equipped at present with a 15,000-kw. General Electric turbo-alternator, Edge Moor boilers, C. H. Wheeler condensing apparatus and Stephens-Adamson coal-handling machinery. The switchboard apparatus will be furnished by the General Electric Company and this manufacturer will also install two 6000-kva. transformers through which the plant will be tied to the transmission system. F. T. Ley & Company, Inc., of Springfield, Mass., is the contractor for the station, and also for the Margaret Street substation. Provision is being made for the addition of a second turbine of the same size as the first. This plant will act as a relay against periods of low water on the Connecticut River, and as it is near the southern end of the transmission line in the Springfield district it also serves as an additional safeguard for the street railway load.

TERMS OF CONTRACT

The contract covers a term of thirty years and thereafter until cancelled by either party on two years' notice, with a provision for readjustment of price every ten years, at the option of either party. The power company must purchase additional apparatus as may be necessary during the contract to provide adequate capacity as the load grows, with the provision that any apparatus required to be installed during the last ten years of the contract shall be purchased by the railway company at a fair price. The power company agrees to provide 10,250 kw. of capacity and the railway company agrees to take at least 25,000,000 kw.-hr. per year. The division between purchasing power and operating the railway becomes absolute, the railway purchasing all its power and owning no source of power itself.

This contract for the supply of a large electric railway system by a power company comes at a favorable time in the development of the two companies, both of which derive benefit therefrom. The railway company faced

the expenditure of a large sum for a new plant, some more adequate power provision being absolutely necessary to maintain its service. It has now saved that outlay and can devote its resources to other parts of its business. The power company secures a large load of good load-factor and of a much more secure character than that offered by industrial power users.

C. V. Wood, president, and W. L. Harwood, engineer of power and equipment, represented the railway company in the negotiations. The power company has been represented by its president, Philip Cabot of Boston, and by George W. Lawrence of Greenfield, second vice-president and general manager. The power company's own organization is doing the engineering work required in the construction of the lines and the substations, together with the design of the new steam plant at Chicopee. F. L. Hunt is chief engineer, C. F. Mosher being superintendent of stations and H. D. Seavey superintendent of distribution.

Railway Employees Report Traffic Violations in Rochester, N. Y.

In order to reduce reckless driving on the streets of Rochester the New York State Railways of that city has placed in the hands of its men supplies of postal cards on which to report the cases of traffic violations which they witness. This card is shown in the accompanying illustration. After being made out the cards are sent to the complaint bureau of the safety council of the city Chamber of Commerce and from its office a letter is written to the owner of the machine calling his atten-

Gentlemen:	
I saw the following dangerous traffic violation and would suggest you write and ask the offender to be more careful in the future:	
Hour	(Please check violation)
Date .....	..... Recklessness Speeding
Place .....	..... Chauffeur under 18 years
Number of Automobile .....	..... Driving on wrong side of road
Number of Motorcycle .....	..... Passing another vehicle or street car on wrong side
Number of Street Car .....	..... Cutting Corners
Name and Address of Pedestrian .....	..... Falling to give proper signal on slowing up, stopping, turning or backing
Name and Address of Bicyclist .....	..... Passing closer than six feet to stationary street car
Name on Horse Drawn Vehicle .....	..... Passing stationary street car faster than 5 miles an hour
	..... Obstructing a street car by driving in the tracks
	..... No lights at night
	..... Intoxicated driver, chauffeur or motorman
	..... Jaywalking
REMARKS: (Briefly describe violations not included in foregoing list)	
.....	
Your Signature	
Address	(Your name will be held confidential)

POSTAL CARD USED IN REPORTING TRAFFIC VIOLATIONS

tion to the principal part of the ordinance which has been violated. Records are kept in such a way that when a second report against the same owner or driver is received a second letter of severer tone is sent. If a third report is received the case is reported to the chief of police who calls the offender to his office for an interview. On the fourth offense the offender is arrested and the case is taken up in the police court.

Many of the cards have been filled out by the platform men and other employees. The larger number of these reported drivers of automobiles for passing within 6 ft. of a car step when passengers were boarding or alighting. The plan has apparently been productive of good results, as observations show that the number of traffic violations has been materially reduced since the plan has been put in operation.

Maintaining Interest in Safety Work Competition Reinforced with the Personal Touch Can Be Made Effective in Keeping Safety Work Going

BY HAROLD W. CLAPP

General Superintendent Columbus Railway, Power
& Light Company

THE thing of most vital importance in safety work will always be that of getting and holding the interest of the men to whom accidents may happen or by whom they may be caused.

In the early stages of the safety movement in any organization the bulletin boards can be made sufficiently attractive and instructive as to become the center of interest and main source of information on the subject. Then there comes a time when the safety supervisor, regardless of how freely he mingles with the men and talks their problems over with them and regardless of how adept he is in preparing literature, must devise other means of reaching them. They become tired of the same old story and want new ideas.

Our company operates a street railway in a city of 250,000 people. Toward the close of the year 1916, after having shown some very remarkable results in a two-year period in the prevention of public accidents, we thought we perceived signs of a slight failing in interest in safety work on the part of conductors and motormen. We were facing *the* problem. What would best reach them? Could we sufficiently improve our efforts to gain their attention through attractive literature? Would we accomplish anything by appealing to a sense of duty better performed and thus resulting in fewer accidents? After due consideration we started an accident contest under these conditions.

A SYSTEM OF GRADING WAS ADOPTED

Each accident as reported to the claim department was rated according to its merits after a prearranged schedule of assigning a certain number of demerits to each class of accidents. A maximum and minimum of demerits was set for each class, the minimum in all cases being 0 and the maximum in accordance with the comparative seriousness which it might be possible for each class to assume. For example, the rating committee used its discretion in charging from 0 to 25 demerits in the case of an automobile accident, or in the case of a leaving-car accident from 0 to 15, just as each case seemed to warrant. If a man was not at fault in an accident he was not charged with the demerits, etc. Demerits in each case were entered on the personal record of the man responsible.

The contest ran for the first six months of 1917. Each motorman who came through the contest period with a record clear of demerits received \$7.50 and each conductor with a clear record received \$6.50.

Based upon our accident records for previous years, we believed we would have at least 225 men out of our total of 680 come through with clear records and thought that the stimulus of the contest might increase this 15 per cent, making a total of 260 men.

At the close of the contest we discovered that 443 of the total of 680 had clear records for the contest period. Need it be asked whether the contest paid when our estimate of the results was increased 70 per cent above our expectation? We thought so much of

the results of the six months' contest that we started another on July 1, to run for six months.

RESULTS OF THE COMPETITION

The contest did five things for us:

1. It continued the interest of the conductors and motormen—"the men on the job"—upon the high plane to which our efforts had brought it.

2. Taking into consideration the changed operating conditions which obtained as compared with previous years, the number of accidents was reduced and the expenditures for claims lessened.

3. The analysis and rating of all accidents gave us a line on the work of every man handling the cars. We found these records of value whenever it became necessary to decide whether a man should be retained.

4. The contest cost us approximately \$2,500 in awards, a 45 per cent increase over our original estimate, but the good results produced returned several times that much to us.

5. When the names of the winners were posted at the close of the contest many protests were immediately registered. This was exactly what we were looking for and desired. The men could not see why some had come through winners after having had certain accidents while they had had apparently less serious ones and had lost out. The men were asked to make their protests in person to the general superintendent, the head of our operating department, who laid aside other work to hear them. The cases were thoroughly reviewed and every detail of the reasons for the demerits being assigned in their cases was clearly explained. During the discussions we found instances where incomplete accident reports made by some men were responsible for their losing the awards, and whenever we were thoroughly satisfied that such men were really not at fault we cleared their records and the awards were made to them.

Seventy-seven such cases were reviewed and the records of seventeen men were cleared. And here is the best part of it: While our men already knew that the superintendent was a man who could be reached and talked to at any time, this gave them further and conclusive proof of it, and we rather think that they were not at all hesitant in telling their fellow workmen about it.

If a safety campaign, whether it be of short or long duration, is to be successful, interest in it must be aroused and maintained, and to do that you must get the "personal touch" into it. We have found that this contest meets our needs in getting in personal contact with the men, and that it fits in well with our local conditions.

It is good, as far as it goes, to talk with the men through bulletins, rule books and other literature, but one must rub elbows with them to get the best results. Our men again found opportunity to realize that the "boss" was a "real fellow," but would they remember this as they went about their daily duties? Most certainly they would, for above all else men like to know that the man from whom they take orders is thoroughly in sympathy with them and willing to help them out of their difficulties. In other words, they want him to be just a plain, every-day man, one of themselves. He is not the loser thereby, but is very much the gainer.

For National Defense

An Important Service Which the Electric Railways Can Render to the Nation Is a Conservation of Materials and Man Power

BY J. M. BOSENBURY

Superintendent of Motive Power and Equipment, Illinois Traction System.

PRESIDENT WILSON'S proclamation of April 15, 1917, described the railways of the country as the arteries of the nation's life, and, correspondingly, the public generally have come to a realization that the railways, forming so important an element, may properly be directed to render services in this national extremity, in many ways heretofore considered inconsistent with public welfare. The press has already announced plans for curtailment of service, not only that the equipment and facilities thus conserved may be available for other purposes, but in order that in keeping with a proper patriotic spirit the luxuries of transportation may be eliminated, and every item of labor and expense connected therewith reserved for direction into other more necessary channels. Announcement of the withdrawal of passenger trains causes no stir—the traveler accepts his inconvenience as a part of his duty; the shipper accepts the direction of freight facilities, though involving unusual conditions, as a sacrifice to the nation's necessities. Everyone expects that important and unusual uses will be made of the steam railroads, but few have considered the electric railway as a great possibility in the promotion of national preparedness and effectiveness. To be sure, the electric railways, excepting in certain sections, will not be called upon to perform the service of an artery in the transportation of the nation's goods, and to this extent it may not appear important that their efficiency be preserved, but undeniably they render an indispensable service to each industrial community. This service has long since been a part of the daily lives of the persons upon whom the nation now depends. Therefore, in the national interest, it must be continued, if not upon the present basis, at least upon the most practicable basis consistent with the requirements of the army of industrial workers. In maintaining such a service, it is readily seen that use is made of two most essential elements of a formidable and effective nation, namely, mechanical power and man power; and, curiously enough, the electric railway organizations are facing the seemingly paradoxical situation where they are required to perfect service and still economize in, or lose, one or the other of the two fundamental elements.

Unquestionably a new era is at hand, and any subsequent movement must be considered purely from its effect upon the resources and efficiency of the nation. Accordingly, in the conservation of mechanical power, which means coal and labor, it is entirely in order to eliminate the luxuries of the service. This may be taken to mean the establishment of a service in keeping with the reasonable requirements of a community consistent with the conditions at hand, rather than in conformity with popular demand as heretofore voiced through commissions, legislatures and other public bodies; and any requirement incompatible with these principles must promptly be denounced as being derogatory to the best interests of the nation. Correspondingly, cars must be removed from service, headways

must be lengthened, schedules must be altered, and, in fact, all elements now constituting a waste or luxury, depending upon the viewpoint, must be so arranged that each pound of coal or gallon of oil will produce most effective results. Both the coal and oil problems have already confronted electric railway operators in some sections, and there is no assurance that a scarcity in either will not, of itself, force curtailment of service. Whatever the result may be, insofar as it falls short of present practices, the discomforts will and must in this case, also, be accepted by the people as a part of their sacrifice.

CONSERVATION OF MAN POWER

It is in the distribution of man power where the electric railways are more directly concerned, not because it seems necessary to release men for service at the battle front, but because a great portion of the employees, the car men, are particularly well fitted, by experience and physical condition, for many forms of national use. Their physical examinations, on acceptance for car service, are well up to the military requirements, which is also the case with respect to age, and their experience with the public has given them a breadth of vision and understanding which fits them well for intelligent activity in many directions. Raids were made upon their ranks by the more prosperous industrials, even before the advent of military necessity, and plans have been developed to great length for substituting women in many instances. Consider the situation confronting the electric railway operator when the selective draft shall have secured its quota, and still further if another draft may be required.

In the final analysis, individual effort, so far as the nation's requirements are concerned, will be judged by the relative importance of the work performed. Certain of our men, and perhaps large numbers, are to go to the battle front to promote the cause to which the nation is committed. Can it be considered consistent, under such circumstances, that others equally fitted for such service, or other service of like importance, are directing their energies to greatest advantage while acting as conductors of street cars? Experience in European countries has indicated that once the situation became pressing, the men in electric railway service were quick to respond to the call, with the result that their places were promptly and efficiently filled by women.

Considerable headway has already been made in conservation so far as electric car operation is concerned, in that many railways have prepared, for purely economic reasons, to operate cars with one person instead of two, as formerly. Naturally, the economic necessity for such action has brought forth many improvements in operating functions and the system as a whole, has reduced the work to be performed to such a point that one man easily and efficiently accomplishes what was previously performed by two men. Now, the movement assumes much greater importance because, in the conservation of man power, the way is clear to delegate this work to women. The actual physical requirement for car operation in this day is not great, particularly if the car be properly equipped, and when the element of safety can be guaranteed, regardless of whether man or woman operates, it will be seen that should our part of the world's struggle become great, or, in fact, on anything near the proportion of other nations in-

volved, the possibility of women operating our cars is not far distant.

The time is here to conserve the mechanical power, as indeed it always has been, but more particularly now, and should the extremity be reached when man power shall be in such demand as to create a scarcity, then plans made at this time will readily mature to practical possibilities. The electric railway, requiring, as it does, some of the same elements required by the nation, has, indeed, an important service to perform.

Autobus Operation Proves Very Costly Run as Temporary Service Where Car Line Was Needed but Was Not Financially Possible—Expenses Were About Double the Income During Five Months' Operation

BY ROBERT M. FEUSTEL

President Fort Wayne & Northern Indiana Traction Company

FOR some years the Fort Wayne & Northern Indiana Traction Company has been besieged by patrons in the northwest section of Fort Wayne to build a new line to serve a territory lying between two existing electric railway lines but separated by about 1 mile. The patrons objected to the maximum 1/2-mile walk, and wanted a new line somewhere approximately midway between the two existing roads. There was a difference of opinion as to the proper location for such a new line. Finally, in the hope of appeasing the public, autobus service was inaugurated, first, to give temporary service until such time as the company could afford to build a new line into this territory, and, second, as an aid in determining the proper location for the line.

For this purpose, four sixteen-passenger Studebaker buses were purchased at a cost of \$1,465 each. These cars are equipped with solid rubber tires on the rear wheels and with pneumatic tires on the front wheels. They are painted the standard lemon color adopted by the company for its electric railway equipment.

The route established for the bus line is entirely in the residential district, and its termini are at points on the two lines now serving this northwest section of the city, approximately 1 1/2 miles from the ends of these lines. The entire route is over paved streets, and the only difficulties met in operation are two railroad crossings at grade and two 3-per cent grades of about 400 ft. length. These grades may offer some additional difficulty during the winter months, when it will probably be necessary to use chains and thus increase the rear tire wear. The length of a route operated is approximately 10,700 ft.

EXPERIENCE IN BUS OPERATION

The bus line was placed in operation on March 16, 1917, with a ten-minute schedule maintained for eighteen hours of the day. It requires only two buses to give this schedule, but due to numerous pull-outs for repairs, two additional buses are needed to maintain service. Stops are made at every street corner, as with our regular car service. The experience thus far would indicate that the frequency of stopping and starting the buses will be a very important factor in determining the life which can be obtained from this equipment. It is our opinion that stops should be made only at every other block.

TABLE SHOWING GROSS REVENUE AND BUS MILEAGE OF LINE

Period	Gross Revenue	Bus Mileage
March 16-31	\$156	4,522
April	489	11,475
May	576	11,776
June	623	11,368
July	681	10,639
Total	\$2,525	49,780

Average gross revenue per bus mile 5.072 cents

The tire expense for the solid tires on the rear wheels is very high, as shown in the accompanying table of expenses. The revenue assigned to the bus line has been the entire cash and tickets actually collected on the buses. The regular six-for-a-quarter electric railway ticket is good on this line, and transfers are issued to connecting railway lines and honored from the latter lines. The transferring appears to be about equal in both directions.

While the revenue has increased each month, it is very doubtful that the line can be made to pay individually for its full operation. A study of the revenues for the two lines with which the buses connect, for the past three years, indicates that the additional business created by virtue of the bus line acting as a feeder is not particularly large. The revenue for the electric lines serving this territory is higher per car-mile than the total revenue per car-mile for all our lines, including the autobus line, since the beginning of the bus operation.

The one-man operation on the buses is proving very satisfactory. Motormen from the city lines have been employed as chauffeurs at an advance of 2 cents per hour over the regular city rate. The location of the bus line has been changed once since the beginning of operation, as a means of determining the effect of different locations upon the volume of traffic. Some minor changes in the bus operation would probably be made if a permanent line were to be established in this territory. The experiment has been profitable as a means of determining the proper location for a new line. It has also developed the fact that as an independent line, even in a reasonably thickly-settled residential district, it could not be made to pay unless it were possible to reduce repair bills and increase the rates.

Following is a statement of the operating expenses for the period mentioned, and also the cost:

TABLE SHOWING OPERATING EXPENSES AND COST PER BUS MILE OF LINE

	March	April	May	June	July	Total	Cents per Bus Mile
Repair labor	31.85	38.51	62.84	115.49	66.61	315.30	0.623
Repairs	0	0	11.30	147.51	0	158.81	0.319
Misc. material	2.80	1.09	12.36	8.10	8.41	32.76	0.066
Front tires	0	87.68	81.23	0	0	168.91	0.339
Rear tires	0	0	0	239.40	314.98	554.38	1.114
Tire repairs	0	1.75	9.00	0	47.50	58.25	0.117
Lamps	0.25	1.50	3.01	3.58	0	8.34	0.017
Battery repairs	0	0	0	2.61	11.20	13.81	0.028
New battery	0	27.70	0	0	0	27.70	0.056
Gasoline and oils	99.17	340.57	274.42	270.85	244.01	1229.02	2.469
Registration fee	20.00	0	0	0	0	20.00	0.040
Chauffeurs' license	14.00	0	0	0	0	14.00	0.028
City license	40.00	0	0	0	0	40.00	0.080
Liability bonds	0	80.00	0	0	0	80.00	0.161
Depreciation at 5 per cent a month	146.53	293.06	293.06	293.06	293.06	1318.77	2.649
Operators' wages	149.29	337.25	361.57	337.57	350.10	1535.78	3.085
Total	503.89	1209.11	1108.79	1418.17	1335.87	5575.83	11.201

Car Aids in Publicity Work

The Function of the Car Pamphlet—How the Brooklyn Rapid Transit Company Uses This and Other Devices in Promoting Better Public Relations—The Occasional Use of Controversial Pamphlets Is Justified

TIS a mistake, so the Brooklyn (N. Y.) Rapid Transit Company says, to depend entirely upon any one publicity device for the betterment of public relations. In this railway's experience the straight news story, secured through co-operation with a reporter; the formal statement, issued in an official way; the display advertisement, used for presenting statistical and argumentative facts; the car pamphlet, car cards and posters, etc.—all these have proved of value in reaching the mind of the public.

The use of the first three devices, or those representing the utilization of newspaper facilities, was described at length in the *ELECTRIC RAILWAY JOURNAL* of Aug. 25. It now remains, therefore, only to show how the car pamphlet and allied devices are used to supplement the publicity work through the general press.

FUNCTION OF THE CAR PAMPHLET

For electric railway lines in a metropolitan district, it is believed, the primary way to reach the public is through the newspapers. This is true because most of the leisure time of the average car rider is taken up with his indulgence in his chronic "newspaper habit."

Owing to the progressive crowding of newspaper space, however, there are certain subjects that are not susceptible of sufficiently expansive treatment in the daily press, if treated therein at all. To put these with emphasis before the average rider the car pamphlet is occasionally a most useful aid.

The city car rider can be reached in this manner, in spite of his newspaper preoccupation, for his bump of curiosity is large. Yet he is jealous of his time, and the car pamphlet can easily lose its attractiveness to him if he sees it too often or if it contains matter of trifling importance.

HOW THE B. R. T. USES CAR PAMPHLETS

Upon such an understanding of the function of the successful car pamphlet in city service, the Brooklyn company has based its work. It uses this device as a standard means of communicating with the public when it desires to reprint effective advertisements; when it wishes a longer discussion on some point than a news story could carry; when it desires to give wider publicity to some letter to a public official which has lost its news value for the press; when it sees a good opportunity to point out some safety or other lesson to the car rider, or to indorse some worthy public enterprise in which the car rider should be interested—in short, when the subject of the pamphlet is one which the newspapers have already covered or would not desire to cover.

These pamphlets (4½ in. x 7 in.), usually in the form of a four or six-page folder, are published once a week, or once a month, or perhaps not even that fre-

quently—just as the occasion arises. The issue may be from 150,000 to 500,000 copies, but the average number is about 250,000. This means that about one person in every eight in Brooklyn takes a pamphlet out of the little box in the car. The illustration on the next page will give an idea of how the front of the pamphlets is arranged typographically to attract the car rider's eye.

WHAT SOME OF THE PAMPHLETS CONTAIN

To give a better idea of what the B. R. T. car pamphlets have contained, it may be said, for example, that during 1915 and 1916 the company issued eleven safety and accident pamphlets on topics such as the following:

"OPEN CAR SAFETY: We Can't Insure It Without Your Help."

"AS TO RESCUES: Sometimes Your Luck Saves You; Sometimes the Conductor or Motorman. Why Not Rescue Yourself in Advance by Being Careful?"

"SAVING TIME: Sometimes Caution Will Help You Do It Better Than Hurry."

"OUR MOTORMEN AND YOUR DRIVERS."

"SAFETY PROBLEMS ON THE ELEVATED ROADS: Carelessness and Recklessness Our Enemies There, as on the Surface Lines."

"THE PUBLIC SAFETY TAX: Costs the Railroad a Lot of Money—You Can Pay Yours by Giving a Little Thought—Why Not Start Now?"

The new rapid-transit construction in New York City has naturally afforded the company an opportunity to talk to its patrons regarding the progress of construction work, the delays imposed by controversy among city officials, the opening of new lines and the like. In June, 1915, the company described the operation of the new Sea Beach line, "the fastest and finest rapid transit railroad in the world." In March, 1916, a pamphlet showed how the "dividend" to city taxpayers the last year on one subway contract alone had been more than \$4,000,000.

When the company introduced its new center-entrance surface cars, a real estate dealer wrote that they hurt the transportation business, for he had never seen "anybody but those from the Old Ladies' Home who wanted to travel in them." In this case an eight-page pamphlet welcomed the criticism, and not only disposed of the specified objections in a courteous and irrefutable manner, but also served to impress upon the riding public various advantageous features of the car that might have been overlooked. The frank discussion of the points raised, and the request for further criticisms or suggestions as to possible improvements in the car, helped materially to bring home to the car riders the desire of the company to please.

A little humor is always helpful. In one instance in mind, to point a moral, the company took advantage

of an imaginative bill introduced by a facetious legislator at Albany. Of course, it was absurd to think that every farmer ought to "hire one more hired man than his work requires," and that all bulls, when moving on the highway or in unfenced areas, should be "equipped with a bell of not less than 50 lb. in weight, a steam whistle and an electric headlight of at least 1000 cp." It was not such a far step from this, however, to the statement that the electric railway business has had almost every known brand of regulation tried on it. It may well be supposed that many readers did a little wondering as to whether utility regulation is invariably distinguished for its sanity.

Two instances may be cited to show how the car pamphlet is used to support a worthy work. In July, 1916, the company reprinted an appeal made by Major Mitchell for the minimization of unsightly and unsanitary street conditions throughout the city. Shortly before this the company had issued a pamphlet explaining the work of the Anti-Litter League. This not only assisted a good cause but permitted the company to remind car riders that whether the cars vary in neatness when they leave the company's car houses and their condition afterward simply depends on the tidiness of

the community. In Brooklyn a persistent denunciation of utilities is deemed by a certain type of man to be the readiest way to political preferment. Sometimes such a man secures the ear of the party leader and obtains a position of influence. He keeps up the attacks; he makes good newspaper copy, but any reply of the company is smothered under fresh news, for the press lends itself better to attack than to defense.

To meet such cases as they occasionally arise, the company has found the car pamphlet of great utility. If a politician issues a false statement, he is called by name and his lack of veracity is proved. If an investigation is based upon a palpable distortion of facts, this is shown. Sometimes, when the newspapers have printed only an abstract of the direct testimony in a case, a presentation of the cross-examination is very illuminating to the public. In a case in point, relative to service, the comparative detailed testimony of an inexperienced commission employee and a company expert was instrumental in showing the baseless character of an indictment that had publicly been made against the company.

The company is firmly of the opinion that the controversial pamphlet has a curbing influence upon unjust attacks. It is realized, however, that this device should not be used all the time or even frequently, but should be regarded as a club in the closet—as a final resource in fighting newspaper publicity with publicity. The company does not desire to appear quarrelsome, for that would only prejudice its own case, but it believes in standing up for its rights like a real man. The thinking public understands this attitude.

CAR CARDS AND POSTERS

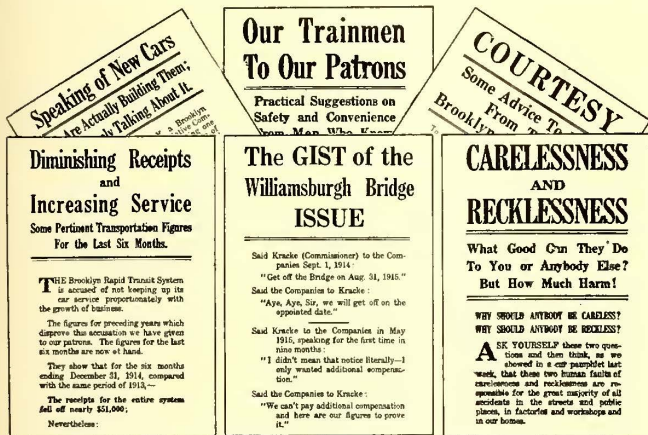
While the chief publicity appeal of the company is made through the press and the car pamphlet, the value of car cards and posters (and other posters displayed in stations and on company property) is not deprecated. If an idea can be presented graphically, or in twenty-five, ten or even two words, these devices are very useful.

Thus far, however, they have been used principally in safety work. They are also utilized in connection with good-will publicity—that is, in announcing or supporting worthy public objects, especially when there is some connection with the company.

RESULTS OF THE WORK

Among the B. R. T. car publicity devices, therefore, the pamphlet is of widest application. In times when the newspapers are fairly bursting with news, the car pamphlet, judiciously used, has secured and held sufficient of the car rider's attention to drive its message home. Often the company has received requests for extra copies from readers interested enough in the discussion to desire to make sure that the pamphlet is seen by friends who might not have taken any from the cars. All in all, the car pamphlet has been most efficacious in helping to establish better public relations in Brooklyn.

More than seven times the population of the United States was carried on the elevated and subway lines in New York City during the year ended June 30, 1917. The Interborough Rapid Transit Company carried 763,574,085 passengers, an increase of 79,821,971, or 11.67 per cent over the preceding year.



SAMPLE CAR PAMPHLETS ISSUED BY BROOKLYN RAPID TRANSIT COMPANY

the passengers. With a route known to be surpassingly dirty, the plain inference to the riders on that line could not but prove beneficial.

Another important use of the car pamphlet has been to bring the employees into closer touch with the public. One pamphlet, for instance, outlined to patrons practical suggestions for safety "from men who know," the operating employees. These covered points about boarding, alighting, conduct on the car and general matters. Such suggestions, secured as the result of an invitation to the employees' safety committees, helped the public better to understand the carmen's problems and also left a good taste in the mouth of the employees.

THE CONTROVERSIAL PAMPHLET

Besides the foregoing the company has put out pamphlets containing reprints of advertisements, official statements and newspaper editorials on company matters, as well as pertinent operating facts and figures. Lately, the car pamphlets have been used to show the public the increased costs of operation under present conditions. The one big class of pamphlet not thus far described, however, is the controversial one.

The use of this, it is felt, depends in general upon

To Eliminate Fare Increase Delays

President Brush Recommends that Companies Have Right to Increase Fares Subject to Later Review by Commission

M. C. BRUSH, president Boston (Mass.) Elevated Railway, appeared before the legislative recess commission on street railway finances, at Boston on Sept. 6, and advocated granting operating companies authority to establish fare increases, subject to later review by the Public Service Commission, in place of the present plan of deferred rate increases dependent upon the consent of the board after investigation. Mr. Brush suggested that justice to the car rider, fairness to the investor, and ample provision for extensions and improvements might be provided by the following method:

The directors of an electric railway, after making a proper investigation and estimate of their business for the ensuing year, and finding or foreseeing net returns insufficient to yield such fair return as is necessary to obtain additional capital, should be authorized to establish and file with the Public Service Commission such a revised tariff as in their judgment is necessary. This should go into effect at the expiration of thirty days.

If the commission at any time thereafter should find, after such investigation as it deemed necessary, that the new tariffs were, in its opinion, in excess of those necessary to produce a return of 6 per cent, or such greater return as might be required to invite additional capital, it should so rule. At the same time it should point out in what respects the management was not prudent or efficient to a degree sufficient to effect substantially the net return and to warrant a modification of the tariff. The commission should also state what tariff it believed proper as the result of such suggested economies.

If a company against which such finding had been made deemed such reduction unfair it should have the right to appeal to the courts upon those points criticised by the commission, with a view to having a court decision as to whether or not the directors of the company had exercised reasonably good managerial judgment in the performance of their duties.

Any tariffs thus once established on which no order of the commission had been rendered should continue for a period of not less than one year from the date of establishment. Any tariffs fixed by the commission which the company had accepted, or which the company had not accepted but which had been upheld by the court, should continue for a period of at least one year from the time of such commission-accepted finding, or, in case of court decision, one year from date of such decision. In case of appeal to the courts, the fare established should continue until the decision.

By this means, when the management of the property had not been reasonably efficient, any tariffs which it might have established could be changed, provided the company accepted the decision of the commission. In its failure so to do, the tariffs could be changed at the time of the court decision provided the court rendered a decision supporting the commission in its finding.

Of course, said President Brush, there are cases in Massachusetts where lines or companies exist which

never have earned, do not now and probably for years will not earn a fair return, or in some cases not even operating expenses. In some of the cases it is likely that an increase in fare sufficient to yield theoretically a reasonable net return, based on the present number of passengers, would in fact so reduce the number of passengers as to bring the earnings below their present amount. Under such circumstances the community affected should either permit the company to take up the lines and sell the material, if the stockholders so desired, or should subsidize the company, or take over, own and operate it.

Furthermore, in order to prevent excessive dividends, the company should be required after any increase in fare to make proper provision for depreciation, obsolescence, etc., and should be prohibited from paying a rate in excess of 6 per cent, unless a higher rate became necessary to invite additional capital. Any surplus which might be left over above a fair return should be put into a special fund to be used in lieu of capital for such purposes as the commission might approve. By so doing proper public authorities would have over a company a constant control that would prevent it from arbitrarily raising fares to pay unfair dividends. The payment of excessive dividends could and should be absolutely prevented by this means. An electric railway in an established community should be so safeguarded in all respects that the payment of more than reasonable dividends would be unnecessary to insure its stability.

Another element of importance in the suggested system would require that all bills affecting electric railways introduced in the Legislature should be referred to the Public Service Commission for prompt report, in order that it might make clear to the Legislature or legislative committees just what effect each bill would have upon the industry and the public.

In concluding his recommendations, President Brush stated that he was not suggesting the modification of any of the powers of the Public Service Commission except to provide for proper supervisory powers rather than practically administrative powers. The act which established the commission provides in regard to orders that "before making such order the commission shall consider . . . the financial ability of the carrier to comply with the requirement of the order." This provision of the present law is intended to give the investor some protection, but it has proved inadequate. The commission should not only consider the financial ability of the company to comply with an order, but it should also make a definite finding as to the financial consequences of such compliance, and should allow such readjustment in rates or service as might be necessary to cover the increased cost of complying with the order. Under this provision the commission could require any amount or kind of service, if it simultaneously made provision for covering its cost; but it should not be permitted to require service and deny to the company the means of meeting the added expense.

A number of second-class compartments without seats are now used in Paris according to the 1916 report of the Metropolitan, the Paris Underground Railway. These are provided for the special convenience of passengers with bulky parcels.

AMERICAN ASSOCIATION NEWS

Program for the 1917 Conference

Secretary Burritt of the American Electric Railway Association announced this week that the conference of the American Electric Railway Association, which will take the place of the convention usually held during the second week in October, will occupy one day only and will take place in New York on Oct. 9. It will be held in the United Engineering Societies Building, at 29 West Thirty-ninth Street. The subjects to be discussed follow:

General survey of electric railway problems.

Is the "war bonus" practicable as a means of wage adjustment in the electric railway industry?

Female substitutes for trainmen.

Pending applications for fare increases in New York State.

Topical discussion of various methods of increased fares.

a. Charge for transfers.

b. Increases in flat rates for present zones.

c. Shortening present single-fare zone.

The names of those who will present papers on these subjects have not yet been announced, as acceptances have not been received from all. It may be said, however, that the first paper, or that giving a general survey of present electric railway problems, will be presented by President L. S. Storrs and in a sense will take the place of the usual president's address.

The other papers will then outline the principal methods which have been suggested for meeting these problems.

The executive committee hopes there will be a large attendance from both railway and manufacturing members of the association. There will be no advance registration.

Coal Economy Urged for New England Power Plants

The power plant economy committee of the New England Coal Committee (a branch of the national defense organization) has issued a statement urging all users of coal to endeavor to secure the utmost economy in the burning of coal for power, light, and heat during the coming winter, and offers to send an inspector, at cost, to any plant to investigate and report upon the prospects of obtaining better economy as a war measure. The statement is signed, among others, by President M. C. Brush of the Boston Elevated Railway; President C. L. Edgar of the Edison Electric Illuminating Company of Boston; President Howard Coonley of the Walworth Manufacturing Company of Boston, and J. F. McNamara of the International Brotherhood of Stationary Firemen. The statement follows:

TO THE COAL USERS OF NEW ENGLAND

Owing to war conditions a most serious situation confronts the coal users of New England during the coming winter. In previous years two-thirds of New England's coal supply was shipped by water in large steamers and barges towed by tugs. Our Government requires every possible ship capable of crossing the ocean and every possible tug for mine sweeping and submarine-spotting. Our

railroads cannot possibly do this extra work—we must help the Government by saving coal. It is not only an absolute necessity for our own protection, but a patriotic duty. In view of this emergency it is absolutely essential that the utmost economy be used in the burning of coal for power, light and heat, and the New England Coal Committee would urgently call this matter to your attention.

We do not advocate costly expenditure to make your boiler plants more economical, for, owing to the probable delay in furnishing all material for providing such improvements, the work could not be completed in time to be of use the coming winter. We do urge, however, that stricter attention than ever be paid to the upkeep and maintenance of existing plants, so that greater efficiency may be obtained therefrom.

The greatest enemies of efficiency in boiler plants come under two general heads—lack of cleanliness by allowing soot or scale to accumulate on boiler tubes and lack of repairs in allowing leaky brick work of boiler settings and leaky baffles, and without the expenditure of any great sum of money, marked increase in efficiency may be obtained by giving attention to these simple points.

Increased economy may also be practised by closer attention being given to the firing of coal and the number of boilers kept in operation for a given load. It is better economy in general to run fewer boilers at their full capacity than it is to keep in operation a larger number of boilers running underloaded.

We would urge upon all plants both large and small that accurate daily records be kept of the amount of coal burned and other operating conditions and that these records come under the direct attention of the responsible managers of the plants who should urge upon their engineers the absolute necessity of the most economical use of coal as a patriotic service.

We would also urge the hearty co-operation of the men who actually fire the coal. If unable to serve their country by enlisting in its military or navel forces, a few pounds of coal saved by each one every day during the coming winter will in the aggregate amount to enough to send many a ship loaded with supplies for our boys at the front.

Upon request, the New England Coal Committee will gladly send an inspector to investigate and report on conditions in any plant, charging only a fair price to cover the bare cost of services.

Another Case Presented at Albany

"Fare increase or bankruptcy" was the consensus of the argument presented at the hearing in Albany on Sept. 5 before Commissioner Carr, in the matter of the petition of the Orange County Traction Company, Newburgh, N. Y., for authority to increase its fares. In the testimony it was brought forth that the corporate deficit of the company grew from \$10,400 on Dec. 31, 1916, to \$14,578 on June 13, 1917.

Counsel stated that sheer necessity is compelling the petitioner to seek authority to increase its rates of fare in Newburgh from 5 to 6 cents and to 10 cents on its Orange Lake line. "We would be glad to avoid this increase if it were possible," he declared, "but we either must get the increase or else go into bankruptcy." He stated that, as far as he knows, there are no serious objections in the city of Newburgh to the proposed fare increase.

Fire and Accident Prevention Day

The National Fire Protection Association and the National Safety Council have selected Oct. 9 as fire and accident-prevention day. It is expected that local trade and other associations will co-operate with the national bodies in making the exercises of the day impressive and effective. Last year meetings, parades and other events aroused a great deal of interest among workmen and citizens. A handbook has been prepared to furnish suggestions for the celebration of the day. Copies can be secured from the office of the Council, Continental & Commercial Bank Building, Chicago, Ill.

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

Whitewash Car Makes Quick Work of Painting Right-of-Way Fences

BY ARTHUR W. REDDERSEN

Superintendent Motive Power Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind.

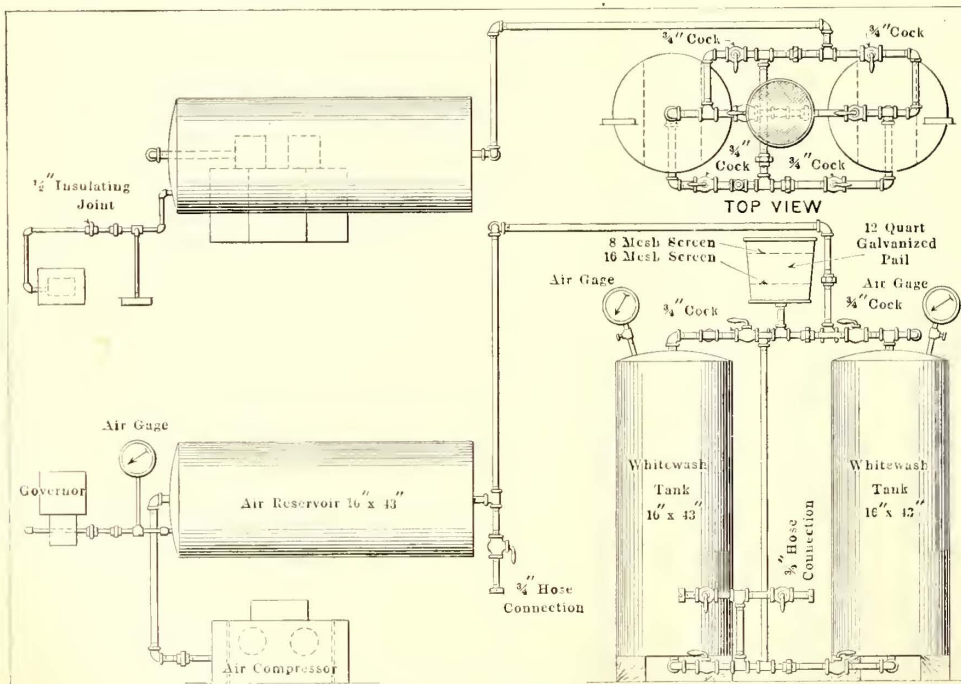
As a rapid means for whitewashing fences and cattle guards along the right-of-way, and shop interiors, etc., this company has equipped an old motor car with apparatus with which to do this work by spraying. Three old air tanks, one for an air-storage reservoir and the other two for whitewash tanks, were installed inside the car and supplied with air from an old AA-1 compressor. The whitewash is mixed in a barrel and poured into the two whitewash tanks. By means of an arrangement of the valves and piping, clearly shown in the accompanying drawing, air is admitted to a whitewash tank and the contents are forced out through the hose connection. The process is continuous, for while one

43-in. steel tank, and the governor is set for cutting in and out at 80 lb. and 100 lb. respectively. A slight adjustment of the valve at the spray nozzle keeps the pressure about constant for uniform whitewashing. A special air connection at the bottom of each whitewash tank was provided for agitating the mixture, should it show a tendency to become thick at the bottom after standing a while. Also an air connection for blowing the dust off the surface to be whitewashed is provided. In many instances, the painters stand on a platform on top of the car and direct the whitewash spray from this point of vantage.

Higher Boiler Pressures and Temperatures

In discussing the subject of higher boiler pressures and temperatures recently, J. C. Rutherford, Chicago, Ill., called attention to the fact that since it is now quite

common practice to maintain a vacuum within 1 in. of absolute, the simplest, and, in fact, the only other direction in which more energy may be obtained from the steam is to raise the steam pressure. A steam pressure of 200 lb. per square inch may be considered high for small stations, although it is commonly used in the larger ones, whereas 225 lb. per square inch is being used in some stations, with 350 lb. per square inch in possibly a few isolated and exceptional instances. It will probably be a long time before pressures in excess of 225 lb. per square inch will be considered for the small stations, partly from considerations of safety, and because of the necessary limitations in personnel and fa-



PIPING CONNECTIONS FOR WHITEWASH CAR

tank is in operation the air is cut off the other, and it is filled with the whitewash solution. When the first one gets about dry, the supply to the spray nozzles is changed over to the other tank by simply closing one valve and opening another.

The air reservoir used with the outfit is a 16-in. x

cilities, and partly because operating conditions are rarely such as to permit offsetting the higher cost of apparatus. The smaller stations might find it a more fruitful move to give attention to scientific firing and high vacuum, rather than to higher steam pressures. It is a very different matter with the large

stations, however, with their much heavier loads, load factors, and better facilities for repair, maintenance and supervision.

No doubt the standard pressure may be said to be 200 lb. per square inch in the majority of stations, at 200 deg. Fahr. superheat, equivalent to a temperature of 600 deg. Fahr. Higher pressures require higher strength of structures withstanding them—boiler, pipes, and fittings, economizers, turbine parts, etc.—but higher heat losses are also to be expected. While in time doubtless design and the treatment of metal will solve the mechanical problems, a stage must be reached when the greater heat losses and mechanical difficulties will cancel the gain in over-all efficiency.

Effective Way of Removing Concrete Paving Foundations

Charles H. Clark, engineer maintenance of way Cleveland Railway, has recently made use of a scheme which proved to be very effective for breaking up the concrete paving foundation in paved streets where a new line was to be built. The shovel was taken off an electrically driven Thew automatic shovel, and a 3200-lb. weight was arranged to be lifted and dropped by means of the shovel mechanism. In operation this weight is lifted about 8 ft. high and dropped on the concrete surface after the brick has been removed. The shovel is moved forward under its own power at the rate of about 3 ft. a minute, and by this means a strip of concrete 8 ft. wide is completely broken up at that rate. This was the record made in connection with the building of a new line on East 156th Street. Mr. Clark states that the machine equipped with this weight will take the place of about thirty men engaged in breaking up the concrete manually.

No trouble was experienced from the weight showing a tendency to swing, and the work placed no particular strain on the shovel. The machine carrying this weight was followed up by another Thew shovel which picked up the broken concrete and dumped it into wagons. On another job on St. Clair Street this weight and machine were used for breaking out the concrete between ties on old track. The ties were located at 4-ft. centers, leaving room enough between them for dropping the weight.

Sheet-Metal Devices Made in Railway Shop

BY F. L. HINMAN

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

Coal and sand boxes for cars, sign holders, car record boxes, ash cans and such sheet-metal articles are made in this company's shops. A machine known as a cornice break, usually found in tin shops, but not commonly used by electric railways, has been found particularly useful in the shaping of sheet steel and galvanized metal parts. The accompanying drawings show how the details have worked out in two typical cases.

A cutting pattern of a car record box is shown in Fig. 1. A comparatively heavy steel template made

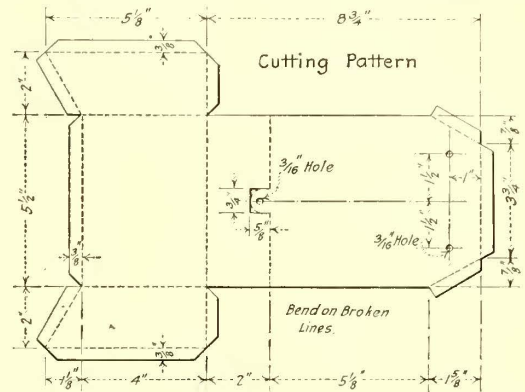


FIG. 1.—CUTTING PATTERN FOR CAR RECORD BOX

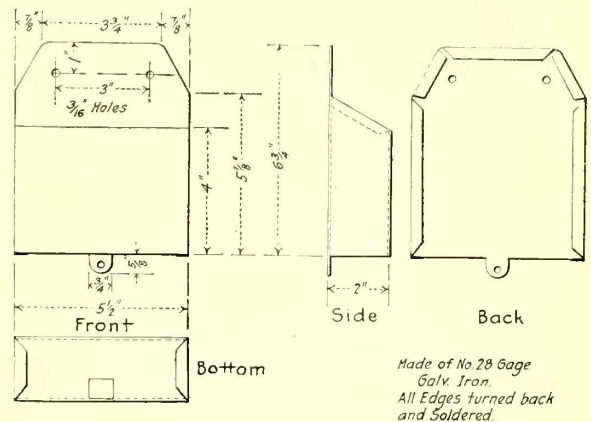
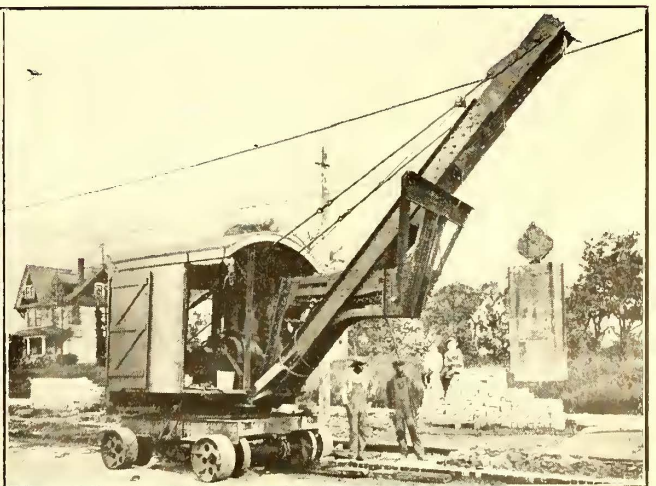
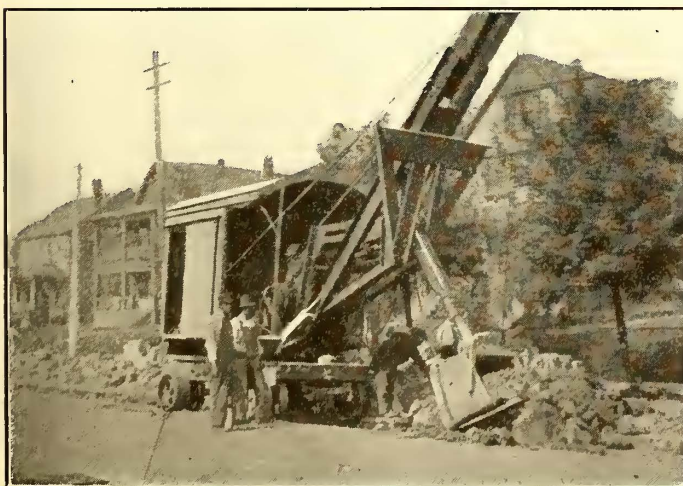


FIG. 2.—DETAILS OF BOX AFTER BENDS HAVE BEEN MADE



AUTOMATIC SHOVEL REMOVING BROKEN CONCRETE AND THE SHOVEL WITH WEIGHT ATTACHMENT FOR BREAKING UP THE CONCRETE FOUNDATION

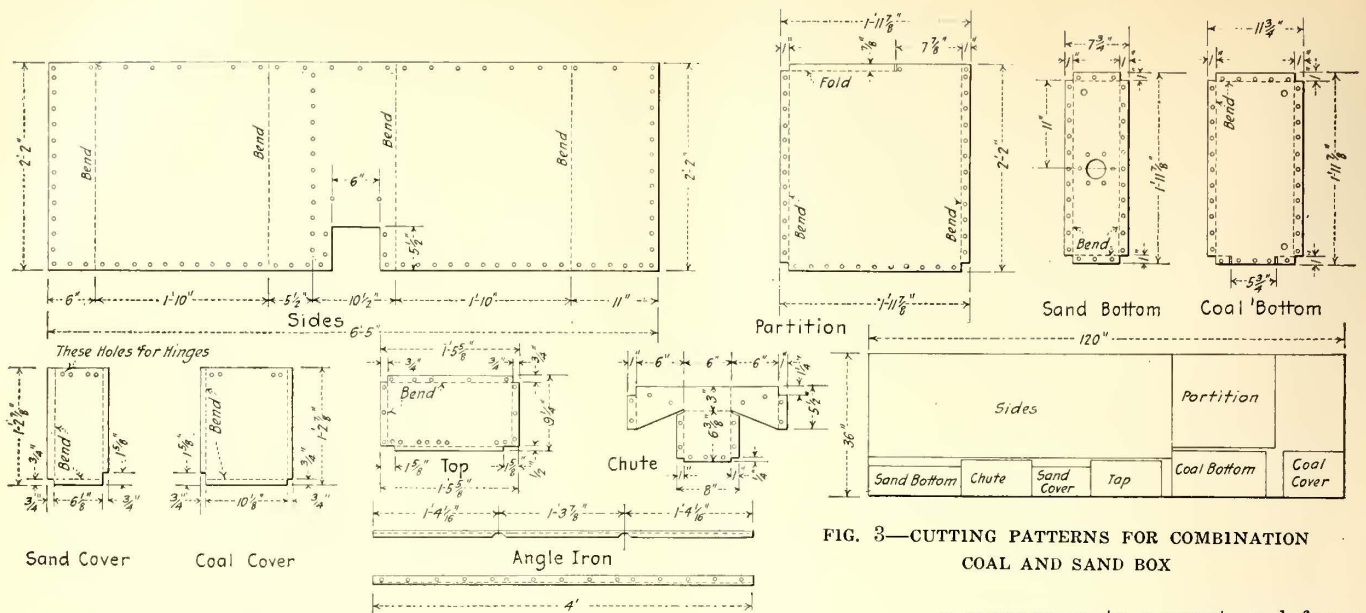


FIG. 3—CUTTING PATTERNS FOR COMBINATION COAL AND SAND BOX

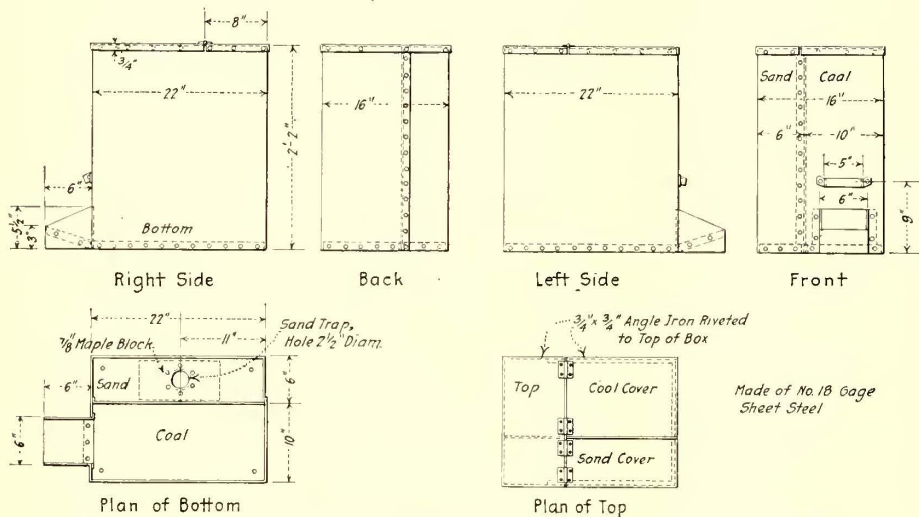


FIG. 4.—DETAILS OF COAL AND SAND BOX AFTER BENDS HAVE BEEN MADE

in accordance with this drawing is laid on the piece of galvanized iron or tin to be used, the outline is marked with a scratch-awl and the metal is cut along this outline. The holes are then punched and the bends are made with the cornice break machine. The box after being bent into shape is shown in Fig. 2. The joints are next lightly soldered and the boxes are sent to the paint shop. Here they are dipped and hung over a suitable drip trough by means of a little tab at the bottom of the box. The cost of manufacturing these boxes is 17 cents each, including materials.

In Figs. 3 and 4 are shown the cutting pattern and the plan and elevation of a combination coal and sand box, which has now become standard on all pay-as-you-enter cars. In laying out these boxes the same plan is followed as for the car record boxes; that is, the steel template which contains all the holes required in the finished product is used and the holes are punched before the bends are made. All holes are punched 7/32-in. in diameter, which permits the use of 3/16-in. stove bolts. Having all the holes the same size saves the time necessary to change the punches and dies for holes of different sizes.

In designing the cover of this box we took into consideration the desirability of constructing it in such

a manner as to prevent coal from being spilled into the sand box or sand into the coal box. Another feature is the coal shovel holder shown immediately above the chute on the front of the box. These boxes are manufactured by us in lots of twenty-five at a cost of \$11.30 each, delivered in the store-room, and they have proved themselves to be more economical in first cost and maintenance than the wooden coal boxes which were formerly used. The sand box used prior to the installation of the combination box was located under the front platform, and in wet weather it was almost impossible to keep the sand in the box dry enough to flow through the air-operated sand trap.

The new box is located above the platform floor and in this location it is always dry and ready for use. This in itself is a very valuable factor in favor of the adoption of this box.

The detail drawings and templates used in the manufacture of both the car record box and the combination coal and sand box were worked out by L. C. Allen, assistant foreman of the carpenter shop.

Phasing Out Lines by Means of Static Voltmeter

A static voltmeter is a handy apparatus for phasing out high-voltage lines of 50,000 volts and under. On an electric railway in the South two 22,000-volt lines connected to the same bus at a substation were to be connected together by a 10-mile branch line running between substations on each line. The substations are about 15 miles from the main distributing point. The branch line was closed at one end and the corresponding phases were tested at the other end, the lines of the same potential showing zero voltage. One terminal of the voltmeter was connected to one wire of the branch line by means of a wire fastened to a switch stick.

The other side of the voltmeter was connected by a switch stick to the different wires on the main line until the correct one was shown by the voltmeter reading zero.

Three tubular condensers were connected in series, and the voltmeter was connected across the middle condenser. The condensers and voltmeter were suspended from a switch stick near the ground, and two lines were strung between suspension insulators from the tower to supports on the ground. Taps were made from these lines to the meter and the wires, fastened to switch sticks, were tapped to them on the tower. This made it safe and easy for the linemen.

Slotter with Unusual Features

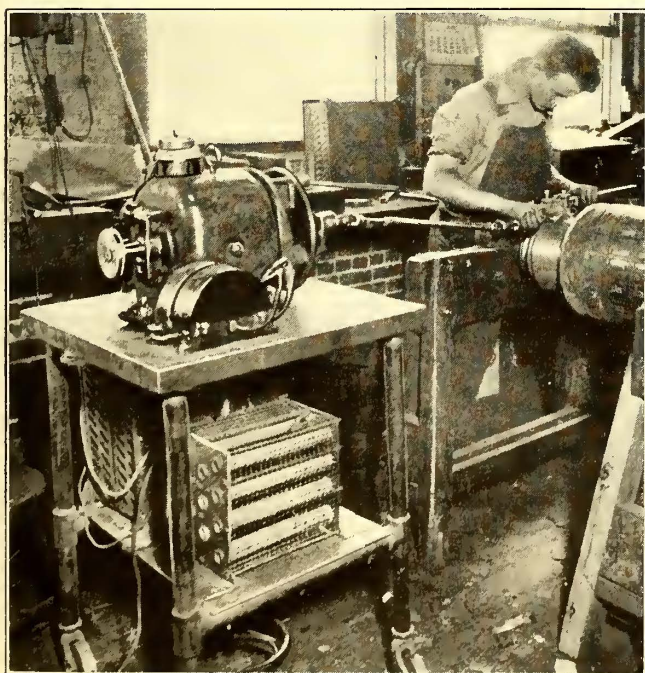
In Spokane Shops a Portable, Self-Contained Armature Slotter Which Is Adjustable for Large Variations in Armature Sizes Is Used

BY MAX PASSLER

Armature Foreman Spokane & Inland Empire Railroad, Spokane, Wash.

In this company's shops the service demanded of an armature slotter is a little unusual. There is a great variation in the sizes of armatures which have to be slotted, and we wanted a slotter which could be brought to the armature instead of having to bring the armatures to a stationary slotting machine. To meet these requirements of portability and a large range of adjustment, the writer designed the apparatus illustrated.

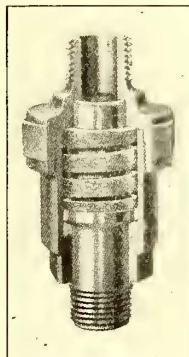
The motor, starting switches, etc., are all mounted on a table, the wheel supports of which make it easy to move around the shop. The table top is adjustable in height, being raised and lowered by means of a threaded post running through the lower shelf and provided with a hand wheel. The four corner posts of the table top are telescoped with the pipe supports which form the table legs. The rod between the saw and the motor is provided with a loose sleeve and two universal joints, so that the operator can cut several slots without turning the armature.



PORTABLE ARMATURE SLOTTING MACHINE IN SPOKANE SHOPS

Most of the parts which compose the outfit were picked up around the shop. The motor is a 2½-hp. Westinghouse series crane motor converted for shunt operation by means of the resistance shown on the lower shelf of the table. The driving rod is made chiefly of parts taken from old Ohmer cash registers.

Swivel Joint Made Without Packing

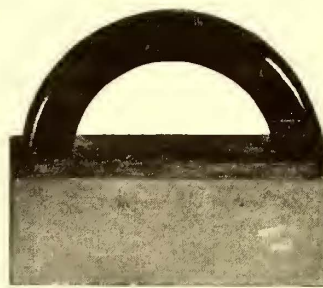


SWIVEL JOINT USING CAST-IRON SPRING

There has been placed on the market a swivel joint which uses a cast-iron spring similar in principle to a piston ring permanently to seat the joint. It follows that with this joint no packing is required. The joint is especially adapted for use in steam, air, gas and ammonia lines, and it combines the advantage of the strength of cast iron with the flexibility which is obtained by the swiveling feature. The device is known as the "Knudsen" packless swivel joint and is manufactured by the Universal Valve Company, Burlington, Wis.

Stone for Polishing Commutators

To take the place of sandpaper in polishing commutators, the Handy Supply Company, Cleveland, Ohio, has produced a composition stone which will give an even polish on the commutator. It is claimed that this stone will not wear away rapidly, pick up copper, or groove the commutator or slip rings to which it is applied. In use, the stone soon becomes rounded to fit the commutator, and by bridging over flat spots or other depressions it enables the operator to keep a true commutator, with



COMMUTATOR POLISHING STONE

the surface of every bar properly rounded. As the stones have two cutting faces, one can be used for commutators of two different diameters, and will usually last several years.

The stone can be applied to a motor or generator running under full load. One end of the stone is rested against the brush-holder stud, care being taken not to let the end of the stone become wedged under the stud. Handles are made to facilitate using the stone on commutators that are not readily accessible.

W. H. Boyce, superintendent Beaver Valley Traction Company, states that his linemen used to lose from twenty-five to forty minutes per hour when using a tower car for overhead maintenance work, while on the same kind of work, and using an automobile tower truck, only six to ten minutes per hour are lost.

Cost Data on Special Work Renewals—III

By M. BERNARD

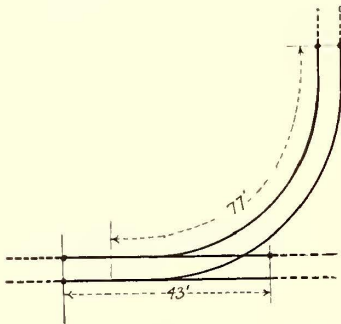
Assistant Engineer Way & Structures Department.
Brooklyn (N. Y.) Rapid Transit System

This is the third plate of the series of Cost Data on Special Work renewals. The first and second plates were published in the issues for July 21, page 108, and Aug. 18, page 279.

Fig. 7—Single Track Branch-Off (90 Deg.)

Length—120 ft. single track

Construction removed—9-in. girder rail*—8-in. granite on sand
New construction—9-in. girder rail*—8-in. granite on concrete

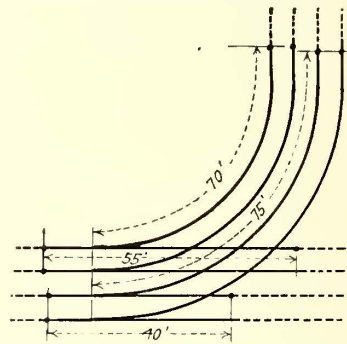


	Light Traffic	Average Traffic	Heavy Traffic
Labor	\$230.00	\$280.00	\$340.00
Handling	65.00	75.00	85.00
Miscellaneous	35.00	40.00	45.00
Total (except materials).	\$330.00	\$395.00	\$470.00
Cost per single track foot..	2.75	3.29	3.92

Fig. 8—Double Track Branch-Off (90 Deg.)

Length—240 ft. single track

Construction removed—9-in. girder rail*—8-in. granite on sand
New construction—9-in. girder rail*—8-in. granite on concrete

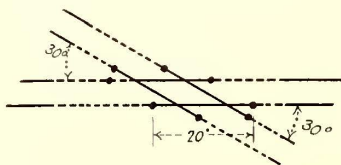


	Light Traffic	Average Traffic	Heavy Traffic
Labor	\$430.00	\$510.00	\$650.00
Handling	135.00	150.00	185.00
Miscellaneous	65.00	80.00	100.00
Total (except materials).	\$630.00	\$740.00	\$935.00
Cost per single track foot..	2.63	3.08	3.90

Fig. 9—Single Track Crossing Single Track (30 Deg.)

Length—40 ft. single track

Construction removed—9-in. girder rail*—8-in. granite on sand
New construction—9-in. girder rail*—8-in. granite on concrete

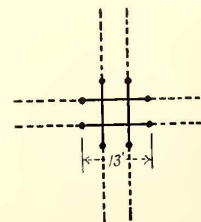


	Light Traffic	Average Traffic	Heavy Traffic
Labor	\$105.00	\$130.00	\$147.00
Handling	32.00	35.00	41.00
Miscellaneous	20.00	25.00	30.00
Total (except materials).	\$157.00	\$190.00	\$218.00
Cost per single track foot..	3.93	4.75	5.45

Fig. 10—Single Track Crossing Single Track (90 Deg.)

Length—26 ft. single track

Construction removed—9-in. girder rail*—8-in. granite on sand
New construction—9-in. girder rail*—8-in. granite on concrete



	Light Traffic	Average Traffic	Heavy Traffic
Labor	\$70.00	\$85.00	\$98.00
Handling	22.00	24.00	32.00
Miscellaneous	12.00	15.00	17.00
Total (except materials).	\$104.00	\$124.00	\$147.00
Cost per single track foot..	4.00	4.77	5.65

*Hard-center construction. *Explanation:* By "light traffic" is meant either the divergence of cars during progress of work, or a traffic of not more than 150 cars per day of twenty-four hours. "Average traffic" denotes the passage of about 325 cars per day of twenty-four hours, and "heavy traffic" that of 750 or more.

By "labor" is meant the labor cost of tearing out the old paving and special work and installing the new at the location where the work is done. "Handling" signifies the cost of loading the necessary materials at the various storage yards as well as the unloading of same at the place of renewal. It also includes the cost of transportation and the cost of removal of old or left-over material. Since the transportation

is done by a subsidiary company, which adds profit and overhead expense to the net cost, this item may differ considerably from that obtained on other railways. Under "miscellaneous" are included the expense of city inspectors, expense incurred when portable crossovers are used for divergence of cars during renewal, watchmen's wages, and incidental engineering expense. The total of these three items—labor, handling and miscellaneous—therefore includes everything except the cost of materials.

On account of the unsettled labor conditions prevailing since the beginning of the war, the costs given are based on pre-war wages, the average track labor on which these costs are based is 20 cents per hour, including the foreman's wages.

Use of Portable Bond Welder

About June 1 the Cleveland, Southwestern & Columbus Railway began the installation of 9000 rail bonds to take care of normal replacements. This meant, of course, that the work must be done on live track and at irregularly spaced locations. In deciding upon the choice of bond for this job, the company determined to continue the use of the Erico welded bond, which had been giving excellent service since 1905; but owing to the nature of the work, it was desirable to have something more flexible than the bonding car used for straight bonding. For this reason, it was glad to pioneer with the new Erico portable welder, first described in the *ELECTRIC RAILWAY JOURNAL* for Feb. 3, 1917, page 218, and shown in actual service in the accompanying views taken on this railway.

At present two equipments are in use on this property. Each is served by one welder and one helper, while a single grinder prepares the rail for both. A boy runs whatever errands are necessary and a flagman is stationed at a suitable distance to warn both workmen and traffic. The welders usually work about 300 ft. apart. In actual operation, all of the apparatus can be removed so quickly from the track that a train service, comprising twenty-five to thirty limiteds besides locals and freights, can be carried on without stops and with comparatively few slow-downs. The portability of the apparatus makes it possible to carry on the work in the day time at the most difficult locations instead of going to the expense of night labor.

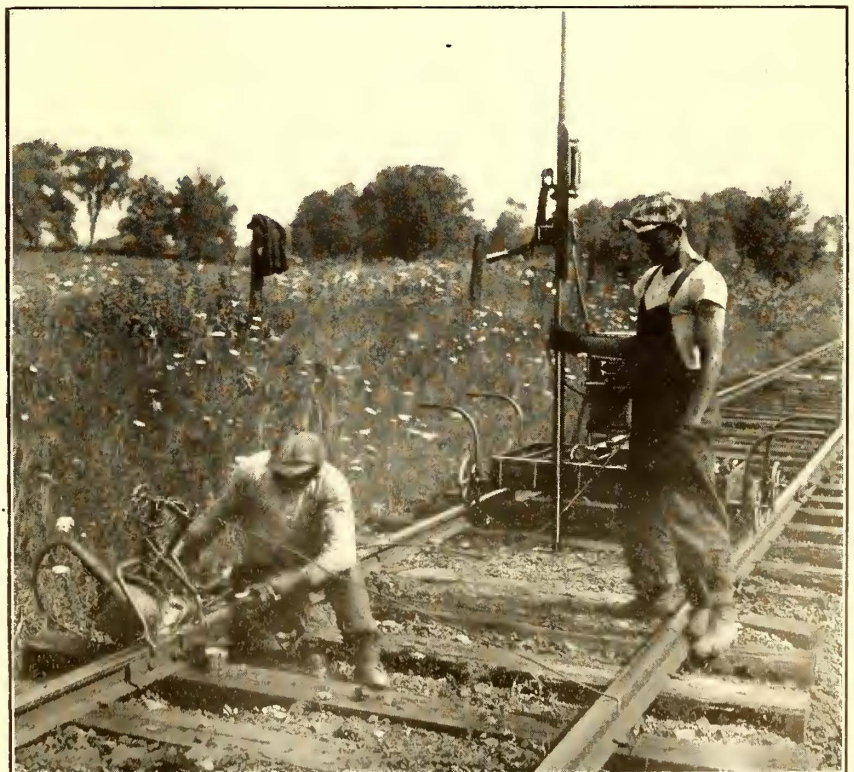
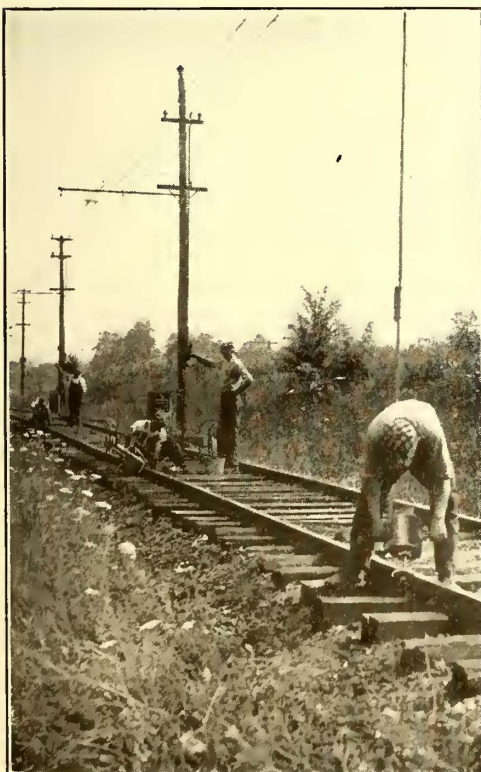
These portable welders are extremely simple. Each is made up of a small larry on which the rheostat and the supplies are carried and a welding furnace which contains an electrode and the graphite plate in connection therewith. On the Cleveland, Southwestern job, the helper is used by the welder mainly for opening and

DAILY REPORT BONDING SHEET										
					Date _____ 19__					
Weather _____			Condition of Rail _____							
Road Bonds being installed on _____					Foreman _____					
Car No.	Bonds Installed in Payment	Open Work	Hours Actual Work	Type of Bonds	Capacity	Car Service	Extra Care	WAGES		
								Name	Rate	Hours
								Foreman		
								Grinder		
								Helper		
								Helper		
								Helper		
Material Needed _____										
Trouble, Remarks, etc. _____										

FORM FOR DAILY REPORT OF BONDING

closing the rheostat switch and for removing this outfit from the track. The welder can open the switch himself by pulling a string if he so desires. The helper is also used in laying out bonds, preparing graphite plates and the like.

A number of time studies made of welding by this method showed that the average time of applying an Erico E. T. No. 0000 5¼-in. bond, from the time of clamping the welding furnace to the rail to its removal from the rail, varies from two to two and one-half minutes depending upon such factors as the experience of the welder and the newness of the graphite plates. The older the plates the quicker the weld. As the bonding places are scattered, maximum output is not possible. However, the two gangs have installed a total of 175 to 200 bonds in a ten-hour day, of which period only eight hours were devoted to actual welding operations. On this basis the labor cost per bond averages 10 cents. Thirteen bonds have been welded with one machine in an hour under straightaway conditions.



TWO WELDING GANGS AND GRINDER AT WORK AND NEAR VIEW OF PORTABLE LARRY CARRYING RHEOSTAT AND SUPPLIES

News of Electric Railways

Traffic and Transportation

Financial and Corporate

Personal Mention

Construction News

Preparing for Puget Sound Arbitration Hearings to Begin on September 10—Men Present Demands—Answer of Companies Has Been Filed

Arbitration of the demands of the trainmen in the employ of the Puget Sound Traction, Light & Power Company and the Tacoma Railway & Power Company will begin on Sept. 10.

The men ask for an eight-hour day, the elimination of swing runs, pay for extra men awaiting runs, a general wage increase and the elimination of uniforms for motormen. The claims are general in their terms, except that in which the eight-hour day is demanded. Extra men, they say, should not be required to report at different periods of the day without pay for the lost time which intervenes. It is asked that swing runs be eliminated by granting pay for the time lost between taking out the different cars to which they have been assigned. Dress uniforms for motormen are declared to be a useless expense, and the demand is made that the company provide overall uniforms at its own expense for all motormen. The men contend that the wages paid are insufficient to provide adequately for the support of a family. The wage request is for an amount sufficient to enable the employee to comply with his duty and obligations to society and the State; to maintain himself and his family in accordance with a proper standard of living, providing for home, food, clothing, sickness, church and fraternal dues, insurance, reading matter, music, amusements and a savings account against the infirmities of old age and possible incapacity.

THE CASE OF THE COMPANIES

In reply the companies declare that the fluctuations of service compel the swing runs and that they are universal street railway practice as the only solution of the problem of providing service at a time when the public demands the maximum of service. The wage schedule effective on July 1, of from 29 to 36 cents an hour, the company holds is adequate. It shows that under it the average pay a day for regular conductors was \$3.41; regular motormen \$3.53; extra conductors \$2.81; extra motormen \$2.74, and the half-month pay check for the first half of July was \$51.23, \$53.05, \$42.19 and \$41.14, respectively, for the men previously mentioned, or from \$82.28 to \$106.10 per month. In addition trainmen and their families receive free transportation. It is contended that this scale of wages exceeds that paid in most similar cities for like service, and that it is adequate to enable the men to continue to keep up a proper standard of living.

The answer sets forth that "the statutes of the State of Washington contemplate and recognize as reasonable and proper a day of ten hours' work for motormen and conductors" and points out that the people of the State rejected, by a vote of nearly two to one, Initiative Measure No. 13, which undertook to establish a general eight-hour day. Both companies say that on account of the scarcity of labor, due to the demands of the war, the patriotic duty of everyone should under existing conditions urge greater service and longer hours of work. To reduce the number of working hours below that now followed in the schedules would render it difficult, if not impossible, to secure competent men, would greatly and seriously embarrass the answering companies in the operation of their cars in Seattle and Tacoma, and would increase the cost of operation to such an extent that the companies would not be able to continue, either in Seattle or Tacoma. The wages must not be more than the traffic will bear. To pay more than the traffic will bear would annihilate the industry itself.

The answering companies point out that the suggestion

that the Public Service Commission has the power to relieve the companies if the rate of return is insufficient is true only in a limited sense, as under the laws of 1911 the limit of charge for a continuous ride is fixed at 5 cents. For that reason it would be impossible for the companies to attempt to operate under anything like an eight-hour day. The practice of requiring the extra men to report at various times is customary and reasonable. The guarantee of \$65 a month "insures such extra men that amount, even should they not be required to do any work whatsoever besides reporting." Uniforms for motormen are required because "cleanliness and neatness are necessary to good service." Moreover, the uniform inspires the traveling public with confidence.

Construction Contracts Rejected

Two Out of Three Contractors for Philadelphia Rapid Transit Work Find It Impossible to Carry Out Work

Following a conference of contractors for the new rapid transit lines in Philadelphia, Pa., held on Sept. 4, the Keystone State Construction Company accepted Broad Street subway and delivery loop contracts, totaling more than \$10,000,000. The Philadelphia Subway Contracting Company, controlled by Senator Edwin H. Vare, announced at first that it had declined a contract of \$2,900,000, but later Senator Vare stated the matter still was under consideration. The firm of Smith, Hauser & MacIsaacs, New York, rejected a \$2,225,000 contract. All of the above contractors submitted bids for the work last February, and it has been stated from time to time that they would be unable to carry out these bids after a lapse of six months, owing to the constantly increasing costs of labor and material.

Senator McNichol, in announcing that his firm would accept the contracts which had been awarded to it, said:

"We have decided that we will trust to the integrity of the Mayor and to the fair-mindedness of the people of Philadelphia, and sign the contracts. We feel that while the Mayor can make no concessions, both he and the city will see that we are treated fairly and that we will not be allowed to suffer in placing our organization upon the work, for which both the materials and labor now seem extremely doubtful. We hope for the best and will go ahead with the work as soon as the contracts are signed."

The four sections of the subway which are virtually assured of construction by the acceptance of the contracts by the Keystone State Construction Company are: Broad Street subway, South Street to South Penn Square; Broad Street subway, Buttonwood to Stiles Street; delivery loop in Arch Street, from Broad Street to Eighth Street, and the delivery loop in Locust Street, from Broad Street to Eighth. The contract rejected by Smith, Hauser & MacIsaacs covered a section of the delivery loop running along Eighth Street from Arch to Locust Street. The one under consideration by the Philadelphia Subway Contracting Company completes the section of the Broad Street subway from Filbert to Buttonwood Street.

Mayor Smith is reported to have said:

"I do not think that the refusal of two of the contractors to accept the awards will result in any serious delay. My present idea is to advertise for bids, not for the two refused contracts as a whole, but for such portions of the work as can be done at present without too great expense. Director of Transit Twining and I decided that if the contracts were not filed the work would be divided up and contracts given for smaller portions of the subway work. The work which will be carried on first will be that which does not require the use of steel, the price of which has jumped considerably on account of the war."

Preparing for P. R. T. Lease Hearing

Ford, Bacon & Davis Report on Proposed New Philadelphia Rapid Transit Lease—Contract Attacked by A. Merritt Taylor

For several weeks those interested in the proposal for the operation of the city-built high-speed lines in Philadelphia by the Philadelphia Rapid Transit Company were aligning their forces for the first public hearing on Sept. 7. The draft of the lease was formally presented to Councils on Aug. 17. The general terms of the proposal were reviewed in the issue of the *ELECTRIC RAILWAY JOURNAL* for Aug. 18, page 273.

INDEPENDENT OPINION ON PROPOSED LEASE

In order to obtain an independent opinion as to the merits of the lease ordinance, Ford, Bacon & Davis, New York, were engaged on Aug. 3 to go over the draft. According to Mr. Twining, director of the Department of City Transit of Philadelphia, they were retained "to see that proper provisions have been made for protecting all the city's interests and also to examine it for any defects and to furnish the opinion of the firm as to the fairness and desirability of the lease from the city's and the company's standpoint." Ford, Bacon & Davis are familiar with the transit situation in Philadelphia, having taken an important part in the preparation of the original drafts submitted to the company in 1914 and 1915. They did not, however, assist in the preparation of the present draft. In concluding their report, made public on Sept. 5 by Mr. Twining, Ford, Bacon & Davis say they "believe that the present proposal constitutes a businesslike basis of contract, fair alike to the company and the city, and permitting during the long period of the lease reasonable adjustments of operating conditions, practicable regulation of rates of fare and comprehensive development and extension of both rapid transit and surface lines." In their opinion there have been secured for the city in the present proposal three fundamental and controlling advantages which eliminate the principal objections to the 1916 proposal. They recite these as follows:

First. Priority of income return on city's investment over dividends on company's stock.

Second. Avoidance of city guarantee of dividends on company's stock.

Third. Establishment of city's investment on a firm financial basis of assured income, thereby releasing the city bonds from the debt limit and thus enabling further transit or port development.

MR. TAYLOR ATTACKS LEASE

On Sept. 4 A. Merritt Taylor, former director of the Department of City Transit of Philadelphia, issued a statement attacking the terms proposed. He said that immediately after publishing the result of his partial and hasty analysis of the lease on Aug. 20 he proceeded to study the document with the utmost deliberation and care. As a result all of his former findings were confirmed and "a still more serious and amazing situation is now revealed." He charged that "under the scandalously obscure terms of the Smith lease" the city would be firmly bound to buy the property, leaseholds and franchises of the Philadelphia Rapid Transit Company and that the stockholders of that company would be paid approximately \$60 a share for their stock; that the Smith lease would guarantee and firmly bind the street railway passengers in Philadelphia to pay to the stockholders of the company a 6 per cent cumulative dividend and more than \$50 a share for the 600,000 shares of capital stock of the company now outstanding, and that the lease would firmly bind the street railway passengers to pay the city's full interest charge on its debt to be incurred for transit development and to repay to the city the entire cost of its high-speed system. Mr. Taylor said this last cost Mr. Twining had this year estimated to be about \$90,000,000. In a plea made to the street railway passengers at the end of his statement Mr. Taylor said in part:

"The pirates have trained their guns on you and on the city of Philadelphia. The battle is on. It is up to you to stand up with me and fight for your rights."

Line to Cantonment Completed

Service Begun by Louisville Railway on Extension of Line to Camp Zachary Taylor, Two Miles South of Louisville

The Louisville (Ky.) Railway has completed, at a cost of \$100,000, the extensions and additions to its lines by which it will serve Camp Zachary Taylor, the new National Army cantonment located 2 miles south of the city. Service over the line was begun on Aug. 29. At this time, only a small proportion of the 40,000 or more soldiers who will be assembled at the camp this fall had reached the scene. The Louisville Railway has not worked out complete plans for service, but a 5-cent fare will prevail.

Camp Taylor at Louisville lies along the Preston Street road for a considerable distance, and the site is passed by the Okalona line of the Louisville & Interurban Railway. New construction, which began on July 15, involved the purchase of additional right-of-way for a distance of a mile and a half; construction of the second line for a 2-mile double-track way and construction of a second piece of double tracking that extends for four-fifths of a mile into the camp itself. In all instances construction is standard and permanent. Overhead construction is of span wire type to the point where the double track enters the camp. From there on center pole construction is used.

DOUBLE TRACK INTO THE CAMP

The old loop at the edge of the city limits on the Preston, Main and Eighteenth Street line of the company has been done away with and a loop constructed at Coke's station, 2 miles out, and an existing station on the Preston Street road interurban. The double track into the camp passes this loop, and at the terminus of the inner camp line there is a second loop. The company is now erecting shelters at Coke's station and at Dumesnil station, the name given to the terminus of the camp extension. A portable substation has been established near the Coke's station loop.

For a distance of 650 ft., where the electric line passes under an overpass of the Southern Railway, there is only a single track. It is believed by Samuel Riddle, superintendent of transportation, and other officials of the Louisville Railway, that this strip of single track will not slow up service appreciably. The only way this pass could have been avoided would have been by reconstruction of the overpass to the extent of setting back the abutment, a proceeding that would have been exceedingly costly. Nachod signals will be installed at this pass to facilitate operations.

All of the regular service on the Preston Street line will be extended to the loop at Coke's station. It may be that alternate cars will continue on into the camp and take the loop at Dumesnil station. A ten-minute service will be tried at first. If this is insufficient additional motor cars will be added, running from Sixth and Main Streets to the camp and back, thus providing a five-minute service with the downtown section. Trailers will be added to the short-line cars if they prove to be needed and, if still more service is desirable, the short line will be put on a two and one-half minute basis from the Sixth and Main Street loop. On special occasions all available equipment, sufficient heretofore for any extraordinary demands, will be put into service.

Transfers to and from the line to the camp will be given to all of the cross-town lines, just as heretofore on the Preston Street line. The Preston Street interurban will continue using the line without change as to fare schedule. To ride into the central interurban station from the camp the fare will be 10 cents without transfers. In addition to the passenger traffic the same trackage will serve for the baggage and freight lines of the Louisville & Interurban. The running time from Sixth and Main Streets to the Coke's station loop will be thirty minutes, five minutes longer to the loop at Dumesnil station inside the camp. The haul from Sixth and Main Streets to Coke's station is approximately 6 miles.

Problems of operation will be met as they develop. Mr. Riddle does not expect that any difficulties will arise that cannot be adequately met. Army officers at the camp are showing every disposition to co-operate with the officials of the railway.

Agreement to Arbitrate in Knoxville

Working conditions, hours of service and wages of the employees of the Knoxville Railway & Light Company, Knoxville, Tenn., will be discussed at a meeting of officials of the company and officers of the Knoxville division, No. 767, of the Amalgamated Association of Street & Electric Railway Employees of America on or about Sept. 24. These are the main provisions of an agreement which has just been made between the parties and follows the organization of a union of the company employees in Knoxville and a week or so of informal negotiations.

The agreement to submit matters to arbitration bears the signatures of J. S. Pevar, vice-president of the American Cities Company, and J. B. Lawson, national organizer for the union. It provides for the meeting on or about the date named, but to be held at least before Oct. 1, and that such contract as may be decided on is to be retroactive to Sept. 1. If at this set conference any points arise which cannot be agreed on, arbitration will be resorted to, the company and the union each to select a member and these to select a third. If they fail so to do in two days the federal judge having jurisdiction in Knox County, Tenn., is to name the third arbitrator. The agreement which has been reached provides that the conference will "agree upon a contract which shall be mutual and acceptable to the two parties, covering details of operating conditions and wages of the members of the local division No. 767 in the employ of the company."

New Line to Rockford Cantonment

The Rockford & Interurban Railway, Rockford, Ill., is building a 2¾-mile extension to the city lines to a point on the new cantonment at Rockford, where the military authorities desire to have a depot located. The track will be constructed on a private right-of-way paralleling the Chicago, Milwaukee & Gary and the Chicago, Burlington & Quincy Railroads to the camp. For the present, only a single track will be laid, but this will be constructed with 600-ft. sidings every 2500 ft. There will be one railroad crossing at grade with the Chicago, Burlington & Quincy Railroad, which will probably be interlocked for safety. It is planned to give a ten-minute service to the camp, but the sidings are so located that a five-minute service can be maintained if it is later needed. In rush-hour periods two and three-car trains will be run to handle the traffic.

Power will be furnished by the Rockford Electric Company in the form of 600-volt direct current, direct from the power house over two 5000-circ. mil. feeder cables. It is expected that light suburban equipment will be used for the normal service and that during the rush hours interurban and city cars with trailers will be used. A waiting depot will be built on the camp grounds for the convenience of patrons. The road is expected to be in operation by Sept. 12.

Interurban Terminal for Des Moines

The Fort Dodge, Des Moines & Southern Railway, Boone, Iowa, and the Interurban Railway now have a joint terminal building in Des Moines. For some time the Fort Dodge, Des Moines & Southern Railway ran its trains into the Rock Island station, using Rock Island tracks a greater part of the way from the city limits into the depot. It now is using city railway tracks to the terminal. The Interurban Railway formerly received and discharged its passengers at the waiting station of the Des Moines City Railway.

The location of the new terminal is at Second Street and Grand Avenue, a few blocks out of the heart of the business district. The two interurbans have plans for a fine passenger and freight terminal at Second and Grand Avenue. It was expected to start construction early this summer, but the material and labor situation was so critical that the plans have been postponed to such time as conditions are more nearly normal. A structure to cost about \$250,000 is planned. Pending the construction of the new terminals a temporary building is being used.

B. R. T. to Meet Car Order

The Public Service Commission for the First District of New York has been notified by the management of the Brooklyn Rapid Transit Company that it will proceed to carry out the order of the commission for the purchase of 250 additional surface cars. The company appealed to the State court for a review of the order by writ of certiorari, but, after being defeated in an effort to secure a stay, the four operating companies took the matter to the federal court, which also decided against them.

In its communication the company points out that its present action is taken under duress and fear of prosecution and is not to be regarded as admitting the validity of the commission's order. It also points out that owing to the present conditions of the market for material plans have been made to allow bidders as wide a latitude as possible in submitting proposals, but the company promises to obtain tenders as speedily as possible.

Dinner to Mr. Stearns at Milwaukee

Farewell Dinner in Honor of R. B. Stearns, Retiring Vice-President of the Milwaukee Electric Railway & Light Company

An informal dinner was tendered Robert B. Stearns, retiring vice-president of the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., by the officers and staff of the company in the Red Room of the Hotel Pfister, that city, on Aug. 29. Mr. Stearns was presented with a sterling silver centerpiece, bearing the following inscription: "Presented to Robert B. Stearns by his associates in the Milwaukee Electric Railway & Light Company, commemorating his retirement as vice-president after six years of loyal and able service, Aug. 29, 1917." The presentation was made by Dr. Charles H. Lemon, chief surgeon of the company. James D. Shaw, attorney, acted as toastmaster; other speakers were James D. Mortimer, president, and Mr. Stearns.

The program and the menu were practically a facsimile of the standard transfer used by the company. In place of the regular transfer points, however, the first transfer showed the transfer points of Mr. Stearns's career. The second transfer set forth a schedule of achievements during Mr. Stearns's connection with the company at Milwaukee. The third transfer contained the menu. The fourth transfer indicated the schedule for the evening, designated as Run No. 1, setting forth the order of the speakers in the following manner: Conductor, James D. Shaw, attorney; instructor, James D. Mortimer, president; bonus committee, Dr. Charles H. Lemon, chief surgeon; farewell, R. B. Stearns, vice-president. The fifth transfer, indicated as Run No. 2, listed the executives in attendance: John I. Beggs, director; D. E. Callender, general manager of the Wisconsin Gas & Electric Company; Edwin Gruhl, assistant to the president; Charles F. Pfister, vice-president; Fred Vogel, Jr., director; G. W. Van Derzee, assistant to the vice-president; S. B. Way, vice-president and general manager. The sixth and succeeding transfers, except the last, scheduled the crew, consisting of the various departmental heads and business associates of Mr. Stearns. The last transfer set forth company activities in which Mr. Stearns took a leading part, namely, the safety movement, company section of the American Electric Railway Association, company section of the National Electric Light Association, Employees' Mutual Benefit Association and the Employees' Mutual Saving, Building & Loan Association.

In place of the usual instructions appearing on the regular transfer, there was quoted the following in the language of President Mortimer: "No man having direct charge of any street railway can ever be a hero in the eyes of the public; the only hero is the one who attacks. Mr. Stearns here has had the most difficult of tasks and, despite it all, he was never known to lose his temper or answer attacks in kind."

Instead of car to car, the transfer indicated that Mr. Stearns was transferring from Milwaukee to Boston where he assumes the office of vice-president and general manager of the Bay State Street Railway.

B. R. T. Operates to Fourteenth Street

First Section of Brooklyn Rapid Transit System of Broadway Subway Opened as Far North as Fourteenth Street

On Sept. 4 the first section of the Broadway subway of the Brooklyn Rapid Transit System was put into commission. The section is about 1½ miles in length, the northern terminus being at Union Square, Fourteenth Street and Broadway, Manhattan. Through service is now given between Union Square and Coney Island. The route is under Broadway and Canal Street, over the Manhattan Bridge to the Fourth Avenue Subway, Brooklyn, thence to Coney Island by the Sea Beach line as before.

While all the details of schedules have not yet been worked out, for the present trains will leave Union Square every three minutes during the rush hours, and at other times every three and three-quarter minutes, except between 1 and 5 a. m., when the headway will be fifteen minutes. The Sea Beach service previously given between Coney Island and Chambers Street terminal in the Municipal Building, Manhattan, has been discontinued, but passengers can reach the Chambers Street terminal by making one change of trains. The new line will probably relieve the old system of at least 15,000 persons daily in rush hours. It will enable many additional Manhattan workers who reside in Brooklyn to reach their homes for a 5-cent fare.

In view of the importance of the event, the Broadway subway opening was attended by a number of public officials, and the guests were entertained by the Borough Park Heights Civic Association. The first train left Union Square at 2 p. m., and took the guests to Coney Island. It was in charge of J. J. Dempsey, superintendent of elevated lines of the Brooklyn Rapid Transit System. The trip was made in twenty-seven and one-half minutes.

Progress on the Broadway subway is such that it is expected to extend operation as far as Times Square before the end of the current year, and during 1918 it should be completed to its terminal in the Borough of Queens.

Mediation Unlikely in San Francisco

Service Suspended Labor Day—Men Now Operating Cars Make Plea for Protection

Service on the lines of the United Railroads, San Francisco, Cal., was completely suspended on Labor Day, but was resumed on Sept. 4 from 5 a. m. to 8 p. m., including twelve cars to the Union Iron Works. On Monday an attempt was made to burn the carhouse at Twenty-eighth and Valencia Streets. This piece of vandalism was frustrated by the police. Two arrests were made in connection with the plot. A hundred working car men called on the Mayor on Sept. 3 and presented a petition through a committee of five asking proper police protection.

President Lilienthal of the company met members of the grand jury on Sept. 3. No headway was made toward a settlement. Mr. Lilienthal insists there is no case for mediation. His position is that certain of the men abandoned their cars without giving any notice or making any complaint, and that their places have been filled and the company is prepared to operate full service with adequate protection from the city.

The Board of Supervisors of the city on Sept. 4 considered the request of the Labor Council that the franchises of the company be declared forfeited because of failure to operate. The Supervisors also considered on Sept. 4 a resolution asking the State Railroad Commission to investigate the finances of the United Railroads to ascertain whether the company's claim that it cannot afford to meet the demands of the strikers is justified. Supervisor Gallagher is urging a plan for the return of the strikers to work if the company recognizes their right to unionize and agrees to discuss questions of wages, etc., with them as an organized body. Five municipal buses were being run on Sept. 3 in the Sunset district to the beach and two across Golden Gate Park between the Sunset and the Richmond districts.

The grand jury committee has abandoned its strike settlement plan. Neither Mr. Lilienthal nor the Labor Council

would approve the proposal. The resolution brought before the Supervisors on Sept. 4 regarding the investigation of the finances of the United Railroad, which was referred to the public utilities committee, has been adopted by that body. Service remained about two-thirds normal on Sept. 6. Cars to the Union Iron Works are withdrawn when the iron workers go to and come from work.

Mr. Lilienthal has again reiterated his previous statement that his company will not arbitrate. He says that the 700 men now employed are satisfied with their pay and working conditions. The men who quit the company did so without notice or without making complaint or demands. On that account he has declined all mediation and "shall adhere to that course to the end." He declares that at the start the men who quit the company's employ numbered 100. These were strikers. Those who quit later were forced to do so by intimidation. He further states that the company is paying all it can with a 5-cent fare. In view of the competition of the municipal lines and the jitneys it would be useless for the company to appeal for a higher fare as other companies propose doing.

All sections of the city experienced rioting and trouble on Sept. 5 and 6. The Board of Health has notified Mr. Lilienthal that he must comply with the provisions of the new State housing law in the various carhouses where carmen are quartered. This law provides that no more than twenty adults be housed in one dormitory.

The earnings of the Municipal Railway for August were \$228,648, the largest month in its history except August, 1915, exposition year. The earnings on Labor Day were \$11,574, the largest for any one day. Neither the municipal steam lines nor the motor buses are meeting the cost of maintenance. These services are being run simply as an accommodation.

Policemen Disciplined in Kansas City

Forty-one Patrolmen and Two Sergeants Discharged for Actions in Recent Strike

The board of police commissioners of Kansas City, Mo., on Aug. 29 discharged forty-one patrolmen and two police sergeants, who during the recent strike of the employees of the Kansas City Railways had declared that they would not protect imported strikebreakers from violence. Many of these were policemen from the station near the carhouse, where rioting occurred upon the arrival of strikebreakers. The policemen allowed the mob to assail the imported men, besiege them in the carhouse, keep food from them, and then helped to organize a "guard" to escort the men to the union station, where they were loaded on trains. At that time the policemen were asked by their commanding officer if they would protect the strikebreakers. They responded that they would not ride on cars with them. It was largely, it is said, upon the demonstration of the police force against strikebreakers that the company rescinded its tentative plans to use the new men in the strike. At that time John R. Ransom, one of the police commissioners, declared that discipline must be maintained. He stuck to his declaration that the company's property would be protected whomever it employed to run cars.

When the cases of the policemen charged with insubordination came up on Aug. 29, all the men who were accused received an opportunity to explain their stand. All who were present at the board meeting reiterated their positions that they would not ride on street cars to protect imported strikebreakers.

Much interest was shown by various elements in the prospect of the discharge of the officers. Business men urged that the men be discharged in the interests of discipline. Several local labor unions united in an alleged threat to cause a strike of 12,000 workmen if the policemen were discharged. The business agent of the Industrial Council and the president of the Business Trades Council sent a telegram to the Lieutenant Governor asking that the discharge be prevented.

The police board is appointed by the Governor, and is independent of local control.

There was no trouble following the discharge of the policemen.

Police Commissioner Ransom issued the following statement about the discharge of the patrolmen:

"The police department is employed by all the people of the city to preserve the peace and protect lives and property at all times. To accomplish this there must be obedience to orders, and no man who either is afraid to do his duty or will place his own sentiments above law and order is fitted to remain in the department.

"It is quite conceivable that men might get on the force who are in sympathy with burglars and gamblers, or other lawbreakers, and there will be no precedent for their refusal to do their duty."

Riot in Springfield.—Considerable disorder was reported from Springfield, Ill., on Sept. 3 in connection with the renewed strike of the employees of the Springfield Consolidated Railway. Several cars were demolished. Order was restored by Companies F and G of the 9th Illinois Infantry.

Strike in Jackson, Tenn.—Twenty-two motormen and conductors in the employ of the Jackson Railway & Light Company, Jackson, Tenn., went on strike on Aug. 25, demanding a ten-hour working day, a 5-cent raise on each hour and time and a half for overtime. The wage scale heretofore has been from 16 to 20 cents an hour. John Wisdom, general superintendent of the property, declared he would not deal with the strikers as a union.

One More St. Louis Hearing at Least.—No public hearings on the proposed United Railways settlement ordinances were held in St. Louis during the week ended Sept. 1. Barney L. Schwartz, chairman of the public utilities committee of the Aldermen, has announced that at least one more public hearing will be held on the ordinances. The committee plans to discuss the bills and outline the procedure to be followed in making its report, after the public hearings have been closed.

Municipal Railway Employees Strike.—The Monroe (La.) Municipal Street Railway has been tied up by a strike that started at midnight on Aug. 31. The strike is a protest on the part of the union against the action of the city government in voting to adopt one-man cars for use in Monroe. The men contend that their contract with the city calls for a motorman and conductor on each car. It is said that the city officials will take action toward operating the cars with other employees if the men who are now out do not return to work in a few days.

Subway Commission Suggested for Cleveland.—An ordinance providing for the appointment of a subway commission by the Mayor and the issue of \$3,500,000 of bonds for the construction of a subway in West Superior Avenue and underground street railway terminals at the Public Square was presented to the City Council of Cleveland, Ohio, on Aug. 26, together with a petition containing more than the requisite number of names, asking for its submission to the voters, unless approved by Council. The ordinance was referred to the committee on street railways without comment.

Short Strike in Anaconda.—Following the strike of about 700 of the 2400 men employed at the Washoe smelter of the Anaconda Copper Mining Company at Anaconda, Mont., men in the employ of the railway department of the company went on strike. The trainmen are members of the Smeltermen's Union. After an interruption of railway service for several hours, the company re-established service with other members of the union. The Smeltermen's Union, acting under its agreement with the company, furnished men to run the cars.

Utah Line Changes Its Name.—By unanimous vote of the directors of the Salt Lake & Ogden Railway, Salt Lake City, Utah, the name of the line has been changed to the Bamberger Electric Railroad. The change was deemed proper by the directors for the reason that there are so many roads entering the city with Salt Lake attached to their names. The initials of the road in the future will be the B. E. The name Bamberger Electric was selected for the reason that most residents of the State know the line better by that name than by the one under which it was incorporated.

Abandonment of Line Proposed.—The North Coast Power Company, Vancouver, Wash., plans to abandon its electric railway between Centralia and Chehalis on account of the greatly increased cost of operation and the decrease in receipts. W. A. Schoel, manager, states that last year the company paid \$10,000 in taxes, a \$250 franchise tax in both Centralia and Chehalis, \$4,445 for paving in Chehalis and \$500 for repairing the fair grounds crossing. The company's payroll for the railway department averaged \$900 a month. According to Mr. Schoel, jitney traffic between the two cities has affected the receipts of the railway to such an extent that only a comparatively small part of the expenditure is recovered and the abandonment of the line has become necessary.

Street Railway Commissioner Appointed at Cincinnati.—The appointment of C. W. Culkins as Street Railway Commissioner at Cincinnati, Ohio, was unanimously approved by the Board of Rapid Transit Commissioners on Aug. 30. Mr. Culkins took up his duties on the following day, with offices in the city hall. The salary has been fixed at \$7,500 a year. Mr. Culkins was formerly executive secretary of the Chamber of Commerce and made an excellent record in that position. His appointment was made by Mayor Puchta some time ago. His work will be to administer the duties of the Mayor and the Rapid Transit Commission under the provisions of the rapid transit loop lease ordinance, receive complaints and make recommendations in regard to service, extensions and other features of street railway service.

Busy Week in Massachusetts Revenue Affairs.—P. F. Sullivan, president of the Bay State Street Railway, and M. C. Brush, president of the Boston Elevated Railway, testified at hearings in Boston on Sept. 5 and 6 regarding the general problem of securing more adequate revenue for the electric railways of the State in an investigation being conducted by a special legislative recess commission. On Sept. 6 the Public Service Commission of Massachusetts heard the Bay State company in detail regarding proposed standardization of workmen's fare tickets on the system. The speakers in general advocated positive measures leading toward the relief of the companies, with provision for more direct institution of higher fares in certain cases. An abstract of President Brush's remarks is published elsewhere this week. Those by President Sullivan will be summarized in the next issue.

Program of Association Meeting

National Safety Council

The sixth annual safety congress of the National Safety Council will be held at the Hotel Astor, New York, N. Y., on Sept. 11, 12, 13 and 14. There will be two electric railway sectional meetings on Sept. 13, one in the morning and one in the afternoon. The chairman of this meeting is E. C. Spring, superintendent of transportation of the Lehigh Valley Transit Company, Allentown, Pa.; the vice-president, H. B. Potter, assistant to the president of the Boston (Mass.) Elevated Railway the secretary, J. H. Harvey, superintendent of efficiency of the Kansas City (Mo.) Railways. The following addresses are to be presented:

"Prevention of Accidents Between Street Cars and Automobiles."

"What Does the Safety Worker Want the President of His Company to Know?"

"Co-operation Between the Claim Department and the Transportation Department."

"Some Methods of Securing and Sustaining the Co-operation of the Trainmen in Accident Prevention Work."

There will be a public utilities sectional meeting on Sept. 13. This will be devoted to talks on the promotion of safety in the telephone, gas and electric light and power fields.

There will also be a sectional meeting of the car builders on the afternoon of Sept. 14. The addresses will have to do with the prevention of accidents in the building of cars, on the switching and transfer tables and on the shipping tracks.

There will be several sessions at which the promotion of safety on steam railroads will be considered.

Financial and Corporate

Annual Report

Interborough Rapid Transit Company

The comparative income statement of the Interborough Rapid Transit Company, New York, N. Y., for the years ended June 30, 1916 and 1917, follows:

	1917		1916	
	Amount	Per Cent	Amount	Per Cent
Revenue from transportation	\$38,177,195	95.76	\$34,182,100	95.24
Other operating revenue	1,688,951	4.24	1,709,428	4.76
Gross operating revenue	\$39,866,146	100.00	\$35,891,528	100.00
Maintenance of way and structures—actual	\$1,801,474	4.52	\$1,539,217	4.29
Maintenance of equipment—actual	2,121,721	5.32	2,132,339	5.94
Total maintenance	\$3,923,195	9.84	\$3,671,556	10.23
Maintenance of way and structures—depreciation	\$104,030	0.26	\$288,103	0.80
Maintenance of equipment—depreciation	398,144	1.00	331,122	0.92
Total depreciation	\$502,174	1.26	\$619,225	1.72
Total "maintenance" appropriation	\$4,425,369	11.10	\$4,290,781	11.95
Traffic expenses	378		543	
Transportation expenses	10,376,612	26.03	8,330,358	23.22
Accidents and damages	661,023	1.66	551,886	1.54
General expenses	1,120,251	2.81	834,598	2.32
Total operating expenses	\$16,583,293	41.60	\$14,008,166	39.03
Net operating revenue	\$23,282,853	58.40	\$21,883,362	60.97
Non-operating income	559,076	1.40	580,831	1.62
Gross income	\$23,841,929	59.80	\$22,464,193	62.59
Deductions from income:				
Taxes	\$2,871,385	7.20	\$2,341,607	6.53
Interest on bonds (rental)	4,183,995	10.50	4,085,440	11.38
Manhattan dividends (rental)	4,200,000	10.53	4,200,000	11.70
Manhattan cash rental	35,000	0.09	35,000	0.10
Interest on notes and 5 per cent bonds	3,572,515	8.96	3,043,630	8.48
Amortization	625			
Interest on unfunded debt	37,600	0.09	313	
Other rent deductions	36,554	0.09	37,500	0.10
Interest on investment of depreciation reserve	18,897	0.05	7,376	0.02
Total	\$14,956,571	37.51	\$13,750,866	38.31
Net corporate income	\$8,885,358	22.29	\$8,813,327	24.28

The gross operating revenue for the year ended June 30, 1917, increased \$3,974,618 or 11.07 per cent, the result of a gain on the subway division of \$2,097,640 or 10.83 per cent and on the Manhattan Railway or elevated division of \$1,876,978 or 11.35 per cent. The operating expenses increased \$2,575,127 or 18.38 per cent. Of this \$1,242,410 was on the subway division, caused by an increase of 1,407,104 in the car mileage operated, including the new lines opened under Contract No. 3, the general tendency to increased cost of labor and materials and an increase of 16.48 in the number of miles of road operated at the close of the year. On the Manhattan division the increase of \$1,322,716 reflects the increasing cost of labor and material, the operation of the third tracks throughout the year against operation thereof for five and one-half months of the previous fiscal year, and the increase of 2,683,653 in car miles operated. The general increases in wages amounted to approximately \$1,600,000.

The net operating revenue showed an increase of \$1,399,490 or 6.39 per cent, the result of a gain on the subway division of \$855,229 or 6.85 per cent and a gain on the Manhattan Railway division of \$544,261 or 5.79 per cent. The total amount of taxes increased \$529,778 or 22.62 per cent. The subway division showed an increase of \$297,881 or 59.15 per cent, as the result of the increase in the rate of federal income tax and the adoption of the new federal capital stock and excess profits taxes. The Manhattan Railway division showed an increase of \$231,896 or 12.61 per cent, due to the increase in the special franchise tax, the

city and State taxes on capital and earnings, real estate taxes and also to the increased rate of the federal income tax and the adoption of the excess profits tax by the federal government.

The income from operation showed a gain of \$869,712 or 4.45 per cent. This came from an increase on the subway division of \$557,347 or 4.65 per cent, and an increase on the Manhattan Railway division of \$312,365 or 4.13 per cent. The non-operating income decreased \$21,754 or 3.74 per cent, due principally to the decrease in interest on bank balances and loans, reflecting the temporary advances from general cash for the purposes of construction of Manhattan third tracks and power plant improvements.

The gross income gained \$347,958 or 4.21 per cent, the result of a gain on the subway division of \$573,384 or 4.61 per cent, and a gain on the Manhattan Railway division of \$274,574 or 3.57 per cent. Income deductions increased \$675,927 or 5.92 per cent. The surplus over dividends of 20 per cent on the capital stock was \$2,102,654, a gain of \$210,639 over the previous year.

The number of passengers carried in 1917 was 763,574,085 compared with 683,752,114 the year before, an increase of 79,821,971 or 11.67 per cent. This came from a gain on the subway division of 42,688,674 or 11.49 per cent, and on the Manhattan Railway division of 37,133,297 or 11.89 per cent. The increase in traffic the previous year was 36,373,848. Deducting the increase in the number of passengers carried on the new lines constructed and equipped under Contract No. 3 and placed in operation, there remains an increase of 73,191,540 passengers for the old system. This is 10.75 per cent greater than the passenger traffic for the old system in 1916, when there was included five and one-half months' operation of the new elevated third tracks, and it compares with an average annual increase of 5.69 per cent for the last ten years.

The average increase per diem was 223,809 passengers, while the daily increase in gross earnings was \$11,158, against an increase in operating expenses of \$7,160. An analysis of the traffic figures shows a fairly even distribution of the increase over the entire period, indicating that it is not attributable to unusual causes but that it represents a permanent growth due to improved facilities and greater travel per capita.

Betterments during the year showed a net increase in the capital account of \$29,811,729. They include the company's contribution toward construction of the new subway lines, extensions and additions to the shop, power house and station facilities, additional emergency exits, ventilating shafts, duct lines and cable connections on the old system, enlargement of power house units, and the construction and equipping of new sub-stations, feeder cables, passenger stations, switch towers, signal mains and other auxiliary equipment forming part of the new system.

The injuries and damages record of the company for the last year follows:

	1917	1916	Increase
Claims, suits and judgments	\$585,981	\$476,184	\$109,797
Expenses	255,195	210,782	44,413
	\$841,176	\$686,966	\$154,210

The increase in expenditures for accidents was due to conditions arising out of the strike and efforts to prevent litigation by prompt settlement of claims. The total disbursements for injuries and damages and expenses amounted to 2.25 per cent of the gross passenger receipts, an increase of 0.34 per cent over 1916.

The company has acquired the street easements of light, air and access required for third tracking improvements upon its Manhattan Railway lines covering approximately 95 per cent of the entire frontage involved. Pursuant to the decisions of the courts, it was necessary to institute condemnation proceedings covering 29 per cent of the entire frontage. With the exception of 2½ per cent of this frontage, this litigation already has been disposed of by settlement, and in no case has a judgment been obtained against the company, excepting in proceedings brought to effect settlements previously entered into. The aggregate cost of acquiring these easements has been \$3,091,138. In view of the relatively small frontage now outstanding, it seems probable that the total cost will be materially less than the original estimate of \$4,000,000.

Relief a Matter of Time

Present Situation Will Curb Public Belief That It Is Entitled to Secure Constantly Lowered Utility Prices

Henry L. Doherty, chairman of the board of directors of the Toledo Railways & Light Company, Toledo, Ohio, recently expressed the opinion that relief from the present situation confronting public utilities is purely a matter of time. In discussing this point Mr. Doherty said:

"While the present situation in regard to public utilities or any other branch of business where the selling price is more or less fixed is annoying, yet I feel that the period through which we are now passing will prove to be a healthy one for public utility enterprises and public utility securities.

"It is somewhat disturbing to public utilities to see everything that they buy advanced at will over night, and without review of any public body, while they in turn can only get an increased price for their commodity after a protracted public hearing by a State public utility commission or some similar governmental agency.

"Constant improvement in the public utility field of operation, and especially the ability to generate power at a lower and lower cost, has brought about constant reductions in price, until the public had begun to look for changes in price only in a downward direction. The present situation will require a resurvey of the public utility company from a new angle.

"Relief from the present situation is purely a matter of time. The public utility companies have been performing a service at a price far below the value of this service to the consumer; therefore, there is no danger of loss of trade by higher prices. The public utilities commissions realize the situation. Their attitude is constructive. Delay is our only complaint.

"The present situation will curb public opinion in the belief that it is entitled to a constant lowering of prices and will also make possible reforms in the method of charging."

Indiana Company Defaults

Fort Wayne & Northern Indiana Traction Company Unable to Meet Interest Payments Due on Sept. 1—Hope for Readjustment Without Receiver—Jitney a Contributing Factor

A circular sent out to the bondholders of the Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind., announced that it would be impossible to pay interest due on Sept. 1 on the following securities: \$1,059,000 of Fort Wayne & Northern Indiana Traction Company first and refunding mortgage gold 5's, \$6,966,000 of Fort Wayne & Wabash Valley Traction Company first consolidated mortgage 5's, \$1,200,000 of collateral trust 6 per cent gold notes. Security holders are urged to deposit their securities with a protective committee to be composed of some or all of the following, together with such others as may be chosen to represent large interests: William A. Tucker, Jay Cooke, Percy M. Chandler, J. Levering Jones and Randal Morgan. It is necessary that additional capital be secured and that the bonded debt of the parent company and certain of the constituent companies be reduced. The companies particularly named are the Fort Wayne & Wabash Valley Traction Company and the Lafayette & Logansport Traction Company. The difficulties in which the company finds itself are due to a combination of circumstances. The Bluffton accident, damage resulting from the 1913 flood, the appearance of the jitney in Fort Wayne, the competition of the city of Fort Wayne in the lighting field and the generally increased operating expenses are all contributing causes. It is hoped that the necessity for the appointment of a receiver may be avoided.

Bay State Street Railway, Boston, Mass.—Kidder, Peabody & Company and the Old Colony Trust Company, Boston, Mass., are offering, to yield 6¾ per cent, \$1,308,000 of 6 per cent gold equipment notes of the Bay State Street

Railway approved by the Massachusetts Public Service Commission. The notes are dated Aug. 1, 1917. This issue provides in part for the payment for 200 new semi-convertible pay-enter forty-four seat passenger cars and equipment, costing \$1,631,000. The Old Colony Trust Company is trustee under the mortgage securing the notes. The notes are due serially, \$131,000 on Aug. 1, 1918-1926, inclusive, and \$129,000 in 1927, but are callable on any interest date at 100 and interest on six weeks' notice.

Buffalo (N. Y.) Southern Railway.—The bondholders of the Buffalo Southern Railway, operating between Buffalo, Hamburg and Orchard Park, are making an effort to reorganize the property and extend the line to East Aurora. Details of the plan of reorganization were to be presented to the commission at a hearing to be held in Buffalo on Sept. 7.

Manchester Traction, Light & Power Company, Manchester, N. H.—William A. Read & Company, New York, N. Y., and Tucker, Anthony & Company, Boston, Mass., are offering at 93½ and interest \$902,000 of first refunding mortgage sinking fund 5 per cent gold bonds of the Manchester Traction, Light & Power Company, dated Aug. 1, 1917, due on Aug. 1, 1952. The authorized issue is \$15,000,000. The present issue is \$902,000. The proceeds of the present issue will be used to retire floating debt and provide for new construction and the development of valuable water powers, transmission lines, etc. Except for certain property of a value not in excess of \$30,000 held for possible sale, the bonds will be secured by a mortgage on the entire property and assets, subject only to \$2,000,000 of existing underlying liens, which the company agrees to pay at maturity and not to extend on or renew. In April, 1921, this issue will thus become a first mortgage on all property now owned.

Newport News & Hampton Railway, Gas & Electric Company, Newport News, Va.—This company has filed a notice of increase in its capitalization from \$2,375,000 to \$4,000,000 to provide for extensions and improvements to its system.

Orleans-Kenner Electric Railway, New Orleans, La.—The property of the Orleans-Kenner Electric Railway will be sold under foreclosure at New Orleans on Sept. 20 unless payment of obligations of the company now in default is made in the meantime. Principal and interest on indebtedness now overdue are said to total \$284,018. William C. Dufour, of the firm of Farrar, Goldberg & Dufour, attorney for Leigh Carroll, receiver of the railway, has been appointed special master by Judge Foster to make the sale.

Philadelphia Company, Pittsburgh, Pa.—The committee of bankers representing the sinking fund and redemption plan of the Philadelphia Company first mortgage and collateral trust gold bonds due on March 1, 1949, announces that the bonds of this issue duly stamped as provided in the plan are now ready for delivery in exchange for certificates of deposit at the office of the depository or the agent for the depository which issued the certificates. The bankers representing the committee are Ladenburg, Thalmann & Company, Blair & Company, and Hayden, Stone & Company.

Salt Lake & Ogden Railway, Salt Lake City, Utah.—The name of the Salt Lake & Ogden Railway has been changed to the Bamberger Electric Railroad.

Seattle (Wash.) Municipal Railway.—It is proposed to finance a further extension of Division A of the Seattle Municipal Railway into Ballard or purchase the Loyal Railway, Ballard, with the proceeds of an issue of utility bonds. An ordinance to this effect has been introduced in the City Council by Councilman Oliver T. Erickson. The proposition was referred to the public utilities and finance committees of the Council. It is proposed that the bonds shall bear 6 per cent interest, the principal and interest to be payable out of earnings of the line. The Council recently authorized the extension of Division A to the intersection of Leary Avenue and Market Street in Ballard.

Third Avenue Railway, New York, N. Y.—The directors of the Third Avenue Railway have decided to pay on Oct. 1 interest of 1¼ per cent on the company's adjustment income bonds for the three months from April 1 to June 30.

Electric Railway Monthly Earnings

Period		Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
ATLANTIC SHORE RAILWAY, SANFORD, ME.						
1m., July, '17		\$23,326	\$13,048	\$10,278	\$431	\$9,847
1 " " '16		44,761	29,256	15,505	650	14,855
BANGOR RAILWAY & ELECTRIC COMPANY, BANGOR, ME.						
1m., July, '17		\$71,350	*\$41,322	\$30,028	\$18,794	\$11,234
1 " " '16		72,642	*39,318	33,324	17,632	15,692
12 " " '17		\$61,585	*490,717	370,868	222,633	148,235
12 " " '16		805,386	*433,219	372,167	211,578	160,589
CHATTANOOGA RAILWAY & LIGHT COMPANY, CHATTANOOGA, TENN.						
1m., July, '17		\$139,345	*\$90,573	\$48,772	\$29,835	\$18,937
1 " " '16		102,884	*65,613	37,271	30,067	7,204
12 " " '17		1,337,254	*932,375	404,879	357,145	47,734
12 " " '16		1,195,120	*750,209	444,911	357,072	87,839
CITIES SERVICE COMPANY, NEW YORK, N. Y.						
1m., July, '17		\$1,365,312	\$34,011	\$1,331,301	\$229	\$1,331,072
1 " " '16		672,190	20,033	652,157	10,470	641,687
12 " " '17		16,559,106	314,280	16,244,826	3,759	16,241,067
12 " " '16		6,833,862	209,504	6,624,358	461,115	6,163,243
COLUMBUS RAILWAY, POWER & LIGHT COMPANY, COLUMBUS, OHIO						
1m., July, '17		\$320,953	*\$240,374	\$80,579	\$47,540	\$33,039
1 " " '16		287,226	*173,447	113,779	42,862	70,917
12 " " '17		3,781,218	*2,541,200	1,240,018	535,959	704,059
12 " " '16		3,354,689	*1,961,205	1,393,484	504,364	889,120
COMMONWEALTH POWER, RAILWAY & LIGHT COMPANY, GRAND RAPIDS, MICH.						
1m., July, '17		\$1,586,891	*\$958,491	\$628,400	\$445,263	\$183,137
1 " " '16		1,379,381	*764,743	614,638	417,865	196,773
12 " " '17		18,355,019	*10,773,757	7,581,262	5,135,542	2,442,720
12 " " '16		16,009,772	*8,542,235	7,467,537	4,885,185	2,582,352
CUMBERLAND COUNTY POWER & LIGHT COMPANY, PORTLAND, ME.						
1m., July, '17		\$308,571	*\$183,736	\$124,835	\$66,823	\$58,012
1 " " '16		264,023	*159,786	104,237	69,423	34,814
12 " " '17		3,019,819	*1,983,379	1,036,440	812,510	223,930
12 " " '16		2,761,786	*1,653,046	1,108,740	794,467	314,273
HUDSON & MANHATTAN RAILROAD, NEW YORK, N. Y.						
1m., July, '17		\$488,701	*\$236,385	\$252,316	\$217,355	\$34,961
1 " " '16		449,094	*203,770	245,324	214,298	31,026
LEWISTON, AUGUSTA & WATERVILLE STREET RAILWAY, LEWISTON, ME.						
1m., July, '17		\$99,449	*\$62,693	\$36,756	\$15,570	\$21,186
1 " " '16		83,759	*51,196	32,563	15,214	17,349
12 " " '17		861,823	*637,770	224,053	185,042	39,011
12 " " '16		772,132	*508,869	263,263	191,518	71,745
NASHVILLE RAILWAY & LIGHT COMPANY, NASHVILLE, TENN.						
1m., July, '17		\$197,671	*\$131,481	\$66,190	\$41,343	\$24,847
1 " " '16		199,043	*125,137	73,906	42,248	31,655
12 " " '17		2,430,215	*1,535,677	894,538	496,071	398,467
12 " " '16		2,283,640	*1,409,218	874,422	514,590	359,832
NORTHERN OHIO TRACTION & LIGHT COMPANY, AKRON, OHIO						
1m., June, '17		\$520,691	\$332,701	\$187,990	\$80,992	\$106,998
1 " " '16		438,871	222,706	216,165	94,685	121,480
6 " " '17		3,073,752	1,875,814	1,197,938	494,775	703,163
6 " " '16		2,379,499	1,159,645	1,219,854	579,295	640,559
PHILADELPHIA (PA.) RAPID TRANSIT CO.						
1m., July, '17		\$2,437,393	\$1,429,475	\$1,007,918	\$811,330	\$196,588
1 " " '16		2,214,928	1,221,475	993,453	815,267	178,186
PHILADELPHIA & WESTERN RAILWAY, UPPER DARBY, PA.						
1m., July, '17		\$55,775	\$27,335	\$28,440	\$13,019	\$15,421
1 " " '16		46,833	21,257	25,576	12,557	13,019
12 " " '17		547,078	272,848	274,230	150,934	123,296
12 " " '16		497,130	237,413	259,717	150,391	109,326
PORTLAND RAILWAY, LIGHT & POWER COMPANY, PORTLAND, ORE.						
1m., July, '17		\$511,624	*\$279,043	\$232,581	\$177,586	\$54,995
1 " " '16		448,219	*255,256	192,963	181,780	11,183
12 " " '17		5,727,598	*3,093,915	2,633,683	2,169,583	464,100
12 " " '16		5,437,240	*3,069,517	2,367,723	2,199,891	177,832
PUGET SOUND TRACTION, LIGHT & POWER COMPANY, SEATTLE, WASH.						
1m., June, '17		\$755,872	*\$454,318	\$301,554	\$191,438	\$110,116
1 " " '16		632,890	*408,443	224,447	184,651	39,796
12 " " '17		8,812,115	*5,336,144	3,475,971	2,255,365	1,220,606
12 " " '16		7,710,458	*4,937,933	2,772,525	2,199,374	573,151
REPUBLIC RAILWAY & LIGHT COMPANY, YOUNGSTOWN, OHIO						
1m., July, '17		\$388,002	*\$257,983	\$130,019	\$110,178	\$19,841
1 " " '16		326,707	*196,867	129,840	94,773	35,067
12 " " '17		4,344,363	*2,749,919	1,594,444	1,234,765	359,679
12 " " '16		3,674,096	*2,165,626	1,508,470	1,078,359	429,117
TWIN CITY RAPID TRANSIT COMPANY, MINNEAPOLIS, MINN.						
1m., July, '17		\$858,177	\$567,607	\$290,570	\$150,671	\$139,899
1 " " '16		880,859	520,157	360,702	145,046	215,656
7 " " '17		6,034,121	3,975,878	2,058,443	1,026,682	1,031,761
7 " " '16		5,890,274	3,662,780	2,227,494	998,433	1,229,061

*Includes taxes. †Includes non-operating income.

Traffic and Transportation

Buffalo Traffic Recommendations

Report of Inspector Barnes Presented to Commission —Of Forty-six Recommendations Made Many Have Already Been Put Into Effect

Charles R. Barnes, electric railway inspector for the Public Service Commission of the Second District of New York, who made a survey of traffic conditions on the lines of the International Railway, Buffalo, from March 15 to May 18, 1917, has submitted his report to the commission. Of the forty-six recommendations made by Mr. Barnes many have already been put into effect by the company. With the exception of calling attention to the urgent need of additional equipment, the report recommended only minor changes in car routes; changes in the methods of loading passengers in congested industrial centers; the construction of short stretches of track to connect various lines and the speeding up of traffic by the use of the skip-stop plan.

The International Railway has already placed orders for 100 new cars for service on its city lines. These cars will be of the front-entrance and center-exit type and will be delivered within the next sixty days. Other new equipment recommended by Mr. Barnes includes four additional snow sweepers and additional double-truck snow plows.

Among the recommendations which have already been adopted by the company are the creation of a department of car cleaning and sanitation; the use of Mazda lamps for car lighting; the reduction of the number of car stops through the skip-stop plan; the immediate repair of cars with flat wheels and the adoption of a new heating system. Plans have also been made by the company to reroute several lines so as to eliminate congestion in the business district.

SUGGESTIONS MADE IN THE REPORT

Among other recommendations Mr. Barnes suggests the following:

That hand brakes be used on some portion of each trip to insure their being in proper working order in case of failure of air brakes.

That all cars be overhauled on a proper mileage basis. This recommendation also contemplates improved condition of equipment and general appearance of cars.

That temporary emergency wagons be placed in outlying carhouses during unusually severe winter weather to supplement the work of the present equipment.

That not less than twenty-seven additional telephones be installed for the use of train crews.

That daily reports or logs of the power department be revised and rearranged.

That a gasoline car be supplied to the power department to accommodate at least two repair men and a kit of emergency repair tools, thereby reducing the duration of delays from power interruption.

That the use of automatic track switches be extended to facilitate car movement.

That special car service be made available for employees in congested industrial districts and special loading facilities, including the construction of loading stations, be provided at several industrial centers.

That in the congested retail shopping district additional tracks be laid at Shelton Square so that additional cars can be loaded at the same time, and that a shelter roof be constructed over this island of safety.

Application has already been made to the City Council by the company for permission to lay tracks around the Soldiers' Monument in Lafayette Square so as to provide better terminal facilities for the Broadway line and thereby remove that line from Washington Street, which is now badly congested. The William and Clinton lines will also be removed from Washington Street by rerouting them over other East Side streets so as to make their Main Street con-

nections. The commission recommends other rerouting plans which would relieve the congestion in Main Street.

It is suggested that passengers be allowed to board cars of the near-side pay-as-you-enter type by both front doors, especially during the rush hour. One door is now used for the entrance and the other for the exit.

The commission directs that no cars be turned back before reaching their destinations and that car signs shall not be changed before the car reaches its destination. Cars marked "Carhouse" and bound for the carhouse should be required to carry passengers and should return to the carhouse over some street other than Main Street. No work or utility cars should be allowed in the business section during rush hours.

It is pointed out that the number of transfers issued has been reduced materially in recent years by reason of the connection of several lines making through routes, but the report states that the company could further reduce the number of transfers by connecting additional single-end lines.

Touching upon the financial condition of the company the report says the earnings per capita and per car-mile compare favorably with those of other companies and indicate a prosperous financial condition. It is also pointed out that while capital investment and increased operating expense should be considered, they should not be the controlling factors, as the financial condition of the company is such that it can furnish additional service. It is then shown that the general business prosperity during 1916 was reflected in increased earnings per car-mile, the earnings for 1915 being 31.70 cents and those for 1916 33.74 cents.

Springfield Fare Hearing

Massachusetts Public Service Commission Hears Petition for More Revenue by Introduction of Two Fare Units

A hearing was held before the Public Service Commission of Massachusetts on the petition of the Springfield Street Railway for authority to increase its revenue by introducing two fare units. The proposed plan would divide the Springfield territory into two 5-cent zones and increase the fare in the other zones to 6 cents. The application of this plan in Springfield was referred to in the *ELECTRIC RAILWAY JOURNAL* for Aug. 4, page 204. The new 5-cent zones are to be about 2.5 miles wide measured radially from the center of the business district.

The present single-fare zones are unusually large and embrace not only Springfield and West Springfield, but also parts of several neighboring towns, extending about 7 miles from the heart of the city. Much of the outlying territory is thinly settled, the population density being 2190 as compared with 6400 for New Haven's 5-cent zone, 10,390 for Fall River, 7200 for Lowell, 8400 for New Bedford, 4700 for Worcester and 6410 for Manchester, N. H.

Bentley W. Warren, counsel for the associated railways of the State, represented the company. He said that during the seven months from January to August, 1917, the road had failed by about \$48,000 to earn its fixed charges. In July the deficiency was \$6,752, and that month is regarded as usually the most profitable of the year. Mr. Warren said the main issue was the method by which the needed revenue shall be realized. It was at first suggested that a flat increase from 5 cents to 6 cents for the whole territory be put into effect. This was carefully studied, but finally rejected. One objection to a general increase is the fact that a large proportion of the company's patrons are short-ride passengers, who would be affected more than those in territory where the average ride is longer.

It was believed that a 20 per cent increase would not furnish enough added revenue. Last year about 44,000,000 passengers were carried. A 10 per cent loss in patronage was estimated if a 6-cent fare were instituted. This would leave 39,600,000 passengers to pay the increased rate, giving the company \$396,000 additional revenue. On the other hand, the loss of 4,400,000 passengers at 5 cents would take away \$220,000 of that increase, leaving \$176,000 net increase. This was said not to be sufficient.

Touching on the capital aspects of the case, Mr. Warren stated that for every share \$118.98 had been paid into the

treasury. The present capital stock is \$4,654,700, the stockholders having paid \$883,750 in premiums. Some of the stock was bought at as high as \$170. The company paid an 8-per cent dividend for several years up to 1909; then 7 per cent for four years, and 6.5 per cent until Dec. 31, 1916. For 1917 no dividend has been paid on the common stock.

City and town officials at the hearing voiced their objection to the mode of dividing the territory into zones, claiming discrimination against local interests.

Changes in Harrisburg Service

Pennsylvania Commission Makes Several Recommendations to Company for Careful Consideration

As a result of the complaints made by the Harrisburg Railways against sixty-seven jitney operators in that city, the Public Service Commission of Pennsylvania has suggested that several changes be made in the transportation service given by that company. The commission's investigation into this matter was referred to in the *ELECTRIC RAILWAY JOURNAL* for Aug. 25, page 334. The commission has made ten recommendations for changes in the routing and operation of the cars in the city and suburbs and asks the co-operation of the company in the improvement of its service. It desires the company to make and submit studies, plans and estimates of the cost relative to the suggested changes, which, stated in brief, are as follows:

General improvement of Steelton service during rush hours; development of the Nineteenth Street route to Steelton; providing more cars for Steelton during rush hours; building of direct line to Steelton via Second Street.

Rerouting and running cars both ways on North Third Street.

The relocation of tracks in the Capitol Park zone.

Building of new line on Herr Street through the subway under the Pennsylvania Railroad to serve that section of the Hill.

Double-tracking of proposed Walnut Street or State Street viaduct.

Speeding up of cars on lines where traffic is now impeded by congestion and too frequent stops.

Roadbed and tracks to be made the subject of immediate examination in places and number of new cars it is proposed to purchase to be subject of report to commission.

Plan of changes contemplated in Market Square and center of city when Valley Railways terminal is built to be furnished the commission.

Study of widening of Market Street subway recommended.

Plan for general improvement of service in all parts of city to be submitted to the commission.

Frank B. Musser, president of the Harrisburg Railways, after receiving the suggestions from the commission, said that the company will co-operate with the State in making whatever changes can be made immediately looking toward the improvement of the service and that the other points outlined will be made subjects of careful study. Conferences with the commission will be arranged as soon as possible. The company will depend for advice largely upon the report of Bion J. Arnold, who has been working on these problems for several months and whose report will soon be ready.

Six-Cent Fare in Pottsville

The Eastern Pennsylvania Railways, Pottsville, Pa., began charging an additional cent on Aug. 30 according to the terms of its application filed with the Public Service Commission for authority to raise its rates. The company advertised its need for more revenue before the effective date of the increase in a publicity campaign referred to recently in the *ELECTRIC RAILWAY JOURNAL*.

Soon after the first 6-cent fares were collected officials of St. Clair, a borough of Pottsville, ordered a portion of the tracks taken up to prevent cars from running through that town, claiming that an agreement stipulates that no more than a 5-cent fare shall be charged between St. Clair and Pottsville. Attorneys for the Eastern Pennsylvania Railways are preparing an appeal to court for an injunction to prevent interference with the service.

Ohio Roads Meet Opposition

Transfer of Milk to Freight Cars Opposed—Applications for Higher Mileage Rates May Also Be Contested

The promulgation of new schedules increasing the rate of passenger fares and eliminating the transportation of milk from passenger cars has resulted in interesting complications before the Ohio Public Utilities Commission. Municipal and civic organizations have entered protests against the proposed change in milk transportation and threatened opposition to increased passenger fares, if the new plan of carrying milk is put into effect.

As stated in the ELECTRIC RAILWAY JOURNAL for Sept 1, page 374, the Western Ohio Railway Company has already received authority to increase its passenger rates to a basis of 2½ cents a mile. The Cleveland, Southwestern & Columbus has filed new schedules with fares fixed upon the same basis and the Northern Ohio Traction & Light Company has asked the privilege of increasing its rate on round-trip tickets from 1½ cents to 2 cents a mile. From this it has been concluded that most, if not all, the electric roads in the State will eventually file new schedules providing for an increase in fare, because of the excessive cost of materials, equipment and labor.

The Ohio Electric Railway, Springfield, has asked the approval of the commission of its plan to eliminate the transportation of milk from passenger cars, thus limiting that business entirely to freight cars. Towns which have been served by this road are seriously objecting to the change, and the Ohio branch of the Council of National Defense has also made known its opposition to a change of that kind at this time, as it is feared it will result in the waste of milk through delays in the freight service.

It is thought that the request made by the Ohio Electric Railway may be followed by similar ones from other electric and steam roads. This, it is said, would mean a serious situation if the requests are granted.

"The Trollier" Started in Rhode Island

The Rhode Island Company, Providence, R. I., has just issued the first number of *The Trollier*, a weekly publication in the interest of the company and its employees, "that the bond of friendship existing between them may be more firmly cemented and the best service possible be insured to the public." It is edited by E. J. Cooney, executive assistant.

The first issue contains a statement from A. E. Potter, president of the company, in regard to the opportunity for

Automatic Coin Registers in Chattanooga.

The Chattanooga Railway & Light Company, Chattanooga, Tenn., is putting the Rooke automatic register into use on all its lines. The company used advertisements in the local papers with illustrations to instruct its patrons in the use of the new system.

D. U. R. Would Extend Skip-Stop Territory.

E. J. Burdick, assistant general manager of the Detroit (Mich.) United Railway, has written the councils of Hamtramck and St. Clair Heights for permission to put the skip-stop plan of operation into effect in conjunction with the permission granted by the Detroit City Council.

Package Delivery for Wheeling Shoppers.

The West Virginia Traction & Electric Company, Wheeling, has inaugurated a package delivery service. Packages are delivered by the stores to the office of the company and shipped to the destination by trolley. This service will be an especial accommodation to people living in districts where a limited number of deliveries are made by the stores.

Winnipeg Electric Warns Children.

Just previous to the opening of the present school term the Winnipeg (Can.) Electric Railway published an advertisement in the local papers asking parents and teachers to add their co-operation in an effort to prevent accidents. Eleven safety rules were printed, together with the statement that children who have been taught invariably to obey the laws of safety first do so in emergencies by force of habit and thus avoid disaster. It is requested that the rules be read to the children.

Six-Cent Fare Wanted in Portland.

The Portland Railway, Light & Power Company, operating the electric railway system in Portland, Ore., recently petitioned the Public Service Commission of that State to be allowed to charge a 6-cent fare instead of 5 cents as at present. A hearing on the petition was tentatively set by the commission for an early date in September. Platform men of the company have pending a petition to the company for an advance in wages and the company claims it cannot meet this extra expense unless it is permitted to increase its fares.

Company Opposes Commission's Decision.

The Northampton, Easton & Washington Traction Company, Easton, Pa., which operates between Phillipsburg and Port Murray, N. J., has instituted certiorari proceedings in the New Jersey Supreme Court to review the action of the Board of Public Utility Commissioners in refusing the company permission to increase its rate from 5 cents to 6 cents in each of its seven fare zones. The Public Utility Commission held that the contracts with various municipalities through which the road operates are a barrier to increasing the fares.

Interborough Service Hearing Postponed.

The hearing before the Public Service Commission for the First District of New York, which was to have been continued on Sept. 4, to consider the causes for the interruption of service on the subway lines of the Interborough Rapid Transit Company on Aug. 25, was put over for a later date. The commission ordered a larger coal reserve to be provided to prevent any subsequent shutdown, and its engineers, together with those of the company, have been making some further investigations. The results of the first hearings in the case were reviewed in the ELECTRIC RAILWAY JOURNAL for Sept. 1, page 373.

Seattle Jitney Drivers Dismissed.

Thirty-eight of the seventy jitney drivers in Seattle, Wash., charged with operating "for hire" cars without the \$2,500 bond required by the State, were dismissed when arraigned before Justice of the Peace Brinker on Aug. 30. Superior Court Judge Ronald's decision restraining employees of the Puget Sound Traction, Light & Power Company from appearing as witnesses against the defendants caused the dismissal of nearly half of the thirty-eight drivers. The rest had either complied with the law by taking out bonds or had ceased to operate. The remainder of the cases were continued and hearings will be set at an early date.

Electric Freight Service for Webster.

The Public Service Commission of Massachusetts has approved the petition of the Worcester & Webster Street Railway, the Webster & Dudley Street Railway and the Worcester Consolidated Street Railway, lessee of the first-named roads, for authority to do an express and freight business in the

THE TROLIER

Published by the Rhode Island Company, Providence, R. I.

Volume 1, Number 1, September 8, 1917

Price 5 Cents

Editor: E. J. Cooney

President: A. E. Potter

Advertisement text on the cover includes: "A Word About Success", "The Rhode Island Company", "Employees of the Rhode Island Company", "The Trolley", "The Streetcar", "The Tramway", "The Railway", "The Electric Railway", "The Light & Power Company", "The Traction Company", "The Railway Company", "The Electric Company", "The Light Company", "The Power Company", "The Traction Company", "The Railway Company", "The Electric Company", "The Light Company", "The Power Company".

SPECIMEN PAGES OF RHODE ISLAND COMPANY'S BULLETIN

employees to become successful through helping the company to secure success. Other articles deal with matters of news and points in which the employees should have or should acquire an interest.

Later on the scope of the publication will be widened considerably, but for the present the issues will be wholly in the interest of the employees. From time to time, however, the company expects to issue circular matter on various topics in addition to the weekly.

Webster district. The city authorities, through their counsel, and representatives of Webster business concerns objected to the new service largely on the ground that no provision had been made for a freight station and that delivery of shipments from the cars in the streets would cause congestion of traffic and be a menace to public safety. The companies had made plans before the hearing for a freight delivery station at a convenient point.

Higher-Fare Advertising in Rochester.—The Rochester Lines of the New York State Railways are conducting a campaign in an effort to enlist the support of the public in their request for a 6-cent fare now before the Public Service Commission for the Second District. A series of newspaper advertisements is being used under the caption "The Street Car Nickel Will No Longer Provide Street Car Service." All of the advertisements are signed by James F. Hamilton, general manager of the company. One advertisement on the subject of company prosperity points out that "cities cannot be prosperous without efficient utilities, and utilities cannot be efficient without prosperity." It points out the merits of the electric railway service in Rochester as compared with that in other large cities in the United States and declares that this condition is worth protecting.

Traffic Law Hurts Texas Jitneys.—The new highway law in Texas is working against the jitneys under the interpretation of the law as given at the office of the attorney general for the guidance of peace officers in its enforcement. Especially is this true in Dallas, the only city in the State that previously had failed to enforce its ordinances enacted to effect better jitney regulation. The provisions of the new law were stated briefly in this paper for June 30, page 1206. The officers of Dallas have been particularly rigid in their enforcement of these provisions. Several hundred arrests have been made and in the majority of cases fines have been assessed. This law-enforcement campaign has already caused many jitney drivers to cease operating. While it is proving of great aid to the electric railway lines, officials of several companies in Texas say their receipts have been cut into by the jitneys so that several years will be required to get back to normal conditions.

Trenton Car-Riding Ordinance Defeated.—The City Commission of Trenton, N. J., has defeated the ordinance introduced by Director of Public Safety LaBarre to prohibit persons from riding on the running boards, fenders and bumpers of trolley cars and fixing a fine of \$100 for offending companies. John L. O'Toole, assistant to the president of the Public Service Corporation, and Gaylord Thompson, manager of the New Jersey & Pennsylvania Traction Company, said the responsibility for the excessive overcrowding of cars rested with the traveling public. They declared the crews of the cars did not have the authority to eject passengers, and that attempts to enforce the ordinance would cause disorder on the cars. They suggested that cars with running boards could be replaced by other cars. It is said that Commissioner LaBarre will introduce a new resolution after the railways have abolished cars with running boards. The city ordinance requiring electric railways to sprinkle along their track has also been defeated.

Directing Louisville Traffic.—Citizens of Louisville are receiving "Walk-Rite" instruction from local Boy Scouts, who are acting on the suggestion of the Rotary Club of Louisville and in co-operation with the city officials. At all of the downtown corners where traffic police are stationed or semaphores are operated three Scouts are stationed on each sidewalk armed with the staves which they carry. They bar the way or lift the staves simultaneously with the traffic officer's operation of the semaphore, the idea being to impress on the minds of the pedestrians that the traffic regulations are to be obeyed. The boys also carry standards bearing traffic instructions. In addition to directing traffic across the intersections the Boy Scouts patrolling the streets hand out cards explaining the proper use of the street. The cards contain the following rules: 1. Keep to the right always. 2. Do not congregate in middle of sidewalk. Step to one side. 3. Do not cross the streets except at intersections. 4. Glance to the left and then to the right when crossing a street to avoid moving vehicles. 5. Do not cross streets until signaled to do so by traffic officer. 6. Obey all traffic regulations.

Personal Mention

C. L. Van Doren has been elected president of the Kankakee & Urbana Traction Company, Urbana, Ill.

A. C. Erwin, a director of the Athens Railway & Electric Company, Athens, Ga., has been nominated for Mayor of that city.

Harry Hollis, electrical engineer for the Reading (Pa.) Transit Company, has resigned to accept a similar position with the Bethlehem Steel Company at Lebanon.

U. G. Fowler has been elected vice-president of the Kankakee & Urbana Traction Company to succeed W. I. Saffell. The latter will continue as general manager.

T. E. Leland, assistant freight agent of the Bay State Street Railway, Boston, Mass., has been made general freight agent of the company to succeed George Dunford.

Lawrence B. Webster, secretary of the Western Ohio Railway, with headquarters in Cleveland, has been commissioned as captain in the ordnance department of the United States Army.

Harry J. Clark has been appointed treasurer and assistant general manager of the Syracuse, Lake Shore & Northern Railroad, Syracuse, N. Y., following the reorganization of that company.

Joseph F. Porter has resigned as president of the Tri-City Railway & Light Company, Davenport, Iowa, to become president of the Kansas City Light & Power Company, Kansas City, Mo., to succeed John H. Lucas.

Edward J. Cooney has been appointed executive assistant of the Rhode Island Company, Providence, in charge of a newly established publicity department. Mr. Cooney will edit *The Trollier*, a new publication portrayed on page 417 of this paper.

Fred J. Moore has been appointed general superintendent of transportation of the Ohio Electric Railway, with headquarters at Springfield. Mr. Moore has been connected with the company since its organization. For several years he has held the position of superintendent of the three divisions entering Columbus.

C. W. Culkins has been appointed street railway commissioner at Cincinnati, Ohio. Mr. Culkins was formerly executive secretary of the Chamber of Commerce. He will administer the duties of the Mayor and the Rapid Transit Commission according to the provisions of the rapid transit loop lease ordinance. He will also act in an advisory capacity and make general recommendations in the service.

Harold V. Bozell, one of the organizers of the Oklahoma Electric Railway Association and of which he was secretary for a number of years, has accepted the position of assistant professor of electrical engineering in the Sheffield Scientific School of Yale University. Professor Bozell has been professor of electrical engineering at the University of Oklahoma for nine years, but has been at Yale University during the past year on Sabbatical leave. He is a graduate of the University of Kansas, class of 1908. He is well known throughout the State of Oklahoma for his active interest in engineering affairs.

Dr. Howard B. Shaw, former dean of the School of Engineering of the University of Missouri and later a member of the Public Utilities Commission of that State, has been appointed advisory head of the cadet schools of the Doherty Organization. His duties will include the selection of men from universities, supervising the courses and recommending the men for positions in the organization. Dr. Shaw is a graduate of the University of North Carolina, class of 1890. He received an A. M. degree from Harvard four years later. Prior to 1896 he engaged in instructional work in the University of North Carolina and Lawrence Scientific School, Harvard University, and in that year he became assistant professor of electrical engineering at the University of Missouri. He was made dean of the School of Engineering there in 1907. Dr. Shaw has also had considerable experience as a consulting engineer.

W. J. Grambs, assistant to the president of the Puget Sound Traction, Light & Power Company, Seattle, Wash., has been appointed by the United States Shipping Board to the position of section chief of the Sixth District of the Free Navigation Schools established by the government and under the board's general supervision. The sixth district comprises Washington and Oregon, and Mr. Grambs has direct supervision over the schools of Portland, Astoria and Tacoma.

George Dunford, for the last eleven years general freight agent for the Bay State Street Railway, Boston, Mass., has resigned. Mr. Dunford was first employed by the National Express Company thirty-two years ago and after its consolidation with the American Express Company he remained with the latter company for several years. He next became general express agent for properties in New York State formerly controlled by the Mohawk Valley Company and since transferred to the New York State Railways. In February, 1906, three years later, he accepted the position of general express and freight agent for the Bay State Street Railway and has continued in that capacity until the present time.

Lawrence E. Gould has resigned his long connection with the *ELECTRIC RAILWAY JOURNAL* and has organized the Economy Electric Devices Company which will act as exclusive sales agents for the railway products of the Sangamo Electric Company, with offices in Chicago. Mr. Gould is undoubtedly one of the best-known men in the electric railway industry, due to his active work in a number of the territorial electric railway associations, as well as in the American associations, and because of a personality which once known is long remembered. His many friends will be interested in knowing of his decision to devote his time to the sale of a device and the promotion of educational work, which together offer immense possibilities for economy in the industry with which he has spent most of his business life. Mr. Gould was born in the State of Michigan in 1878 and received his electrical engineering education at Cornell University. As a boy in school he worked for the Owosso & Corunna Electric Railway & Light Company, which is now a part of the Michigan Railway system, on various work around the repair shops and also on line work. During his college course he did some triangulation work and contour sketching in the State of New York for the United States Geological Survey, and after graduation served as apprentice on the road now known as the Albany Southern Railroad. He worked on this road from June to October, 1901, and when he resigned was general foreman of the electrical department and had charge of the transmission, conversion and distribution systems and the lighting in the cities of Hudson and Rensselaer. After a few months spent in civil engineering work on the Mineola, Hempstead & Freeport Electric Railway, Hempstead, N. Y., he became connected with the Aurora, Elgin & Chicago Railroad as assistant electrical engineer, and remained with this property during the entire construction period. At its completion, in 1903, he became chief engineer in charge of location and construction of the Sterling, Dixon & Eastern Electric Railway, now controlled by the Middle West Utilities Company. After that road was built, in 1904, he became engineer of the Columbia Construction Company of Milwaukee, then engaged in electric railway construction, and while connected with this company he wrote a series of articles on electric railway construction for the *Street Railway Review*, known later as the *Electric Railway Review*. These articles led to his appointment, in January, 1905, as electrical editor of the paper, and in the fall of that year he became its editor-in-chief. With the consolidation in 1908 of that paper and the *Street Railway Journal* to form the *ELECTRIC RAILWAY*



L. E. GOULD

JOURNAL, Mr. Gould became Western editor of the combined paper and retained this position until late in 1912, when he moved to New York to become business manager of the paper. In May, 1914, he returned to Chicago as Western manager, and, on May 1, 1916, he was appointed industrial editor in charge of the department which he created, intended especially for manufacturers and purchasing agents and known as the "Manufactures and Markets" department. This work he continued to date.

J. D. Whittemore, who was heretofore general manager of the Claremont Railway & Lighting Company, Claremont, N. H., has been appointed general manager of the West Virginia Traction & Electric Company, Wheeling, W. Va. Both roads are controlled by the Eastern Power & Light Corporation, New York. Mr. Whittemore was at one time employed by the General Electric Company at Schenectady, N. Y., and later was transferred to Boston, working in the construction department. He subsequently entered the industrial engineering department of the Rochester Railway & Light Company, Rochester, N. Y. Prior to his connection with the Claremont Railway & Lighting Company he was manager of the Gardner (Mass.) Electric Light Company.

J. Milton Ayer of the engineering staff of the Boston (Mass.) Elevated Railway has resigned to become treasurer of the Day Baker Motor Truck Company of Boston. Mr. Ayer was educated at the University of Maine and at Harvard University, and has had a wide experience in both the civil and electrical engineering fields. Before joining the staff of the Boston Elevated Railway he was associated with a district steam heating company in Boston. He has been closely identified with the engineering side of rapid transit development there, and for several years was an assistant in the office of the chief engineer of motive power and rolling stock. Recently he has been engaged in special investigations in executive service. In his new post, Mr. Ayer will be associated with the development of the New England agency for the sale of gasoline and electric trucks and power station and industrial conveying machinery.

R. R. Hayes, who, as reported last week, has been appointed general manager of the Tiffin, Fostoria & Eastern Electric Railway, Tiffin, Ohio, was born in 1876. He entered the service of the Western Ohio Railway in March, 1902, as extra conductor and was advanced to the position of train dispatcher about three years later. On Jan. 1, 1907, Mr. Hayes became connected with the Chicago, South Bend & Northern Indiana Railway as division superintendent at Elkhart, Ind., and in October, 1910, resigned to enter the service of the Illinois Traction System as dispatcher at Decatur. The following year he re-entered the service of the Western Ohio Railway and soon afterward was made superintendent of transportation. He had been superintendent of overhead for that company for the last two years, from which position he resigned to become general manager for the Tiffin, Fostoria & Eastern, succeeding Samuel B. Sneath, who was president and general manager.

Obituary

William Lacey, assistant superintendent of the Wisconsin Traction, Light, Heat & Power Company, Appleton, Wis., died recently from a stroke of apoplexy. Mr. Lacey was forty-nine years of age.

Martin N. Todd, president of the Galt, Preston & Hespeler Street Railway and general manager of the Lake Erie & Northern Railway, Galt, Ont., died at his home in that city on Aug. 29. Mr. Todd had been in ill health for about a year. He was on sick leave last spring and made a trip covering several weeks, during which he visited New Orleans and other Southern points. He was fifty-nine years of age.

Thomas J. Harrington, formerly superintendent of the Pittsburgh & Charleroi Street Railway, which is now operated by the Pittsburgh (Pa.) Railways, died recently at the home of his sister in Charleroi, Pa. Mr. Harrington had resigned from active service on account of injuries received in a wreck several years ago. Prior to that time he had been in the employ of the Pittsburgh & Charleroi Street Railway for more than thirty-five years.

Construction News

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

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

RECENT INCORPORATION

***East Texas & Gulf Railway, Hicks, Tex.**—Incorporated to construct a line from Hicks to Warsbaugh, 10 miles. Capital stock, \$20,000. Among the incorporators are E. R. Campbell and A. E. Ammerman, of Houston, and S. B. Hicks, J. T. Wurzbach, M. F. Johnson and T. H. Scoville, of Shreveport, La.

FRANCHISES

Santa Ana, Cal.—The Pacific Electric Railway has received a franchise from the Board of Supervisors to construct an extension from Orange north to the Tustin line.

Edwardsville, Ill.—The Alton & Edwardsville Railroad has received a thirty-year franchise from the City Council to construct a line in Edwardsville. The franchise provides that work shall be begun within six months and the line is to be in operation by Sept. 1, 1919.

Shelbyville, Ky.—The Louisville & Interurban Railroad has received a franchise from the City Council for an extension on Main Street, east of First Street.

Dayton, Ohio.—The People's Railway has received a franchise from the County Commissioners of Dayton to extend its line on North Main Street outside the city corporation line.

Henryetta, Okla.—At a special election recently held in Henryetta, the electors voted to grant the Henryetta-Dewar-Kusa Traction Company a franchise to construct an electric railway in Henryetta. [Aug. 25, '17.]

Tacoma, Wash.—The extension of the Tideflats line of the Tacoma Municipal Railway from the Todd shipyards up the Hylebos waterway to Lincoln Avenue and the Buffelin Mill Company's plant has been approved by the City Council.

TRACK AND ROADWAY

***Birmingham, Ala.**—The Birmingham Civic Association advocates the construction of an electric railway from Birmingham to the Warrior River, about 20 miles. T. L. Cannon, chairman.

***Globe, Ariz.**—William V. Shenk, Globe, Ariz., represents a syndicate which proposes to build an electric railway from the southwestern part of Colorado through Arizona and northern Mexico, extending to the Gulf of California. The project includes a huge dam on the Colorado River, 60 miles from the Arizona-Utah line, a 200,000-hp. hydro-electric plant and a port on the Gulf. The preliminary work will cost about \$500,000.

Municipal Railways of San Francisco, San Francisco, Cal.—Plans and specifications for connecting the Parkside district with the Twin Peaks tunnel are being prepared. City Engineer M. M. O'Shaughnessy, with the authorization of the public utilities committee of the Board of Supervisors, has recommended an appropriation of \$90,000 to cover the construction of tracks. The proposed line will extend from the western portal of the tunnel over Taraval Street to Twentieth Avenue, where it will connect with the United Railroads system. The municipality will operate its cars to Thirtieth Avenue under a special clause in the Parkside franchise.

Waterbury & Bristol Tramway, Waterbury, Conn.—Inability to get labor and material has caused the postponement of the construction of the Waterbury & Bristol Tramway between Bristol and Waterbury, which was scheduled to be started this month. Work on the line will probably be begun in the spring. Frederick N. Manross, Bristol, president. [May 19, '17.]

Valdosta, Moultrie & Western Railway, Valdosta, Ga.—It is reported that electrically-operated motor cars will be operated on the Valdosta, Moultrie & Western Railway.

***Chicago, Ill.**—It is reported that the Mark Manufacturing Company contemplates the construction of an electric railway from East Chicago and Whiting to Indiana Harbor in connection with a model city comprising 190 acres which it is building for its employees.

Jacksonville Railway & Light Company, Jacksonville, Ill.—This company has received permission from the City Council of Jacksonville to remove its tracks on East State Street. The rails will be used either on West State or South Main Street, where the lines are to be rebuilt in connection with the new pavements.

Central Illinois Public Service Company, Mattoon, Ill.—The property of the Southern Illinois Railway & Power Company has been taken over by the Central Illinois Public Service Company. It is reported that the line will be extended to Marion, there joining lines of the Coal Belt Electric Railway and the Murphysboro Electric Railway, Light, Heat & Power Company, with the view of entering St. Louis by finally joining several electric railways now being operated and promoted south from St. Louis.

Rock Island Southern Railroad, Monmouth, Ill.—Work has been begun by the Rock Island Southern Railroad on the rehabilitation of its line between Galesburg and Monmouth. Improvements are also being made to its power house at Cameron.

Quincy (Ill.) Railway.—Work will be begun at once by the Quincy Railway on the construction of a loop near the Chicago, Burlington & Quincy Railway station on Second Street.

Des Moines (Iowa) City Railway.—A contract has been awarded by the Des Moines City Railway to the North American Construction Company for the double-tracking of Sixth Avenue from Grand Avenue to School Street.

***Jackson, Ky.**—Plans are being made by Mayor Hays and others of Jackson to construct an electric railway to connect Jackson, Quicksand, O. and K. Junction and Kragon. A company is being organized with Mayor Hays as head.

New Orleans Railway & Light Company, New Orleans, La.—A monthly allowance of \$16,667 from its current surplus earnings will be made by the New Orleans Railway & Light Company until June 1, 1918, to be used for improvements and replacements to its system in New Orleans.

New Castle, Me.—Burgess, Lang & Company, Boston, Mass., reported in a recent issue as contemplating the construction of an electric railway from New Castle to Boothbay Harbor, state that the line will not be built in the immediate future. [June 2, '17.]

United Railways & Electric Company, Baltimore, Md.—A financial plan has been arranged by this company under which the proceeds of an issue of \$3,000,000 of five year notes will be used for various extensions and improvements during the next four years.

Vicksburg Light & Traction Company, Vicksburg, Miss.—The tracks of the Vicksburg Light & Traction Company at Walters are being raised to a point which will be on a level with new pavement to be laid by the city.

Trenton & Mercer County Traction Company, Trenton, N. J.—The City Commission has ordered the Trenton & Mercer County Traction Company to remove its feed wires and poles, etc., from Division, Hudson, Southard, Monmouth, Kent, Prospect, Beatty, Globe, Mulberry, Elmer and Frazier Streets and Cummings, Evans, Lincoln, Brunswick and Chestnut Avenues. It is held by the commission that the company did not have the authority of the State or the municipality to erect these poles and wires.

Brooklyn (N. Y.) Rapid Transit Company.—Work will be begun at once by the Brooklyn Rapid Transit Company on the extension of the Metropolitan Avenue surface line from its present terminus at St. John's Cemetery, Middle Village, to Jamaica.

Buffalo Southern Railway, Buffalo, N. Y.—Plans are being made to reorganize the Buffalo Southern Railway, now in the hands of a receiver, and to extend the line from East Seneca to East Aurora, via Springbrook and Elma.

Dunkirk (N. Y.) Street Railway.—The Public Service Commission for the Second District of New York has denied the application of the Dunkirk Street Railway, a subsidiary of the Buffalo & Lake Erie Traction Company, for approval of its abandonment of a portion of the city belt line. The company is ordered to replace the trackage torn up and to continue operation of the line.

Southern Public Utilities Company, Charlotte, N. C.—Grading has been completed by the Southern Public Utilities Company for two double-track lines to Camp Greene. A 500-ft. trestle will be built in connection with one of these lines.

International Railway, Buffalo, N. Y.—E. J. Dickson, vice-president of the International Railway, has notified the City Council of Lockport that the company cannot build its double-track line in West Avenue this year, owing to the condition of the money market. The work will be done next spring.

Lindsay & Minden Railway, Minden, Ont.—It is reported that negotiations are under way for the construction of the Lindsay & Minden Railway. A preliminary survey has been made through Minden to Mountain Lake and estimates are being prepared as to cost. [March 23, '12.]

Port Arthur (Ont.) Civic Railway.—A report from the Port Arthur Civic Railway states that it is placing concrete reinforced lines adjacent to its rails on the main line on Cumberland Street, between Arthur and Bay streets.

Trenton, Bristol & Philadelphia Street Railway, Philadelphia, Pa.—The work of rebuilding the tracks of the Trenton, Bristol & Philadelphia Street Railway is now well under way and several miles of tracks have been relaid, new ties placed in position and many new rails laid. New switches have also been laid and stone ballast placed between the rails. The company plans to reconstruct its line between Torresdale and Bristol and between Bristol and Morrisville.

Reading Transit & Light Company, Reading, Pa.—About \$200,000 is being spent by the Reading Transit & Light Company this year on extensions and improvements to its system.

Texas Electric Railway, Dallas, Tex.—Work on the extension of the street car line at Waco to Camp MacArthur is progressing rapidly. Owing to scarcity of steel, the company has been forced to dismantle switches and spur tracks at Waco, Waxahachie and Kirkland Park to get steel for this extension.

***International & Great Northern Railway, Houston, Tex.**—Official announcement has been made that the International & Great Northern Railway will construct an electric railway from Fort Worth to the site of the Canadian Army aviation training camp at Everman, 9 miles south of Fort Worth. The company will purchase a sufficient number of cars to care for all the traffic and a regular schedule will be maintained.

Oregon Short Line Railroad, Salt Lake City, Utah.—It is reported that an extension will be built by the Oregon Short Line from the Ogden Cement Plant to Bear River, about 6 miles. It is said that the new road when completed will be turned over to the Ogden, Logan & Idaho Electric Railway and will eventually be extended to Brigham City to connect with the electric line at that place.

Rutland Railway, Light & Power Company, Rutland, Vt.—The work of relaying the ties on its system has been completed by the Rutland Railway, Light & Power Company. During the last year the company has replaced 12,500 ties and rebalasted about 4 miles of road.

Seattle (Wash.) Municipal Railway.—The Board of Public Works is receiving bids for the improvement of Division A of the Seattle Municipal Railway by construction of a trestle approach on Thorndyke Avenue, and by constructing single and double track for the street railway, furnishing all labor and material therefor, excepting rails, angle bars and special work.

North Coast Power Company, Vancouver, Wash.—This company is considering abandoning its line between Centralia and Chehalis. It is stated that competition from jitneys between the two cities is causing the line to be operated at a loss.

Green Bay & Eastern Railway, Green Bay, Wis.—This company, which proposes to construct a line from Green Bay to Manitowoc and Sheboygan, has increased its capital stock to \$3,000,000. William M. Willinger, Manitowoc, president. [April 21, '17.]

SHOPS AND BUILDINGS

Des Moines, Iowa.—The Fort Dodge, Des Moines & Southern Railway and the Inter-Urban Railway plan to construct a passenger and freight terminal at Second and Grand Avenue, Des Moines. A structure to cost about \$250,000 is planned.

Public Service Railway, Newark, N. J.—The New Jersey & Pennsylvania Traction Company and the Public Service Railway have under consideration the construction of new terminals in Trenton.

Trenton & Mercer County Traction Corporation, Trenton, N. J.—This company will erect a modern passenger terminal at Princeton. The architecture will conform with the Gothic structures of Princeton University. New sidings and switches will also be laid. Material for the new building and the track is now on the ground.

Buffalo & Lake Erie Traction Company, Buffalo, N. Y.—A new concrete passenger and freight station will be built by the Buffalo & Lake Erie Traction Company at Union and Main streets, Westfield. Application has been made to the municipal authorities of Westfield by the company for permission to extend its line through Main Street to the new property.

New York State Railways, Syracuse, N. Y.—Plans have been prepared by the New York State Railways for the construction of a new carhouse and shops, 75 ft. x 150 ft., to be erected at Burnett and Fairview avenues.

Sand Springs (Okla.) Railway.—This company reports that it will place contracts within the next four weeks for the construction of a new carhouse.

Texas Electric Railway, Dallas, Tex.—A contract has been awarded by the Texas Electric Railway for remodeling its passenger station at Corsicana. The improvements will cost about \$8,000.

POWER HOUSES AND SUBSTATIONS

Pacific Gas & Electric Company, Sacramento, Cal.—A contract has been awarded to the Pacific Gas & Electric Company for furnishing Camp Fremont with electricity. The company has begun work at the camp, and substations are being built, rights-of-way established and the poles erected.

Wilmington & Philadelphia Traction Company, Wilmington, Del.—This company will construct an addition to its plant at Eighteenth and Buena Vista streets. The structure will be one story in height, 64 ft. x 54 ft., and will be of steel and concrete. The cost is estimated by the company at \$55,000.

Washington & Old Dominion Railway, Washington, D. C.—The power house of the Washington & Old Dominion Railway at Rosslyn will be closed and energy will be purchased from the Potomac Electric Power Company to operate the system.

Hattiesburg (Miss.) Traction Company.—Lighting service and power for pumping water will be supplied by the Hattiesburg Traction Company to the militia camp situated at Hattiesburg.

Metropolitan Electric Company, Reading, Pa.—This company has completed plans for the erection of another substation, of 13,000-volts capacity, in the vicinity of Sixth and Bern Streets, Reading.

Puget Sound Traction, Light & Power Company, Seattle, Wash.—It is reported that this company will change both its Georgetown and Western Avenue plants over from oil burners to coal. About \$250,000 will be required to install chain grates or automatic stokers for the burning of coal instead of oil at its Georgetown plant and an equal amount will be spent on the Western Avenue plant.

Marinette & Menominee Light & Traction Company, Marinette, Wis.—Plans have been prepared by this company for a transformer station.

Manufactures and Markets

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

Credit Problems and Conditions

Railways Meeting Obligations Promptly—Progressive System of Payments Has Advantages—Manufacturers Take Into Account Railway's Methods of Raising Funds

Railway companies which are buying materials and equipment, are, as in the past, meeting their obligations promptly. Some large sales have been made recently and in case the manufacture of the equipment extends over a long period, progressive payments are usually arranged between the manufacturer and the purchaser. This system has its advantages and insures the manufacturer of partial payment for the equipment as the work progresses. The need for a progressive system of payments is easily understood when the conditions existing in the factory of the manufacturer are analyzed. A railway may place an order for standard equipment which would ordinarily be taken out of stock. If the manufacturing company cannot supply the demand until it has made large investments in raw materials, it does not request progressive payments from the railway, as it is up to the manufacturer to keep large reserve supplies of fairly standard stocks on hand, regardless of orders received. On orders of this nature payments may vary, but usually the terms are net cash, thirty days from date of invoice. In other instances, such terms as 50 per cent of the total order on the date of shipment, 40 per cent in thirty days, and 10 per cent in sixty days have been arranged.

PROGRESSIVE PAYMENTS NECESSARY FOR SPECIAL APPARATUS

However, when large orders for special equipment, such as large units of electrical apparatus, etc., are received, it is necessary for the manufacturer to make an enormous outlay for raw materials at once, with no chance of receiving any money on the order until date of shipment, which might be from eighteen to twenty-four months, unless progressive payments were specified.

One objection that is of importance has been made to this system. When the manufacturer reports that a certain amount of work has been completed for which payment is due, it is necessary for the railway company to send an engineer or inspector to the factory to check up the manufacturer. Occasionally an inspector is kept at the factory in case the volume of work is sufficiently great to demand one. Where this inspection prevails little trouble has been experienced, but in other instances engineers and factory men have not been able to agree on estimating the progress of the work and payments have been held up on this account. Frequent trips by engineers are expensive, especially if the railway is a considerable distance from the factory.

One large company has solved this progressive payment problem in the following manner. When a large order is under consideration the credit manager asks the engineering department for estimates on the progress of the work on certain future dates. Upon the receipt of the engineering department's progress report, a contract is drawn up specifying payments of a given amount on the specified dates named by the engineering department. This arrangement relieves the railway of inspecting the equipment under construction and at the same time guarantees regular payments without quibbling about the progress of the work. The terms of progressive payments vary considerably, but usually four or five payments, aggregating 50 per cent of the total amount of the order, are required before the date of shipment, with payments at the end of thirty, sixty or ninety days for the 25, 15 and 10 per cent, respectively, of the balance of the purchase price.

The usual procedure of the larger railways when purchasing a considerable number of cars is to have their engineers get out specifications, etc., of the equipment required, simultaneously formulating a method of obtaining the necessary money to meet their obligations. This is done either by special bonds, issuing of equipment notes, etc. The manufacturer from whom the equipment has been ordered usually requires a guarantee or a knowledge of the financing to be done by the company.

Occasionally a manufacturer has been approached by promoters to furnish equipment for a road in the process of building and on which certain securities, such as bonds, mortgages, etc., are offered. These properties are investigated very carefully and credit extended only when the financial plans of the property concerned are approved by the manufacturer.

Railway supply manufacturers feel the closeness of the present money situation, as the raw material producers require sight draft payment on the receipt of certain materials. Unless the supply men can make the same terms as they are given for raw material, they must require a considerably greater outlay of capital than heretofore with which to conduct their business.

Deliveries on Trucks Uncertain

Six to Twelve Months Being Quoted—Special Truck Parts Scarce—Some Delay Due to Government Orders

Truck deliveries are being quoted from six to twelve months, depending on the size of the orders received. Small orders can be delivered in six months, according to one truck manufacturer, but only in case cast-iron wheels are specified. Where steel or other types of special wheels are specified, more than twelve months is required to complete orders. In former times it was usually possible to deliver the trucks for a large car order by the time the car bodies were completed, but this condition no longer exists. Reports have been received from two large companies to the effect that car bodies which have been finished by the builder have not been put in operation on account of failure to receive trucks. Several of the largest truck manufacturers have either accepted government work or are expecting to close contracts shortly. The government orders will no doubt slow up truck deliveries considerably. One large manufacturer has stopped all work on trucks in order to rush important work which is now on hand under government contract.

MANY PARTS IN TRUCK MAKE-UP

When orders for trucks are placed, usually some special parts are designated, such as wheels, axles, journal boxes, center or side bearings, etc. If one or more of these special parts is required the delivery of these parts usually determines the delivery of the trucks. As a rule the special part delay the delivery from two to five months. Standard designs are being emphasized by the truck manufacturers, and the difference in delivery dates of standard and special trucks is sufficient in most cases to show the railway men the advantage of ordering the former.

Some railway companies have attempted to manufacture their own trucks. One truck manufacturer made a bid for a year's business of a large Middle West company and was surprised to receive an answer that the railway company had actually built trucks cheaper than the bid which had been submitted. The truck company decided to investigate the matter and sent a truck specialist out to the property to go over the figures with the general manager. Most of

the figures prepared by the railway were checked satisfactorily with the exception of the amounts for labor and for overhead expense. Practically nothing was charged up by the railway to labor, and the explanation given was that the work on trucks was done when the men were not employed on other work. In other words, labor that should have been charged up to trucks was charged to general repairs, maintenance, etc. After the labor and overhead charges had been added to the railway's costs it was found that the manufacturer's estimates were considerably lower than what the railway had spent. Such instances have caused the truck manufacturers to look for business in other fields, and the acceptance of orders for heavy motor truck parts or gun carriages by the truck manufacturers will have a decided effect in slowing up truck deliveries.

Big Car Shortage Probable During Winter Season

Thousands of Cars Being Requisitioned to Supply Cantonments—No Freight Cars Ordered for Many Months

Reports from time to time that have appeared in these columns have indicated that the car shortage has been decreasing gradually and that manufacturers have experienced less trouble than heretofore in making shipments of supplies and equipment to railways. New conditions, however, now exist which are causing railroad officials to believe that a big car shortage is not far off. During the past two months thousands of freight cars have been requisitioned by the government to furnish raw materials and supplies for the building of cantonments in different parts of the country. It is true that these cantonments will soon be completed and many of the cars may be withdrawn. However, the camps must be continually furnished with food and supplies and it is believed that a considerable number of these cars will not be released for some time.

Another factor that must be given serious consideration is that no car orders are being placed by either the steam or electric freight roads nor are there liable to be any placed for some time. As mentioned in a recent article in the Manufacturers and Markets department, about 100,000 freight cars were on order in the different manufacturing plants on June 1, but most of these orders are of long standing and many are nearing completion. On account of the government's action in requisitioning freight cars to be used where they are most needed there has been little incentive on the part of the railroads to place orders for additional equipment. Practically all the orders placed recently are for freight cars to be used in France and in Russia. The railroads have been holding back waiting for the government's plans for purchasing freight cars to materialize, but nothing has been heard of it for a number of weeks and little hope is expressed that definite action may be expected soon. In order to keep pace with present conditions about 250,000 freight cars should be built as soon as possible, but it is nevertheless true that practically no orders have been placed for many months with the exception of the above-mentioned government order aggregating 20,000 cars for war purposes.

Recent facts and figures which have been published recently prove conclusively that the railroads have broken all previous records for heavy tonnage. Loadings have been doubled in many instances, fewer but heavier trains operated and every expedient known to the railroad officials has been called into play to assist the progress toward greater efficiency. The proposed plan of the government to purchase 125,000 freight cars, which was noted on page 252 of the Aug. 11 issue of this paper, is the only relief in view at the present time, and any action taken by the government toward the completion of the proposed plan will be welcomed by all concerned.

The United States Geological Survey estimates that the production of spelter during the first six months of 1917 was 364,000 short tons, as compared with 351,000 short tons during the last half of 1916. Stocks on hand are estimated at 33,000 tons, as compared with 17,600 at the beginning of the year.

Metal Market Quiet

Producers and Manufacturers Await Government Action on Adjustments—Prices Normal with Few Sales Reported

No activity has been shown during the last week in the metal market. The uncertainty of the government's action in fixing prices has caused a suspension of all buying and requests in some instances have been made by purchasers to hold up shipments on contracts pending a decision in Washington.

There is a belief that more favorable prices than have been hinted at heretofore will be fixed for copper and steel. Considerable opposition to the price-fixing for coal has caused the government to consider the steel and copper situation most carefully, and it would not be surprising to the trade if 25 cents per pound was named for copper.

PRICE READJUSTMENTS NEAR

There is a general feeling that regardless of government action some price readjustments are necessary and that when these readjustments commence no one can predict just what the outcome will be. Attention has already been called on page 128 of the July 14 issue to the decline in the scrap metal market. Later the market for pig iron and steel billets softened, and in last week's issue a large drop in steel plates was reported, which seems to indicate that the readjustment of prices has already started.

The curtailed production of copper is causing much concern, especially since the announcement of the closing of the Anaconda smelters. It is not expected that there will be any activity until the government's price-fixing schedules are known, which should be within the next few days.

The demand abroad for American electrical apparatus continues to increase. A compilation by the National City Bank of New York shows that the value of electrical machinery, appliances and instruments exported from the United States in the fiscal year 1917 aggregated more than \$50,000,000 against \$30,000,000 in 1916, \$20,000,000 in 1914, \$10,000,000 in 1911 and \$6,000,000 in 1900.

NEW YORK METAL MARKET PRICES

	Aug. 29	Sept. 6
Prime Lake, cents per lb.	25 1/2	25 3/4
Electrolytic, cents per lb.	25 1/2	25 3/4
Copper wire base, cents per lb.	36	36
Lead, cents per lb.	10 1/2	10 1/4
Nickel, cents per lb.	50	50
Spelter, cents per lb.	8 3/8	8 1/4
Tin, Straits, cents per lb.	61 1/2	61
Aluminum, 98 to 99 per cent, cents per lb.	50	47

OLD METAL PRICES

	Aug. 29	Sept. 6
Heavy copper, cents per lb.	24 1/4	24
Light copper, cents per lb.	21 1/2	21
Red brass, cents per lb.	19 1/2	19
Yellow brass, cents per lb.	16	15 1/2
Lead, heavy, cents per lb.	8 3/4	8 1/2
Zinc, cents per lb.	6	6
Steel car axles, Chicago, per net ton.	\$42.00	\$42.00
Old car wheels, Chicago, per gross ton.	\$32.50	\$32.50
Steel rails (scrap), Chicago, per gross ton.	\$41.00	\$41.00
Steel rails (relaying), Chicago, per gross ton.	\$55.00	\$55.00
Machine shop turnings, Chicago, per net ton.	\$18.00	\$17.50

CURRENT PRICES FOR MATERIALS

	Aug. 29	Sept. 6
Rubber-covered wire base, New York, cents per lb.	36	36
No. 0000 feeder cable (bare), New York, cents per lb.	36 1/2	36 1/2
No. 0000 feeder cable (stranded), New York, cents per lb.	33 3/4	33 3/4
No. 6 copper wire (insulated), New York, cents per lb.	33 1/2	33 1/2
No. 6 copper wire (bare), New York, cents per lb.	36	36
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.	\$4.00	\$4.00
Railroad spikes, 9/16 in., Pittsburgh, per 100 lb.	\$7.00	\$7.00
Steel bars, Pittsburgh, per 100 lb.	\$4.00	\$4.00
Sheet iron, black (24 gage), Pittsburgh, per 100 lb.	\$8.85	\$8.85
Sheet iron, galvanized (24 gage), Pittsburgh, per 100 lb.	\$10.05	\$10.05
Galvanized barbed wire, Pittsburgh, cents per lb.	4.85	4.85
Galvanized wire, ordinary, Pittsburgh, cents per lb.	4.65	4.65
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.	\$1.25	\$1.25
Linseed oil (boiled, 5 bbl. lots), New York, per gal.	\$1.26	\$1.26
White lead (11 lb. keg), New York, cents per lb.	12 3/4	12 3/4
Turpentine (bbl. lots), New York, cents per gal.	42 1/2	42 1/2

Lumber Alone, of All Building Materials, Has Had Only Modest Advance in Price

Lumber is at the bottom of the list of building materials in statistical tables prepared by Roger W. Babson, the well-known statistical authority, showing advances in the cost of various commodities. A bulletin just issued by him gives a tabulation of the prices of ninety-six leading commodities on Aug. 1, 1914, July 1, 1916, and July 1, 1917. These figures show that the ninety-six commodities have advanced an average of 55 per cent in price since July 1, 1916, and 127 per cent since Aug. 1, 1914.

In view of the fact that the lumber industry has generally claimed that its product has advanced less in price than many other commodities, and has remained one of the most easily obtainable, readily workable and reasonably priced materials, the following figures taken from Mr. Babson's report are of special interest:

	Advance in Price Since July 1, 1916, Per Cent	Advance in Price Since Aug. 1, 1914, Per Cent
Brick	26	80
Cement	27	34
Lime	8	102
Nails	60	158
Steel	128	390
Lumber	23	28
Average of ninety-six commodities..	55	127

ROLLING STOCK

Quebec (Can.) Railway, Light & Power Company is building two double-truck closed cars in its shops at St. Anne de Beaupre.

International & Great Northern Railway, Houston, Tex., will purchase cars to equip the 9-mile electric line which it is building from Fort Worth to Everman, where the Canadian army aviation training camp is located.

Brooklyn Rapid Transit Company, Brooklyn, N. Y., is preparing specifications for 250 pressed steel center-entrance cars similar to the 100 cars which were described fully in the issue of the *ELECTRIC RAILWAY JOURNAL* for April 19, 1913, page 708. This is a double-end straight sided body type with low step passenger entrance and two exits located at the center of the car, arranged for fare collection as the passenger enters. The length over all is 45 ft. 6 in., and the seating capacity is 58.

TRADE NOTES

Electric Service Supplies Company, Philadelphia, Pa., has received an order for 500 Golden Glow headlights for Baldwin locomotives to be shipped abroad.

H. W. Johns-Manville Company, New York, N. Y., has leased a six-story building at Eleventh and Olive Streets, St. Louis, Mo., which will be remodeled at a cost of \$30,000.

T. M. Avery, one of the New York representatives of the Blaw-Knox Company, will take charge temporarily of the San Francisco office, Edward M. Ornitz having joined the Engineering Corps.

George D. Kirkham, sales agent in charge of the St. Paul office of the American Steel & Wire Company, has returned to the Chicago office. **H. S. Durant**, formerly of Washington, D. C., will return to the St. Paul office.

Paul Caldwell of the Pittsburgh office of the General Electric Company has accepted a position with the Cleveland Crane & Engineering Company in the sales department and will take charge of this company's New York office about Oct. 1.

C. A. Crowe has been placed in charge of the Detroit office of the Asbestos Protected Metal Company. He was formerly manager of the Grand Rapids office. **N. W. Tabor**, manager of the Detroit office, has been made factory manager.

American Gear Manufacturers' Association will hold a meeting at the Edgewater Beach Hotel, Chicago, Ill., Sept. 14 and 15. Among the subjects on which papers will be presented are "Heat Treating and Hardening of Gears," and "Inspection of Gearing."

Vulcan Fuel Economy Company, Chicago, Ill., announces that its soot-cleaner business will hereafter be conducted by Vulcan Soot Cleaner Sales Company, a new Illinois corporation. The new company includes the officers and directors of the manufacturing company and also Charles DeVed as vice-president and director, and Joseph Kissick, Jr., as director and general sales manager.

W. K. Palmer, who for sixteen years past has been engaged in consulting engineering practice and the head of the W. K. Palmer Company, engineer, Kansas City, Mo., has accepted a commission as major in the Engineer Corps of the United States Army. In consequence his practice and the business of the W. K. Palmer Company will be discontinued for the period of the war.

Titanium Alloy Manufacturing Company, Niagara Falls, N. Y., announces that the constantly increasing demand for superior bronze and brass castings has compelled it to enlarge its bronze department and make a distinct unit of it under the name of Titanium Bronze Company, Inc., with works at Niagara Falls, N. Y., sales offices at Buffalo, N. Y., and general offices at 165 Broadway, New York City.

American International Steel Corporation, New York, N. Y., has been formed to build up export trade in steel and steel products, acting as a selling agency for American manufacturers and also as a buying agency for foreign concerns desirous of placing orders in the American market. This corporation is a subsidiary of the American International Corporation of which Charles A. Stone is president. It is stated that this company will not compete with the United States Steel Products Corporation, the foreign selling subsidiary of the United States Steel Corporation, but will supplement its efforts in opening foreign markets to American steel.

NEW ADVERTISING LITERATURE

A. F. Daum, Pittsburgh, Pa.: Folder describing and illustrating Daum refillable cartridge fuses for electric light and power service.

Northern Equipment Company, Erie, Pa., successor to the Erie Pump & Equipment Company, has issued a booklet on the Copes system of feed water control.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.: Bulletin on complete stoker equipment, including descriptions and illustrations of the Roney stoker, chain-grate stoker, underfeed stoker, etc.

National Paving Brick Manufacturers' Association, Cleveland, Ohio: Booklet on vitrified brick pavements for city and country. The illustrations show installations in many localities, a number of which were made on streets used by electric railways.

Western Electric Company, New York, N. Y.: 1918 year book on electrical supplies, consisting of 1160 pages and containing more than 50,000 items. This book is being distributed at this time because the entire supply of 1917 books is exhausted and in order to meet the demand for a book published early in September for use in placing requisitions for fall and winter stocks.

Guaranty Trust Company, New York, N. Y.: Pamphlet on government export control entitled "The Regulation of Exports Under the Espionage Act." This pamphlet, which is of particular importance to those concerned in foreign trade, contains the list of articles which cannot be exported without licenses, and makes clear the restrictions governing the two distinct classes of exports under governmental regulation. One of these classes relates to the shipment of articles to the enemy and to European neutral countries; the other to certain commodities whose export is prohibited to countries other than those named in the first class. A list of destinations to which shipments are not permitted, and a list of those to which shipments are allowed under licenses, are included. How and where licenses may be obtained, and the nature of the information required to fill out the forms of application, are also clearly outlined.

NEW PUBLICATION

Belts and Belt Guards. The seventh in the series of safe practices pamphlets. National Safety Council, Chicago, Ill. Price, 10 cents.