

Electric Railway Journal

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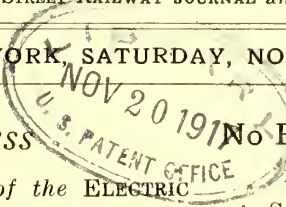
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Change in Address

On Nov. 24 the publication offices of the **ELECTRIC RAILWAY JOURNAL** will be moved to the corner of Tenth Avenue and Thirty-sixth Street, New York. All communications relating to editorial or business matters should be sent to that address. Our new home, which will contain our printing office and will house all of the periodicals in New York of the McGraw-Hill Publishing Company, Inc., is close to the main post office at Eighth Avenue and Thirty-third Street, so that we expect to have better mailing facilities and thus to serve our subscribers even more promptly than ever before. Our new quarters are only a short distance from our old, and we extend a cordial invitation to all subscribers and advertisers to visit us there.



No Real Competition Between Electric Roads and Motor Trucks

AS WE have consistently maintained in this paper, there should be no real competition between the motor truck industry and the electric railway industry. For very short hauls and where there are no electric or steam railroads, there is need for the motor truck and in a great many cases motor trucks will have to be used between the ends of the existing electric railways and the points of receipt or delivery of freight. Hence, in a great many cases, both means of transport will have to be used, and the two interests could well work together to determine the most economical method of transport in each individual case under consideration by the government and then present a complete plan to the authorities. This is, in fact, according to the reports of our Washington representative, the plan being followed by the steam railroads in a number of instances. That is to say, the steam railroads are now arranging to purchase and operate trucks to take care of that part of their business which they could not otherwise handle for want of cars or power, or for some other reason. If these three interests should get together and arrange so that each would take over that portion of the work for which it is best adapted a great step in advance will have been made.

War Board Completes

Organization at Washington

IN THESE times of national stress, when one of the most important problems before the government is that of securing adequate transportation, the appointment of a War Board by the American Electric Railway Association was eminently the proper thing, indeed the only thing, to do. The plan should, therefore, receive from all the electric railways of the country that financial support without which the work cannot be carried on. While composed of electric railway executives, the purpose of the board, as we understand its mission, is not to ask special consideration by the government for electric railways. Instead, it is to provide an official body through which, or through whose Washington representative the government authorities can take up directly all matters of national interest so far as they affect electric railways, as well as to secure such help as they may need from the electric roads in the present acute transportation situation.

With its duties viewed in this light, the election by the board, as an *ex-officio* member, of Daniel Willard, representative of the steam railroad interests on the Council of National Defense, was the natural and logical thing to do. Indeed, the board might even go further by appointing as another *ex-officio* member the chairman of the newly created Highways Transportation Board, Roy C. Chapin, president of the Hudson Motor Car Company. By a coincidence the appointment of this new committee of the Council of National Defense was announced by Walter S. Gifford, director, on the evening of Friday, Nov. 9, the same day on which the new electric railway War Board was organized in Washington.

What Else a Resident Washington Representative Can Do

THERE is much that an electric railway representative in Washington could do at present besides arranging for military transportation of men and supplies by electric roads. The ability of the electric roads to supply good service, or even any service at all, will depend to a large extent upon the degree to which they are considered as being essential to the prosecution of the war. The inconvenience to which the citizens of New York were put by an interruption of but a few hours in the service of the Interborough Rapid Transit Company, owing to coal shortage, was shown last summer, but many electric railroads have come perilously near the same conditions many times during the past year. Hence, the question of priority is an important one, both as regards fuel and labor. In his work of promoting the use of electric railways for freight transportation, the director of the new War Board who is to be resident at Washington will occupy the position of sales manager, or at least he should. He should have to assist him a staff of traffic men, salesmen, competent to trail down "prospects" in a war capital whose expansion in recent months has required the War Department

alone to have offices in fourteen different buildings, competent to make and hold acquaintances and to renew old friendships in a city to which are flocking in thousands every day representatives of every industry in the country. Washington needs help. The new War Board of the American Electric Railway Association will be welcomed there. No diffidence, no false modesty, no fear of an unwelcome reception from any interest should hold back the making of every effort to be of service to the government. Army officers, naval officers and officials of other branches of the government who are now dealing with tremendous transportation problems—men who were civilians yesterday, but who are in uniform to-day, and there are 1700 reserve corps officers in the ordnance bureau of the War Department alone—are at their desks every night until midnight and all day Sunday. They want help, and they will be only too glad to get it, in transportation as well as in everything else, from the men they knew back home.

New Capital Can Be Found If Adequate Earnings Are Assured

THE current talk in banking circles relative to the possible necessity of a government board to pass on the priority of corporate financing is a good indication that in public opinion the financial needs of the government are of paramount importance. There can be no argument on this point. British experience, under the strict control of the Treasury, shows how national needs must receive first consideration. In the seven months ended Sept. 30, 1917, the government borrowed £1,089,382,500 as compared to only £14,852,400 for all other applications, the latter including £100,000 for tramways and omnibuses and £200,000 for electric lighting and power plants. It probably is not necessary yet to exercise such rigid supervision in this country, but unless new capital requirements are limited to necessary corporate purposes some such means as a priority board will be necessary. Be that as it may, the financial needs of electric railways must receive due recognition. The nation's industries are dependent upon these and other utilities; they must be continued in operation and expanded to meet the nation's demands. But the problem of securing new capital for such a purpose or for refunding maturing obligations is not merely that of establishing either an unofficial or an official claim to priority. The utilities can do this, for their value is manifest. The problem is rather that of attracting the investor when the rate policy of commissions makes him doubt the stability of return and in some cases even the safety of principal. O. B. Wilcox sums up the situation well in this issue when he says that investment bankers will undertake to provide new capital for utilities if adequate earnings are assured by the commissions. Regulatory bodies never have needed, so much as now, a realization of what the public welfare demands in the way of growing utilities. Public service corporations are vitally important agents in low-cost production now, and new development must not be further stunted by commission shortsightedness.

Kill the Fixed-Fare Idea Once for All

AGAIN we would urge electric railway operators to keep clearly in mind the fundamental involved in all the present higher-fare agitation, *i. e.*, the necessity of getting rid of the fixed-fare idea. Success cannot result from stationary income and mounting costs, and custom must give way to this simple but inexorable economic law. Railway men know this, but the big task now is so to emphasize it as to make the public understand the facts.

The 5-cent fare for electric railway service has been in use for so many years that the public looks upon any higher fare as unthinkable. Now, however, thinking men are beginning to realize very clearly that the fixed unit of compensation is fundamentally weak. As Dr. Wilcox says elsewhere this week, any careful student of public utilities must recognize that from the theoretical point of view the fare should be the last of the important conditions affecting electric railway operation to be fixed. In his opinion—and as that of a franchise expert it carries weight—it will certainly not be practicable to maintain the principle of the fixed inflexible fare unless a city is prepared to make up deficits through the remission of taxes, or through subsidies, or through both. On the other hand, a flexible fare adjustable by the public service commission or by arbitration is the logical outgrowth of a clearly defined city policy regarding electric railways.

In Massachusetts, too, the need of a more scientific fare basis is being recognized. Last week Homer Loring, representing the Association of Owners of Massachusetts Street Railway Securities, proposed to the special legislative commission in that State a service-at-cost plan. Without commenting upon the details, which are given on another page, suffice it to say that this plan contemplates a reservoir fund and a flexible fare. The credit of electric railways, Mr. Loring said, cannot be revived until investors are assured that fares will fluctuate with changed conditions of operating costs.

Thus both Dr. Wilcox and Mr. Loring commend the idea of a flexible fare, and it is this basic conception that ought never to be lost to view. New franchises, we believe, should be drafted with a provision for the future readjustment of fares up or down as justice demands. Resettlement franchises, where such are possible, should be so constructed. As for existing franchises, some commissions are displaying a clear realization of their responsibility under the rate-making authority delegated to them by the legislatures, and alleged fare limitations contained in franchises are admitted by them to be not controlling as against their rate-making power. In our opinion, however, the overthrowing of a franchise fare limitation would be more widely and more quickly accomplished if the petitioning railways would specifically stipulate their advocacy of a flexible fare policy. Nothing is to be gained by permitting the public impression that any fare increase that may be granted must be everlasting.

Theoretically there are only two conceptions in rate-making—flexibility or fixity. The latter has almost proved the death of the electric railway industry, and it is time that the former was used. It will not be easy to drive the idea of a fixed fare out of the public's mind, but we simply suggest that concentration, co-operation and persistence are capable of great deeds.

Can Railway Employees

Promote a Fare Increase?

IF THE flexible fare is accepted as a means to insure a more stable rate of return with fluctuating costs of operation, there must obviously be some check on the reasonableness of the operating costs. This brings to mind the current demands for higher wages in connection with increased rates of fare in Portland, Ore., and Kansas City, Mo. In the former city, as noted in the issue of Oct. 27, the granting of a shorter basic day and a reasonable increase in wages was held by the commission to be one of the factors justifying a partial increase in rates. In Kansas City a similar question of commission recognition of employees' demands may arise. According to the latest news, a committee of employees has accepted a 3-cent an hour increase, being convinced that the company had offered all that was possible under present revenues. But when the proper method is worked out, it is said, the men will make an appeal for higher company revenues.

Such action does not seem illogical for the employees to take in either city, and it presents possibilities not realized with the usual company application. For instance, if the men asked for a fare increase they could probably secure the support of organized labor in other industries. On the other hand, if the company attempted to secure an increase, the laborers of other industries would be very likely to oppose it. Moreover, where the difficulty of a maximum fare fixed by city franchise would have to be overcome, as in Kansas City, the support of the labor men might mean the minimizing of opposition to such steps as were necessary to make the change. In any event, the support of the employees would in all likelihood be of material benefit, even if they were actuated by completely selfish motives.

But suppose the employees ask for excessive wages? In Kansas City, for example, the Amalgamated Association presented a demand calling for a wage increase of \$1,700,000 a year on a property with a gross of only \$7,000,000. If the men asked for a rate to cover this increase, the plea undoubtedly would be poorly received by the public. This point involves a frequent criticism of the flexible fare, in that under such a system a railway is not interested in preventing excessive operating expenses. In our opinion, however, this is not an insuperable obstacle, for the public service commission should be expected to oppose wages greater than those in the public's interest, just as it scrutinizes now carefully all payments for material to determine whether more than the market price is paid.

Labor, therefore, can assist electric railways to put their rate-making upon a more scientific basis. If a proper desire for a living wage degenerates into greed, the public, even under a flexible fare, can be expected to protect both the railways and itself. A scientific determination of wages in industries serving the public might eventually follow the flexible fare, but the latter need by no means wait for the former.

Reduce Load Peaks

to Help Win the War

IN AN article by F. W. Doolittle on operating cost and shifts in service, printed in the Aug. 21, 1915, issue of this paper, the criterion of all-round satisfactory service was stated to be the greatest good of the greatest number. It was clearly shown that concentration of service during rush hours increases the unit cost of all service, hence it should be minimized in the general interest. We have shown, also, that similar concentration in the generation of electrical energy may result in a cost of \$2 or more per kilowatt-hour during short periods, thus greatly increasing the average cost. In consequence, even in peace times, it is important to keep equipment in efficient use as nearly continuously as possible. How much more important is it to do so in this perilous war period!

The "peak" load on power plant or rolling stock is the bane of the existence of the prudent operator, and the shorter the peak period the more difficult and expensive is it to give acceptable and profitable service. To a very great extent the existence of peaks is due to conditions not under the railway's control, and it becomes necessary to secure the co-operation of the people who do control these conditions if the peaks are to be reduced. The principal factor is the coincidence in hours of opening and closing of factories, stores, offices, etc. If those who set these hours could get together in conference with the transportation officials they could work out schedules which would result in the saving of material and labor, and would greatly increase comfort and safety in getting about. It is imperatively necessary that such co-operation be secured, and that speedily, for we are in no position to permit the slightest waste of our resources if we are to win the war.

The transportation men are the natural ones to take the initiative in the matter, but they must go at it from the patriotic side and not primarily for their own profit. And they must be able to carry the conviction that their motives are patriotic or their efforts will defeat themselves. In another column is a brief account of a plan just inaugurated by the Public Service Corporation of New Jersey with the peak-flattening purpose in view. The central feature is a committee of responsible officials whose standing indicates the importance attached by the management to the movement. This incident is significant of a tendency, which is becoming general and must eventually become universal, to improve the load factor in the use of existing equipment. "The voice of wisdom cries 'Be in time!'"

New 60-Cycle Signal Installation on the T. H., I. & E.

Movement Through Three-Light Aspect Blocks Adjacent to Meeting Points Is Speeded Up by Use of 2000-Ft. Preliminary Sections Equipped with White Aspect Block Indicator Signals—Time-Element Relays Control Switch Indicators When No Preliminary Is Installed and Also at Outlying Switches—Detail Description of Installation Is Given

By ADOLPH SCHLESINGER

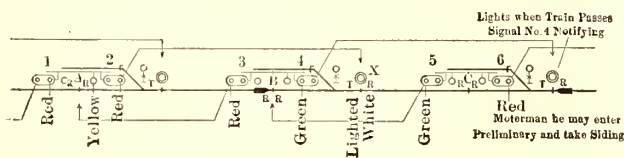
Superintendent Distribution and Substations, Terre Haute, Indianapolis & Eastern Traction Company

THE section of high-speed interurban line between Highland Lawn and Keaseys, Ind., on the Terre Haute division of the Terre Haute, Indianapolis & Eastern Traction Company, has recently been equipped with General Railway Signal Company 60-cycle, automatic block signals. This section of line comprises 11.1 miles of single track, but 0.4 mile through the village of Seeleyville was not signaled because of the location of the track in city streets. From forty-five to fifty-five trains pass over this section of line daily. There are four stub-end sidings and one double-end siding included within the protected section. One end of the double-end siding lies in the street in Seeleyville and is not signaled. The installation includes four single and four double-light signals. This latest installation brings the total mileage on the T. H., I. & E., which is protected with automatic block signals, up to 58 miles.

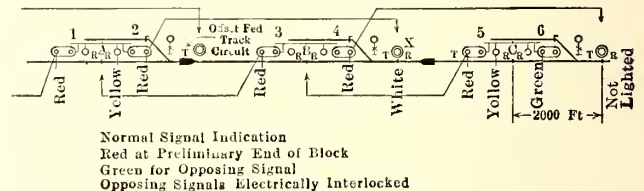
The present 60-cycle installation is similar to the 25-cycle signaling previously installed at other points on

section, informs the train crew of the approximate location of the opposing train. This block indicator shows white only when the next block is occupied by an approaching train. When a meet is scheduled at a siding, one train does not pass the block indicator until it lights up, which then shows that the opposing train has entered the other end of the block. This practice avoids the opposing train being held up if it has not yet entered the block at the time the first train would have proceeded into the preliminary, were it not for the telltale indicator signal.

When a train passes a signal, as No. 1 in Figs. 1 and 2, it leaves a red and yellow, or permissive, indication behind it, which holds through the block and until the train passes the next signal, No. 2, and enters the preliminary of the next block. Signal No. 1 then changes to green and signal No. 2 shows red and yellow. This arrangement of circuits avoids the preliminary acting



T. H., I. & E. SIGNALS—FIG. 1—SIGNAL INDICATIONS FOR OPPOSING TRAINS APPROACHING SIDING MEET AT SIGNALS 3 AND 4



T. H., I. & E. SIGNALS—FIG. 2—SIGNAL INDICATIONS FOR OPPOSING TRAINS AT EACH END OF BLOCK TO MEET AT SIGNALS 5 AND 6

the property by the General Railway Signal Company. It consists of a modified A. P. B. scheme with the intermediate signals omitted. The signal controls and indications are shown in the accompanying drawings, Figs. 1 and 2. The signals are of the colored light type with the indications as follows:

Red—stop. Stop and stay unless authorized to proceed by the dispatcher.

Green—clear. Proceed at normal speed.

Red and yellow—permissive signal. Proceed under control, block occupied by a receding train.

Each signal block has a preliminary section about 2000 ft. long for the purpose of preventing simultaneous moves of two cars past opposing signals. At the sidings the signals are located about one-half the way through. In making meets at stub-end sidings, one car heads in, and then after the other car has passed on the main line, backs out and proceeds. At a double-end siding, the first train arriving heads in and backs out. A block indicator, marked X in Figs. 1 and 2, located at the beginning of each preliminary

as an overlap. The scheme differs from previous installations in which the permissive indication at signal No. 1 would hold while a train was receding through the preliminary, thus acting as an overlap. The newer scheme gives an earlier proceed indication to a following train and permits it to run the block at a higher speed, provided the receding train is far enough ahead to have passed signal No. 2 before the following train reached signal No. 1. This system of signaling requires a track relay, a line relay and a stick relay at each signal.

The normal signal indication with no trains present is red at the preliminary end of the block and green at the opposing signals. This condition is brought about through an electrical interlocking of opposing signals, which insures that one must indicate "stop" before the other can indicate "clear." When a train enters the preliminary approaching the normal stop signal, it sets the opposing normal clear signal to danger and then the normal stop signal at the first end of the block changes to clear. This, of course, is assuming that the block



T. H., I. & E. SIGNALS—SWITCH INDICATOR SIGNAL WITH HOUSING FOR TIME-ELEMENT RELAY

was not occupied by a train. This control is accomplished through the medium of three-position line relays.

OPTICAL FEATURES OF SIGNALS

The several lights necessary to give the various aspects are housed in two iron cases. The upper one has two $8\frac{3}{8}$ -in. diameter lenses, the top one being red and the bottom one green. The lower case has one 7-in. diameter yellow lens. The red and green lights are fitted with two lenses which are known as a doublet combination. The outer one of these is a clear lens, $8\frac{3}{8}$ -in. in diameter, and the inner one, which is placed close to the outer, is a $5\frac{1}{2}$ -in. diameter red lens having the short focal length of $\frac{1}{2}$ in. Only one lamp is used behind each lens and this is a 55-volt, 40-watt double filament lamp, fitted with an S-19 bulb and an Edison medium screw base located very close to the inner lens on account of its short focal length. This combination of doublet lenses and double-filament lamps gives a very efficient optical combination. The range of the signal is about 3000 ft. to 3500 ft. under adverse sunlight conditions.

The yellow or permissive indication light has only a single standard optical lens, 7-in. in diameter and with a 4-in. focal length. It is illuminated by two 55-volt, 40-watt lamps connected in multiple behind the lens. The focus of the lens comes midway between the two lamps. The range of the yellow light is from 1000 to 15,000 ft. in sunlight, depending on atmospheric conditions and the location of the sun with respect to the observer. This range is sufficient for the yellow lens when used in combination with the red. When approaching a signal, a motorman will first see the red indication and will slacken his speed prepared to stop, and then if the block is occupied by a receding car, he will "pick up" the yellow light when he gets closer to the signal and proceed with caution. All the lenses are hooded, but no sheet-iron background is required with signals of this kind.

The block indicators located at the beginning of a preliminary section are installed in the same kind of case as is used for the yellow light on the high signal. These are equipped with a clear lens and a sheet-iron

background about 24 in. in diameter. The lamp case is supported by a cast-iron bracket which is bolted to the wood transmission line pole.

SWITCH INDICATORS AND TIME-ELEMENT RELAYS

The switch indicators used in this installation at the various sidings are model 4, form B type, with double windings on the stator. One of these windings designated as the local winding is controlled through the line and stick relays for the signals at the siding location and the switch box normal. The other winding, called the line winding, is connected in series with the line wire which controls the three-position line relay for the normal clear signal when the switch is reversed. The indicator shows clear with the switch normal; (a) when the blocks at either side of the signal and the preliminary section are not occupied by a train; (b), when a car is receding in one block and the other block is clear; or (c) when both blocks are occupied by receding cars. The indicator shows danger when a car is approaching in either direction in the blocks or the preliminary. Assuming that the indicator is clear with the switch at normal position, upon reversal of the switch the following conditions would prevail:

(a). The indicator clears if the blocks at either side of the preliminary are unoccupied by approaching trains.

(b). The indicator clears if the blocks at either side of the preliminary are occupied by receding trains.

(c). If a car enters the preliminary or the block either way from the siding just as the switch is thrown, the indicator will not clear.

(d). If the point of the switch in a clock does not have a preliminary at its far end, it is then necessary that the indicator be controlled by a time-element relay. It requires fifteen seconds for this relay to close after the switch has been placed in the position to permit a



T. H., I. & E. SIGNALS—DOUBLE SIGNAL AND RELAY HOUSING. REAR VIEW

car to run out onto the main line from the siding. The indicator line winding is controlled through a contact on the time-element relay which completes this circuit when the relay finally picks up. This relay avoids the use of a preliminary in such a case for the following reasons: Assuming that a car was just about to accept the "clear" signal at the entrance to a block which had no preliminary section and that the car was so close to the signal that the motorman did not notice the change in indication from "clear" to "danger" when the switch was thrown, the switch indicator would not clear until the fifteen seconds time required by the relay to pick up had elapsed. Before this time, the approaching car would have entered the block and opened the line circuit, cutting energy off from the line wire which supplies energy to the switch indicator. The latter, therefore, would not clear and the crew of the car in the siding would know that another car was approaching and would restore the switch to its normal position for the main line movement.

Time-element relays are also used to control the switch indicator at outlying switches. This prevents a car from entering the block from the siding just as another car enters the block on the main line. This type of switch indicator does not require a separate line wire through the block, as it is connected in series with the line wire which controls the line phase of the three-position line-relay when the switch is reversed. This permits the indicator relay to pick up, but causes the line relay to assume the de-energized position and the signals to indicate danger. When the switch is normal, the local winding on the switch indicator is controlled by a wire from the stock and line relays at the near-by signal location.

Energy for the signal system is obtained from a 2200-volt, 60-cycle, single-phase line from the Terre Haute power station for signals installed between



T. H., I. & E. SIGNALS—SWITCH INDICATOR AND SWITCH BOX

West Seeleyville and Highland Lawn, and from the Brazil substation for signals between the east limits of Seeleyville and Keaseys. The 60-cycle system was used for this installation instead of the 25-cycle current on the previous installations on the T. H., I. & E. because of the fact that the generating station at Terre Haute is a 60-cycle station and it would have been necessary to install motor-generator sets and additional transmission lines for 25-cycle signaling. The same transmission lines which supply the signals are also used for supplying power to the communities along the railway. The wire used on this transmission line is No. 6 B. & S. gage copper, covered with triple-braid weather-proof insulation. All the line transformers used are the General Railway Signal Company's type L, oil cooled with 220-volt primaries. Transformers of 0.2-kva. capacity and a 14-volt secondary winding with taps are used for center-fed and offset-fed track circuits. Transformers of 0.6-kva. capacity with one 14-volt secondary winding and a 110-volt secondary winding with a 55-volt tap are used for single signal locations. This arrangement is for feeding the 55-volt incandescent lamps, the relay local phases and stick relays and to permit reversing the polarity of the three-position line relays. This is done by taking energy from one end or the other of the 110-volt winding, with the center tap connected to the common line wire. Transformers of 1-kva. capacity and 14-volt secondary winding are used for the double-signal locations.

The low voltage transformers used to feed short track sections are the type K, 0.1-kva. capacity, single-phase, air-cooled, and with a voltage ratio of 110 volts to 7 volts and with other taps.

LIGHTNING PROTECTION FOR SIGNAL SYSTEM

All low-tension line circuits are protected by the General Railway Signal Company's model 1, choke-coil type air-gap lightning arresters. A 200-ohm graphite rod resistance is connected in series with the ground wire for the low-tension lightning arresters at each location. This prevents heavy arcing across the gaps of arresters in case the 600-volt trolley feeders become crossed with the signal-line wires, which sometimes



T. H., I. & E. SIGNALS—FRONT VIEW OF RELAY EQUIPMENT

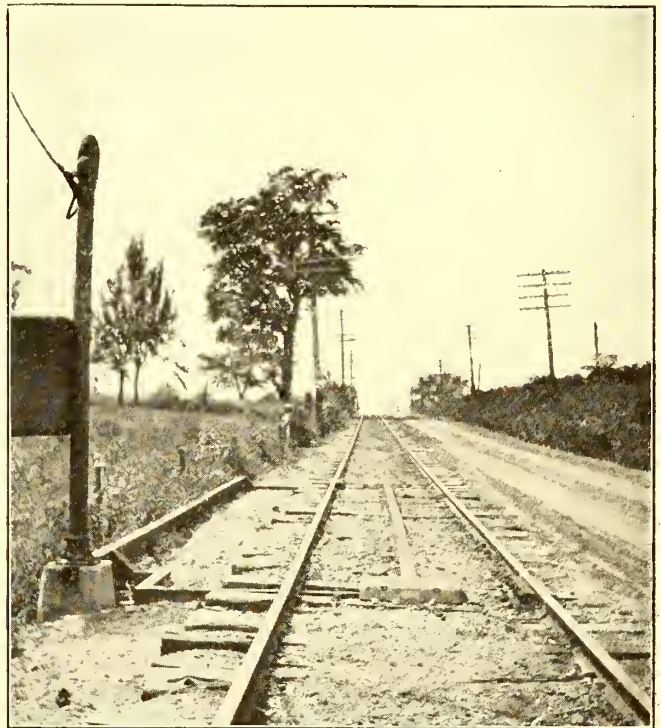
occurs. If this resistance rod was not used, the low-tension arresters would be destroyed upon contact with the 600-volt supply. All grounds for the lightning arresters consist of a 1-in. galvanized iron rod, 8 ft. long, to which a short piece of stranded bare copper wire is soldered. The ground wire from arresters to the grounding rod is No. 10 solid copper wire.

The primaries of all high-voltage transformers are fused with two single-pole push-plug type porcelain cut-outs with 3-amp. fuses. These plug-type cut-outs are equipped with a locking feature which prevents the plug from jarring out due to pole vibration. All local, low-voltage, 55-volt and 110-volt circuits are fused with

the center-fed type the track transformer is located at the center of the block with a track relay at each end. With the offset type, the track transformer is located about 1500 ft. from one end and up to about 1½ miles from the other end, with a track relay at each end of the track circuit. This type of circuit is used to obtain a preliminary section without the expense of putting in a definite rail cut with insulating joints, impedance bonds and a track relay. This type of track circuit is used when the long end is not so long that it is impossible satisfactorily to feed it. This length which will operate satisfactorily depends largely on ballast conditions. Roughly, the long end of offset-fed track



T. H., I. & E. SIGNALS—BLOCK INDICATOR AT END OF PRELIMINARY—THE PURPOSE OF THIS INDICATOR IS DESCRIBED ON PAGE 892



T. H., I. & E. SIGNALS—INSULATED RAIL JOINTS, IMPEDANCE BONDS, AND CABLE POST WITH RELAY AND TRANSFORMER HOUSING AT END OF PRELIMINARY SECTION

250-volt screw-plug fuses of 10-amp. capacity. All line circuits are protected with 3-amp. fuses of the same type.

LINE AND TRACK CIRCUITS

The low-tension line circuit used on this type of signal installation requires three wires through the block, one control wire for each direction of traffic and a common wire. The one control wire which supplies 55-volt energy for the block indicator lights must be run from the siding through the 2000-ft. preliminary. When there is a definite cut in the track for the preliminary track circuit, another wire must be run from the siding to the beginning of the preliminary to carry 55-volt energy for the primary of the type-K track transformer. In general at sidings, the rubber-covered wires between the switch point and the signal location are cabled together and run on the pole line. From six to ten wires are required between the switch point and the signal, the distance between these points usually being not more than 200 ft.

The long main-line track circuits utilize both rails and include impedance bonds. These track circuits are of three kinds—center fed, offset fed and end fed. With

circuits may be 1½ miles long. Above this length one center-fed track circuit and one end-fed track circuit are required to take the place of the one offset-fed track circuit.

The end-fed double-rail type track circuits are used when it is necessary to put in a definite cut for a preliminary track circuit. This type of circuit requires the installation of a 55-volt transformer at the end of the preliminary section. The 55-volt energy is run from the nearest signal location, which is generally not to exceed 2000 ft. away.

Weber insulating rail joints were used in the present signal installation. The rail bonding comprises one No. 0000 conductor at every joint, electrically welded to the head of the rail. Ballast conditions on the T. H., I. & E. are fair, and the ballast is, for the most part, kept clear of the rails. This ballast is mostly gravel, but with cinders in some places.

RELAYS CONTROLLING THE SIGNAL OPERATIONS

The relays used on all T-rail track circuits are model 2, form A, two-position relays with 55-volt local-phase having two windings which are connected in series di-

rectly across the 55-volt supply on short track circuits where the ballast conditions are fairly good. If the ballast conditions are bad, the two local windings are connected in multiple with a reactor of low power factor connected in series with the windings and with 55 volts impressed across the entire circuit. This arrangement gives good phase relations between the currents in the local and track phases of the track relays and permits the operation of long track circuits under bad ballast conditions without the use of an excessive amount of energy.

The model 2, form B, two-position relays used on all single-rail track circuits are two-element relays with a 55-volt local-phase winding. These are equipped with four front and two back contacts and are direct connected from the rotor shaft to the contact bar, giving very quick pick-up and drop.

The line relays are model 2, form A, six-way, three-position type relays with a 55-volt local phase winding. The six-way relays are used on account of the number of contacts required. The line phase is wound to operate in series with a line circuit having a total resistance up to 150 ohms. A porcelain unit type of resistor is used in series with the line phase of the line relay. This has a total resistance of 175 ohms with various taps, making it possible to adjust for giving a fixed resistance in series with the local phase and thus compensate for the varying lengths of line circuits. This insures uniform strength of operation of line relays.

The stick relays which control the permissive indication are single-element, two-position, four-way, model 4, form B quick-acting relays wound for 55 volts. These relays pick up when the track relay is down and the three-position line relay is dropping to the de-energized position. This condition occurs at the instant a train is receding past the signal governing the entrance into a block.

The time-element relays which control the energy supplied to the line winding of the switch indicators, are model 2, form B, two-position, single-element relays. These are located at the switch points in a relay housing bolted to the switch indicator post. They are wound to operate on 55 volts. The slow time of pick-up is obtained by interposing a train of gears between the pinion on the rotor shaft and the contacts. The time lapse can be adjusted from two to fifteen seconds, as desired, by means of an adjusting screw.

The impedance bonds with which all track circuits are equipped are of the iron-core type, having coils wound with No. 0000 stranded cable insulated with cotton sleeving and impregnated by a vacuum process. These bonds will carry approximately 400 amp. per track continuously with a temperature rise of not to exceed 75 deg. C.

This system of signaling is adequately fulfilling the requirements of the traffic on this line and is facilitating as well as safeguarding all train movements.

A summary of passenger traffic just issued by the Public Service Commission for the First District of New York shows that on the lines operated by the New York Consolidated Railroad, controlled by the Brooklyn Rapid Transit Company, the total number of passengers carried in June amounted to 20,236,571, as against 18,070,722 in June, 1916, or an increase of 11.9 per cent.

Schenectady Asks for Higher Fare

The "Straight Talks" Advertisements Place the Situation Convincingly Before the Patrons

BETWEEN Aug. 14 and Sept. 20, 1917, the Schenectady Railway Company ran thirteen half-page advertisements in the local newspapers to present its case for the 6-cent fare. Some of the statistical data used in these advertisements were taken from the research files of the New York Electric Railway Association, but the copy and style were adapted to local conditions and to the "man in the street," or better still, the man in the car.

The general thought that ran through the whole series was to inform the public of the facts without appearing to thrust those facts at them, upon the principle that

Men must be taught as if you taught them not
And things unknown proposed as things forgot.

Again, it was assumed that the average person was much more concerned about a continuance of electric railway service than of a continuance of electric railway dividends. Therefore no stress was placed upon the unfairness of reducing or eliminating dividends, but rather upon the impossibility of raising money for more service if the railway could not guarantee a reasonable return upon the investment of new money.

Space prohibits the reproduction of all the advertisements in this series, but three of those which are written in typical newspaper vein are reproduced in full on the following page. A survey of the thirteen advertisements follows:

No. 1—Is Six Cents a Fair Fare for Safe, Efficient Trolley Service?

This advertisement uses the increase in the price of milk as an analogy for the increase in price of another necessity of life, transportation. It may be stated that this advertisement appeared some time before the price of milk became an acute question.

No. 2—Good Credit Provides Means for Constantly Better Service.

This advertisement opens with the statement that the growth of Schenectady demands extensions to its railway system, but that it takes money to build extensions and it takes good credit to obtain money. It is then shown that while the government has estimated 8 per cent as a reasonable return on electric railway investments, the Schenectady Railway Company actually has averaged only 5.46 per cent during the past twelve years. Since the government considers 10 to 15 per cent a proper return in other fields, it follows that electric railways must at least approach an 8 per cent return if they are to attract capital.

No. 3—Paid-in Capital Over Half a Million Dollars More Than Securities Issued.

This advertisement states clearly that while the Public Service Commission's figures show an investment of \$7,300,000, the outstanding bonds and outstanding stock total \$6,776,000, or actually \$524,000 less than the money paid into the property.

No. 4—Capitalization and Investment—Facts Showing Our Company Under-Capitalized.

This advertisement develops the theme of No. 3 by comparing the capitalization per mile of track in Schenectady with that in other cities, showing that Schenectady is the lowest in the list; also that for every \$63,000

the conditions calling for a higher fare were not peculiar to Schenectady but were universal.

While it is too early to say what tangible results will come from this publicity campaign, one significant thing has followed. This is the great increase in the

number of complaints, commendations and suggestions received in personal letters to Mr. Barnes—ample evidence that the public is beginning to think seriously about the relation between their convenience and the continuance of good railway service.

War Board Completes Organization

Several Sub-Committees Were Appointed at Meeting in Washington on Nov. 9—Assistance Rendered Kansas City Railways on Fuel Supply—Resident Director Not Yet Appointed

THE new War Board of the American Electric Railway Association, whose appointment was mentioned in the issue of this paper for last week, held an organization meeting in Washington on Nov. 9. The full board was in attendance, namely, Arthur W. Brady, Thomas N. McCarter, Lucius S. Storrs, Britton I. Budd and P. H. Gadsden. Secretary Burritt was also present. Mr. McCarter was elected permanent chairman of the board.

Naturally, the first subject discussed was in regard to the way in which the expenses of the board were to be met. Secretary Burritt presented the draft of a letter which the executive committee had prepared to be sent to the members of the association and to all non-member railway companies, asking from the former a sum equal to the amount of their annual dues to the association and from the latter a sum equal to the amount of dues provided by the constitution of the association for companies having gross railway revenue equal to those of the subscribing companies. The text of this letter, which was approved by the board, appears on page 899. It was also decided to send copies of it to the officers of the various state and sectional associations of electric railways.

The next question considered was as to the representation which the board would require at Washington. The conclusion reached was that a resident director familiar with electric railway affairs was necessary, but no appointment was made. The duties of the board were then considered.

As one of the duties would be to develop freight transportation, the chairman was authorized to appoint a sub-committee on traffic, with authority to perfect an organization of traffic men by the selection of proper representatives throughout the country, with power to work through the various sectional and state organizations and by any other agencies which might seem desirable. This committee would then provide a means whereby information could be secured, where needed, pertaining to each individual road with respect to rates, physical conditions, facilities for transportation and such other data as might be necessary. Mr. Budd, Chicago, was appointed chairman of this sub-committee on traffic.

Another suggestion made in the interests of fuel conservation was that the board might take up the question of flattening out the peak load on electric railways by arranging with various industries to vary their opening and closing hours. It was decided to refer this

matter to the director of the board upon his appointment.

Upon motion, a resolution of thanks to James H. McGraw was passed for his offer of the full support of his organization, including the services of the Washington correspondent of the *ELECTRIC RAILWAY JOURNAL*, to assist the work of the board.

P. H. Gadsden was then appointed representative of the board in its relations with the Chamber of Commerce of the United States.

BOARD HELPS KANSAS CITY RAILWAYS GET FUEL

The chairman then presented to the board a telegram received from E. E. Stigall, purchasing agent Kansas City Railways, addressed to President Stanley and referred by him to the board. This telegram quoted the text of a telegram recently sent by the Kansas City Railways to the fuel administrator at Washington as follows:

"The Kansas City Railways Company, which operates all of the street cars in the two Kansas Cities and vicinity, and the Kansas City Light & Power Company, which furnishes light and power to the same community, are dependent practically from day to day upon their coal contracts with five Illinois coal operators. Even with this, it is requiring the most strenuous effort in the purchase of free coal to keep the street cars moving and to provide street and home lights. They are being operated on curtailed service now. If your contemplated order requisitioning for government 10 per cent of the output of coal mines in this district is to apply to those contracts, Kansas City will meet with disaster, due to practical shutdown of street cars and electric lights and power."

In his telegram to President Stanley, Mr. Stigall then said that the situation in Kansas City was evidently similar to that of many other railway companies and that he believed that it would be of much assistance if the weight of the association could be used to protect the coal supply for the electric railway industry as compared with private industries not manufacturing government requirements. The board decided to take this matter up promptly and was able to telegraph Mr. Stigall before the end of the day that the fuel administrator had notified the contractor to supply full tonnage under the contracts regardless of the 10 per cent government assignment.

At the request of the chairman, the secretary then read a letter from the Commissioner of Internal Rev-

enue addressed to the association and requesting the appointment of a committee to submit suggestions as to the administration and application of the excess profits provision of the war revenue act. This matter was referred to Mr. Gadsden for his attention. The board then asked the chairman to notify the special war committee of the National Association of Railway Commissioners of the organization of the board. The personnel of this committee is as follows: Max Thelen, California, chairman; Travis S. Whitney, New York, First District; Frank H. Funk, Illinois; J. B. Eastman, Massachusetts; R. W. B. Donges, New Jersey.

The board then voted to elect Daniel Willard, chairman advisory commission, National Council of Defense, a member ex-officio of this board, and the chairman was authorized to write to Mr. Willard notifying him of the formation of the board and making a formal tender to him of ex-officio membership. The chairman was also authorized to notify the President, the Secretary of War and the Secretary of the Navy of the organization of the board.

The board then adjourned to meet again in Washington on Friday, Nov. 16, at the New Willard Hotel.

Letter Sent to Industry

The letter being sent by the association to member companies and non-member railway companies is published below. It bears the indorsement of the twenty-eight electric railway presidents and others who were in attendance at the conference on Nov. 2. Altogether 112 companies in thirty states were represented at that meeting.

In accordance with the recommendation made at a conference called by the executive committee of the American Electric Railway Association and held in New York on Nov. 2, 1917, President John J. Stanley of the association has appointed a War Board, which is to be organized on the general lines of the War Board of the steam railroads, which is to have its headquarters in Washington and which will select a man of established standing in the electric railway industry to represent such industry in all matters connected with governmental business during the war.

The recommendation of the conference was made only after a careful survey of existing conditions as they affect electric railways. The war is producing far-reaching changes in the business structure of the nation, and developments are daily taking place which have an all-important bearing upon the relations of our business to the country and upon the affairs of the companies themselves.

Washington is to-day the center of activities which are giving to electric railways a national as well as a local importance.

The time has come when every means of transportation at the nation's command must be co-ordinated in an effort to carry the men and goods essential to the winning of the war. The further continuance of the nation's industries depends upon it—the further progress of its communities and the welfare of its citizens.

Patriotic duty demands that the electric railways take up their share of this burden. Their facilities are not now available to the fullest extent. In many ways the railways are capable of assuming a much more prominent part in the solution of the all-important transportation problem. Examples of what certain urban as well as interurban railways have already done to relieve the congestion that threatens to interfere seriously with the necessary business of the country were cited at the conference and led inevitably to the conclusion that their usefulness in the present emergency may be greatly increased by

First, proper co-operation between the railways themselves looking to the expansion of their activities, and

Second, a proper presentation to the government and

to manufacturing and other business enterprises of the extended resources of electric railways.

Moreover, the interests of the companies themselves call for adequate representation at Washington. There is hardly a railway in the United States that has not had convincing evidence in its own experience that its affairs are materially affected by what is being done at the nation's capital. Congress, the Interstate Commerce Commission, the Treasury Department with its control over the administration of the war revenue measures; the Post Office Department, with its \$8,000,000 appropriation available for experimentation with motor trucks; the Priority Committee, which decides preference in the matter of shipments of the things necessary to railway operation; the Labor Committee, the importance of the work of which as it affects your interests cannot be too strongly emphasized; the Quartermaster's Department of the Army and the similar department of the Navy, each having the disposal of the transportation business of its own department; the Storage Committee, which is even now considering the use of motor trucks in lieu of other forms of transportation in connection with the immense storage warehouses for the housing of goods prior to their shipment abroad; the Housing Facilities Committee, in charge of the erection of dwellings for workers in war industries; the Industry Survey Committee, which will have power to recommend the discontinuance of non-essential industries during the war, and the War Board of the steam railroads—all of these deal with matters of vital importance to electric railways.

Under such conditions it is necessary to the welfare of our industry that it be represented in Washington by a board, which will have the confidence of and receive the fullest co-operation from every railway and that, in turn, the board shall have at its disposal the services of a man equipped by reason of his ability, his acquaintance and his standing to handle the difficult problems with which the board will be confronted.

The situation is one that affects us all—the smaller as well as the larger companies. Our representatives in Washington must have our moral support and financial backing if they are successfully to accomplish their purpose. In order that this may be brought about the conference approves the resolution of the executive committee of the American Electric Railway Association providing that each member company be asked to subscribe to the expense of the War Board a sum equal to the amount of its annual dues to the association, and that each non-member company be asked to subscribe a sum equal to the amount of dues provided by the constitution of the association for companies having gross railway revenue equal to those of the subscribing companies.

Order to Use Electric Railways

On Nov. 3 Major C. M. Curran, Quartermaster, War Department, Washington, issued the following instructions to depot and camp quartermasters.

Subject: INSTRUCTIONS TO USE ELECTRIC RAILWAYS FOR GOVERNMENT TRAFFIC

1. Pursuant to the personal request of Daniel Willard, president of the B. & O. R. R. Co. and member of the executive committee of the American Railway Association, it is desired that all shipping quartermasters will make use of such electric railways as have regularly published tariffs, for freight and passenger traffic whenever it shall be to the advantage of the government to do so.

2. The burden laid upon the steam railways, under the present war emergency, requires that government freight and passenger traffic be routed over electric railways (having regularly published tariffs) whenever it can be done to the advantage of the government and to the relief of the steam railways.

3. It is known that many electric interurban railways are now equipped for and desirous of securing government freight and passenger traffic; and it is believed that when the instructions contained in this circular become generally known, many other electric interurban lines will be glad to equip themselves for such traffic.

Flexible Fare Is Desirable

Theoretically, the Fare Should Be Last of Important Conditions Affecting Electric Railway Operation to Be Fixed—Public Service Commissions Should Be Best Qualified to Modify Fares to Meet Changing Necessities

By DELOS F. WILCOX, Ph.D.
New York, N. Y.

IN a recent editorial the ELECTRIC RAILWAY JOURNAL directed attention to one unique feature of the pending Philadelphia rapid transit lease that deserves general discussion. I refer to the provision for the future increase of fare in case the initial rate of fare proves to be inadequate. Under the proposed lease the unified system, consisting of the company's lines and the city's lines, is to be operated at the start on the basis of a 5-cent fare and free transfers at intersecting points. It is stipulated, however, that whenever the gross revenues for any two successive three-month periods are insufficient to enable the company to pay a dividend at the rate of 4 per cent per annum on its present capital stock the city shall join with the company in an earnest appeal to the Public Service Commission "to order a just and reasonable fare, which may be by flat increase or charge for transfers, or both, on all or any part of the unified system." The standard for a just and reasonable fare is to be the production of at least enough revenue to enable the company to pay 6 per cent on its existing stock.

FARE SHOULD BE LAST CONDITION TO BE FIXED

I am not concerned with the fairness of the dividend rates proposed, for that is a matter of local history and local conditions, with the details of which I am not familiar. The significant thing about this plan is that it gets away from the inflexible fixed fare which has hitherto generally prevailed in electric railway franchises.

Any careful student of public utilities must recognize that from the theoretical point of view the fare should be the last of the important conditions affecting electric railway operation to be fixed. Electric railways have been installed for the purpose of rendering a necessary service, and the cost of this service must be paid by or for those who enjoy its benefits. Logically, in a resettlement of electric railway franchise conditions the principal factors should be taken up and determined in the following order:

1. The value of the existing property actually and necessarily devoted to the public service.
2. The city's immediate requirements in the way of extensions and additional facilities necessary to meet the reasonable existing demands of the city's growth.
3. The extent and the quality of the service required by the community.
4. The necessary operating cost of the service to be

rendered, including proper allowances for depreciation, insurance, accident reserve and taxes that are fixed beyond the power of the city to change them.

5. The rate of return upon the recognized investment necessary properly to compensate the investors in view of the degree of security given to the investment and of the certainty of its earning the annual return allowed to it.

6. The amount of compensation to be paid to the city for the enjoyment of the franchise, whether in the form of special franchise taxes, license fees, percentages of gross receipts, share of net profits or contributions to the amortization of capital for the city's benefit.

7. The schedule of fares that will be sufficient to provide the revenues necessary to the carrying out of the preceding financial program.

Heretofore the only important electric railway settlement in which the fare problem has been worked out in part along scientific

lines is the 1910 Cleveland franchise. I disregard the new Dallas franchise for the reason that it has just come into effect and has not yet been subjected to the test of experience. Even the Cleveland franchise, with its automatic or self-regulating system of fare schedules, is not based upon a complete and definite financial policy. It leaves to the future the determination of the question of amortization and ultimate public ownership. It over-emphasizes, perhaps, the importance of low fares as compared with good service. At least it leaves these two factors to play see-saw with each other indefinitely.

The Chicago and Kansas City settlements make no provision for increases of fares, but do hold out the elusive hope of reductions of fares through the application of the city's share of the profits under conditions that make a reduction wholly impracticable. The New York subway contracts of 1913 are based upon a definite and fairly complete financial policy, but the means provided for carrying this policy out is not a flexible fare but a municipal subsidy-guaranty.

FLEXIBLE FARE IS LOGICAL OUTGROWTH OF CLEARLY DEFINED CITY POLICY

A study of the experience of the principal cities which have adopted electric railway resettlements tends to show that the one thing most needful, and the one thing thus far most lacking, is a definite determination of municipal policy with respect to the electric railway

The Need of a Flexible Fare

One thing is certain—it will not be practicable to maintain the principle of the fixed inflexible fare unless the city is prepared to make up deficits through the remission of taxes, or through subsidies, or through both. Here the need for a clear definition of fundamental policy becomes apparent.

—DR. WILCOX

business. The investment clamors for security, but the city cannot afford to grant full security unless the amount of the investment is kept down or brought down at least to a level corresponding to the value of the visible property. The public demands a low rate of return upon the investment, but it is generally unwilling that the city itself should assume the ultimate risk of the investment and should substantially guarantee the net earnings of the enterprise as the price of securing capital at a low cost. Both parties are still trying to eat their cake and have it too.

A flexible fare is a logical outgrowth of a clearly defined policy regarding electric railways, but the public cannot be expected to accept the idea of a flexible fare if the result is to be merely to relieve the electric railway from all responsibility for keeping down costs. In other words, it is not feasible to put into effect an automatic scheme for the adjustment of fares to meet the company's financial necessities unless adequate means are provided for determining these necessities.

The discussion of the plan recently proposed for the fixing of wages by public service commissions has brought out very clearly the fact that if wages are to be fixed in this way, then the company's responsibility for economy in this particular item of expenditure is practically at an end, and the same authority that increases the wage scale must logically increase the fares sufficiently to meet it, unless, indeed, the community at large is enough interested in maintaining a fixed fare to make up the additional labor cost by a decrease in electric railway taxes or by an actual subsidy out of the taxes derived from other sources. The authors of the Cleveland franchise recognized the difficulties inherent in the automatic readjustment of fares and made an effort to prevent any illegitimate increase in operating and maintenance expenses by the establishment of certain arbitrary allowances per car-mile to cover these expenses. The alleged insufficiency of these allowances has been one of the principal bones of contention between the city and company under the Cleveland plan.

The financial problems of the electric railway business are difficult enough where private ownership and operation is recognized as its permanent and proper status, and also where public ownership has been established either in fact or as a clearly defined ultimate policy. But the difficulties are still greater where an effort is made to leave the question open for future determination without prejudice. It is as if a complex and difficult military campaign were to be undertaken without any objective. All the delicate problems of security, motive, compensation and service are incapable of definite adjustment except on the basis of a prior determination of ultimate policy.

FARE COULD BE ADJUSTED BY COMMISSION OR BY ARBITRATION

Theoretically the public service commission is the body best qualified to fix rates and to modify them from time to time in accordance with changing necessities. It is, therefore, not illogical that under the Philadelphia plan the city should join with the company in securing from the commission an adjustment of rates whenever the financial scheme of the contract between the city and the company requires additional revenues. This, however, does not mean that a city must necessarily

second the company's request for an increase of fares. It should be kept clearly in mind that before any automatic or discretionary readjustment of fares is provided for, the financial scheme looking to the fulfillment of the city's policy with reference to the electric railway business should be worked out in detail. Then it will be proper to leave to arbitration, or to the state commission, the determination of any adjustments in the fare which may become necessary from time to time in carrying out this scheme. But the city ought always to be in a position to oppose before a competent tribunal the company's requests, *though bound to accept the decision* of the tribunal with respect to any increase of fare made necessary by the financial program to which the city is committed.

It may be necessary, indeed, for the city itself to initiate a movement for the increase of fare in case such an increase is needed to enable the electric railway to meet its obligations with respect to those portions of the financial program, such as amortization, in which the city has a primary interest. In any case, however, it is logically necessary that the financial results to be accomplished should be definitely set forth in the franchise contract, and the determination of the particular rates of fare necessary to bring about these results should be left to arbitration or to the Public Service Commission, with both the city and the company privileged to appear before the tribunal and take such positions as their respective interests require. Of course, if fares are to be made flexible, possible decreases as well as increases should be provided for.

One thing is certain—it will not be practicable to maintain the principle of the fixed inflexible fare unless the city is prepared to make up deficits through the remission of taxes, or through subsidies, or through both. And here again the need for a clear definition of fundamental policy becomes apparent.

Electric Furnace for Steam Locomotives in Switzerland

With coal at \$16 per ton and scarce at that and with the possibility of its reaching \$20 in the near future in Switzerland, the railway authorities have been forced to consider plans for reducing coal consumption on the locomotives of the country. Water power is cheap, but electrification cannot be pushed rapidly on account of the cost and scarcity of materials needed for electric locomotives.

One scheme considered is the use of electric heat under the boilers of the present steam locomotives. With electrical energy at 0.3 cent per kilowatt-hour and coal at \$20 per ton the electrically produced heat is said to be as economical as that produced from coal, omitting the cost of fitting up the furnaces of the locomotives. While this temporary expedient would be justified only under extreme conditions, it may be the only solution of the Swiss transportation problem if the coal supply from Germany is shut off.

The subscription of Henry L. Doherty & Company, New York, N. Y., to the second Liberty Loan of 1917 was \$1,000,000. Another \$1,000,000 of the loan was bought by Cities Service Company, controlled by Doherty & Company.

Automobile Maintenance on a Public Utility Property

Public Service Corporation of New Jersey Has Comprehensive Plan for Maintenance and Use of 350 Automobiles and Trucks

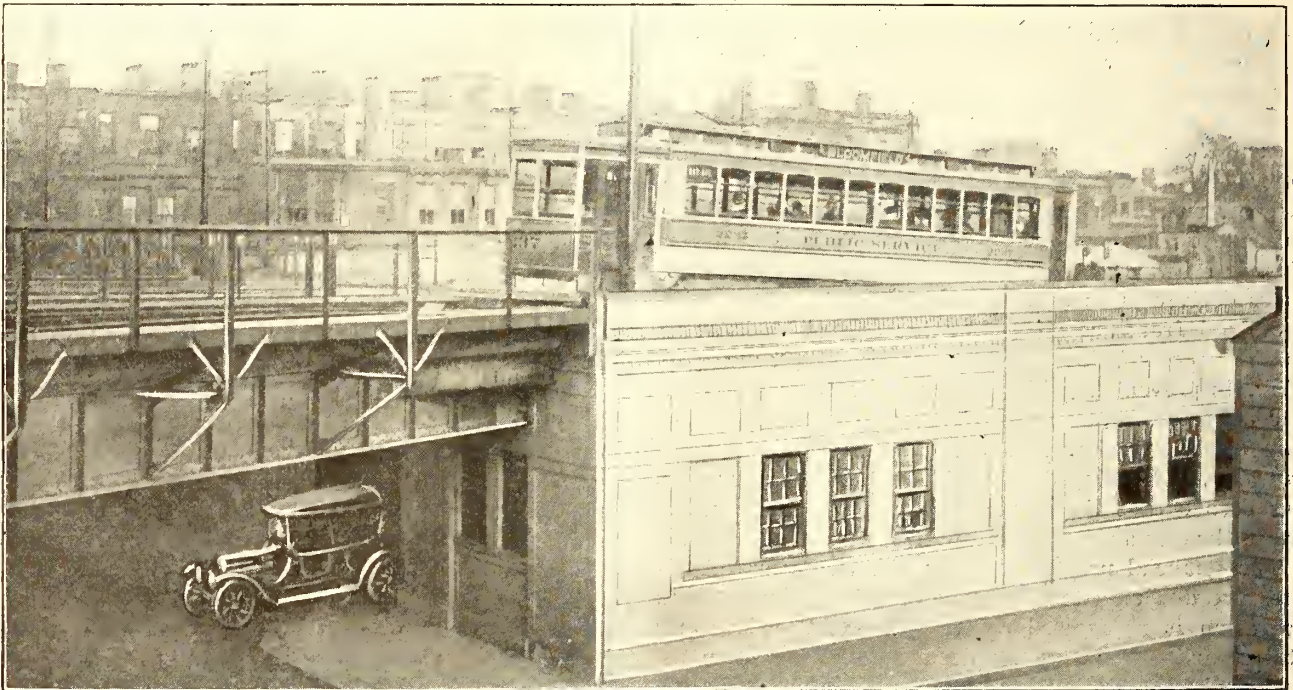
THE Public Service Corporation of New Jersey, of which the Public Service Railway is a part, has found it necessary to develop a rather comprehensive plan for looking after the upkeep of the 350 or more automobiles and motor trucks which are necessary in the conducting of its business.

In order to give unity to the administration of the automobile and truck service, authority has been concentrated in an "automobile maintenance committee," with representatives of the several branches of the corporation. Percy Ingalls, secretary of the corporation, is chairman of this committee. The other members are H. C. Donecker, assistant general manager Public Service Railway; Farley Osgood, vice-president and general

As it would not be economical to send cars and trucks from the southern division to Newark for repair, they are repaired locally by mechanics employed by each of the operating companies.

AUTOMOBILE SERVICE AT NEWARK

The corporation plans to furnish automobile service to all officials who need it in performing their routine duties. There is no hard-and-fast rule regarding the matter, but the plan of the maintenance committee is to render the equipment as flexible and useful as possible. In other words, an effort is made to keep up the load factor. In many cases it is most efficient to assign cars to individuals, with or without chauffeurs, partly to fix responsibility for the proper use of the cars. It has been found that divided responsibility does not produce good results, and on the other hand, individuals to whom cars have been assigned are always willing to accommodate their colleagues when general cars are not available. A few cars are kept for general



EXTERIOR VIEW OF PUBLIC SERVICE TERMINAL GARAGE IN NEWARK, N. J.

manager Public Service Electric Company; E. H. Ershaw, assistant general manager Public Service Gas Company, and E. J. Allegaert, general auditor Public Service Corporation.

The work naturally divides itself into two parts—operation and maintenance. Both of these come under the jurisdiction of the committee, which decides on matters of policy and administers the department through a general superintendent. This official attends to the engaging of chauffeurs and other employees, superintends the making of repairs, etc. He is located at Newark and gives personal attention to repairs made on all machines assigned to the territory north of Trenton. These repairs are made at the Plank Road shops, where a section is reserved for the purpose. The superintendent reports to H. A. Benedict, mechanical engineer of the railway company, who has charge of all upkeep of rolling stock.

service, subject to the call of a limited number of individuals.

Forming a part of the Public Service Terminal in Newark is a garage with accommodation for about sixty automobiles. It is located in a space which otherwise would be of limited value, namely, under the yard tracks where they descend from the elevated train floor to the street level. The garage is on the street level, across Pine Street from the rear of the main building. This garage is in charge of a superintendent and is provided with all modern appliances for automatically supplying air, gasoline and lubricating oil to the cars as they enter.

OPERATING RULES FOR THE TERMINAL GARAGE

To obviate as far as possible the occurrence of misunderstandings regarding the use of machines, the maintenance committee framed some simple rules as reproduced on the next page.



PART OF PUBLIC SERVICE TERMINAL GARAGE IN
NEWARK, N. J.

In order to secure the fullest service from the company's cars and chauffeurs it is ordered that the following rules shall be in effect at the company's terminal garage in Newark.

Definitions: The titles used in the rules refer to individuals as defined below.

Assignee. Any employee of the company to whom a car has been assigned, such car being regularly stored at the terminal garage.

Employer. Any assignee having a chauffeur.

Regular chauffeur. Any chauffeur regularly assigned to an assignee.

Available chauffeur. Any chauffeur not regularly assigned or temporarily released by assignees for other assignments.

Garage superintendent. The garage employee regularly in charge of the garage, or any other employee temporarily representing him.

Rule 1. No car shall be taken out of the garage without permission of the assignee.

Rule 2. Assignees shall notify the garage superintendent whenever their cars are available for general use. This means that if an assignee can see ahead for even a single day that he will not use his car himself he shall notify the garage superintendent and the car will then be considered available for emergency use during the period specified.

Rule 3. Assignees shall notify the garage superintendent whenever they do not expect to use their chauffeurs for periods even as short as part of a day, and for such periods they will be considered as "available chauffeurs."

Rule 4. In the assignment of cars and chauffeurs for emergency and temporary use the garage superintendent shall, so far as possible, use electric company cars and chauffeurs for electric company business, railway company cars and chauffeurs for railway company business, etc.

Rule 5. Regular chauffeurs shall be at all times subject to the assignee's order and shall not be sent away from the garage without the assignee's permission.

Rule 6. Regular chauffeurs are expected to remain at the garage during working hours, subject to calls by the assignees.

Rule 7. Available chauffeurs will be assigned to duty by the garage superintendent as the case may require.

Rule 8. When two or more available chauffeurs are in the garage they shall not all be permitted to leave the garage at the same time for lunch or for any purpose other than to take cars out on assignment.

Rule 9. All chauffeurs, "regular" and "available," will be expected to report to the garage superintendent when they come in to the garage, and when they leave the garage for any purpose shall also report to him, giving such information as they may possess as to their probable return, and on whose call they are going out.

Street Cars Eighty-five Years Old

The First Street Car Was Built by John Stephenson and Was Put in Operation in New York in 1832—Early History of the Line

BY CARL HOLLIDAY

Professor of English, University of Toledo

EIGHTY-FIVE years ago, on Nov. 26, the first street car in the world began its journey. It attempted to "crawl" up Fourth Avenue, New York City, from Prince to Fourteenth Street, and almost succeeded, but not quite. In those days Old Broadway was merely a rambling village road up to Eighth Street, and from there on was scarcely more than an indefinite country path, copiously decorated with mud puddles. Where Grace Church now stands was an old barn, while a powder house ornamented the future Union Square. At the corner opposite Houston Street stood a stone that told passers-by that it was "2 miles to New York." Broadway and Fourth Avenue were fashionable residence sections that had possessed gas light since 1825, and along these grassy boulevards unending processions of mules, oxen and horses slowly hauled freight and hoop-skirted ladies. Between 1746 and 1800 a company ran a regular route along these two highways and gathered a harvest of shillings from the "hurrying" throng. Then came the omnibus and car service, and the narrow streets were rapidly becoming congested.

In 1830 a New York carriage maker, John Stephenson, offered a brilliant suggestion for remedying the condition. Why not lay rails and carry the ladies and gentlemen on cars with flanged wheels? There was at once an outcry of protests and admiration. Some of the "mossbacks" pointed out the noisiness and the dangerousness of such a contrivance, but the progressives pointed out the danger of trying to cross the street full of omnibuses as big as family residences and declared that this state of affairs could not continue. Of course, the radicals won. A charter was granted the New York & Harlem Railroad on April 25, 1831, to construct a double-track road to any point on Harlem River "between the east bounds of Third Avenue and the west bounds of Eighth Avenue"; and on Nov. 26, 1832, the first car began the uneven tenor of its way.

Among the incorporators of this unique undertaking were some men famous in the commercial history of early New York: Benjamin Bailey, Mordecai Noah, Benson McGowan, James B. Murray, Thomas Addis Emmet, Gideon Lee, Samuel F. Halsey, Robert Stuart and others of equal prominence. These men of vision wasted no time in arguments and doubts, but in July, 1831, promptly elected a board of directors and chose John Mason, founder and first president of the Chemical Bank, as their president. The first street car in the world was named after him.

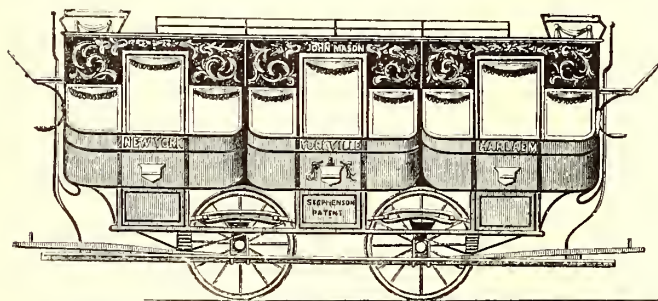
That first tramcar, as it was then called, was a wonder to behold. A combination of the American omnibus and the English coach, with three compartments each accommodating ten passengers, and six doors, three on each side. The seat for the driver was on the roof, as with the old-style omnibus. The car body was suspended on the truck by leather links.

NOTE—For other articles on the early history of the New York & Harlem Railroad, see STREET RAILWAY JOURNAL, Vol. VII, page 110, Vol. IX, pages 10, 90 and 591. [Eds.]

Owing to the rigid construction of the track, which was made of strap-iron rails on stone stringers, the cars were very noisy, and this perhaps had much to do with the removal uptown of the residence section. In spite of the fact that here were certain elements of the modern transportation system, the enterprise was not a financial success.

John Stephenson, inventor of this first car, came with his parents from Ireland to New York in 1811, when he was but two years old. After serving an apprenticeship as a coach builder he established a shop at 667 Broadway, and began the construction of omnibuses in 1831, the first built in the city of New York. It was while thus engaged that he designed and made the "John Mason."

In 1833 the Common Council passed an ordinance allowing the company to lay a track on Broadway, and two blocks of rails were actually put down, but the conservatives objected so violently that the route was soon abandoned. Doubtless when the horse-car plan on Fourth Avenue did not prove a great success financially, these same oldtimers wagged their heads with infinite satisfaction. About two years later, the company added a small steam dummy to assist in hauling its passengers, but in time the steam car had to go its



THE FIRST STREET CAR IN THE WORLD

way—which was exactly what it had been doing all along, even if it was a pretty poor way. Years later this same type of cars turned up—figuratively and actually—in the South, and until a recent date one stood in the streets of Middlesboro, Ky., exactly where it had exploded long before.

The first New York conductors were boys, and were supposed to turn in their total receipts every Saturday night—but didn't. In fact, their forgetfulness became so clear that at length the company offered a reward to the boy bringing in the largest amount each week. The sudden increase in revenues is shocking evidence that graft is an ancient and time-honored institution around Long Island.

Nevertheless, the company must have been prospering for it made frequent expansions. We find that in 1837 the New York & Harlem Railroad was authorized to extend its double-track line to Yorkville, a distance of 5 miles. And we learn further that the "coaches" will pass every fifteen minutes, and that the fare will be 25 cents for the entire trip. In 1837 Fourth Avenue from Thirty-fourth Street to Harlem River was widened and the line promptly extended beyond the river. Three years later, or in 1840, the company purchased the controlling interest in the New York & Albany Railway Company, which had been organized several years before to build a railway to Albany, but had never done any construction, and later this line was built. Com-

modore Vanderbilt was, by this time, a heavy stockholder and director, and in 1864 became vice-president. Affairs were indeed looking prosperous for the New York & Harlem Railroad Company. Meanwhile had come Ross Wenans of Baltimore with a car possessing eight wheels, and, to meet this improvement, the pioneer Stephenson had been forced to expand, and in 1843 built a great factory covering sixteen city lots.

In spite of such improvements in transit, however, the downtown streets in New York as early as 1850 were so crowded that a bridge was built across Broadway at Fulton to accommodate pedestrians. This bridge idea would not be a bad scheme even in our own time, and is offered without extra charge to the present city fathers of New York. In just such an hour of danger came Jacob Sharp, who began to declare vigorously that it was a shame that a city of 500,000 should have no respectable rapid transit system. He placed counters at downtown corners, and proved that between 7 a. m. and 7 p. m. 16,215 omnibuses went up and down Broadway, past Chambers Street, that 9442 other vehicles went past, and that the omnibuses alone carried 33,583 passengers. The numerical arguments thus brought forward by Sharp were too tempting to be resisted by New York capitalists. About this time, 1852, a French engineer named Loubat revived the horse-car idea, and a vehicle a little less bulky and awkward than the one of 1832 having been constructed, a company was induced to lay a short line in Sixth Avenue. This was so successful that by 1855 horse cars were running out Third and Eighth Avenues. Thus, shortly after the middle of the century, the metropolis possessed four street car systems.

But not even then was New York satisfied. The first one-horse car, or "bobtail," was invented by Stephenson and Slawson and was successfully introduced at New Orleans just at the outbreak of the Civil War, and this simple device was added to the New York equipment in an effort to reduce congestion. Then came the cry for an elevated road. The "moss-backs" stood aghast sure enough at the audacity of this scheme; but in 1867 more than forty plans for such a scheme were submitted to the New York Legislature. Charles C. Harvey was granted permission to build a track, merely as an experiment, from Cortlandt Street through Greenwich Street and Ninth Avenue to Thirtieth Street, and the road was opened in 1870 with an endless chain run by stationary engines in four sections of the city. The endless chain, however, caused endless troubles, and in 1871 dummy engines pulling three cars each were substituted. Then came the "Gilbert" Road, to consist, as its inventor, Dr. Rufus Gilbert, declared, of a pneumatic tube on arches, through which tube the trains should race "unseen and unheard." Like painless dentistry, it was too beautifully theoretical to be true, and the road finally resolved itself into a plain elevated.

By 1876 the New York Elevated boasted that it was running forty through trains per day between the Battery and Fifty-ninth Street; but when Cyrus Field gained a controlling interest the next year such a boast soon seemed very tame indeed. On June 5, 1878, an "L" was opened from Rector Street to Central Park; the Third Avenue Road was opened on Aug. 26 of the same year, and in 1879 the two systems were merged under the name of the Manhattan Railroad Company.

Utility Growth Is Vital to Nation*

Increased Rates and New Capital Are Necessary if
Electric Railways and Other Utilities Are to Do Their
Allotted Work Now and in the Post-War Period—
Money Available if Commissions Assure Earning Power

By ORLANDO B. WILLCOX

Vice-President Bonbright & Company, New York, N. Y.

THE ABILITY of utilities to give adequate, increasing and constantly improving service is a national necessity. Good service in every community served is essential to community health, growth and prosperity. The soundness of public utility securities is important to the welfare of the people as a whole, and, because of the large part of the people's capital invested in them, directly affects the ability of the people to respond to national requirements in taxes and loans for war purposes.

The national necessity of continuing all public utility service during the war is obvious on the most casual consideration. The most conspicuous war contributions of the utilities are the economies they effect in the three things most essential (excepting only food) for the prosecution of war, namely, labor, coal and capital.

ECONOMIES EFFECTED BY UTILITIES

Labor saving is, of course, a public utility's primary function. It is self-evident that suspension of any one of the great utilities would necessitate the unremitting work of vast armies of men to supply the necessities now so easily accessible. Conversely, these utilities release those vast armies of men for other useful labor.

The coal conserved by the utilities is quite as important though not so conspicuous. The shortage of coal in Italy is Germany's one steadfast ally, and that in France is more threatening than lack of men. In this country, although more coal is being mined than ever before, at the expense of the supply for future generations, the demand for war purposes added to normal requirements has caused a shortage already dangerous, now defying the strenuous efforts of a special commission of the national government. The coal consumption of utilities, enormous as it must be, produces energy that in the forms of light and heat, power and transportation, would consume at least twice as much coal if provided separately for each requirement.

Much of the power used by war factories is supplied by the central stations of public utilities. The saving to the various war industries in capital costs for power machinery, steel, copper and construction costs represents a substantial part of the total capital temporarily diverted to war production and therefore a saving to the nation of a considerable percentage of war outlays.

UTILITIES MUST EXPAND

The ever present question is, how is capital to be provided to meet the great national need for the constant expansion of public utilities? If the very nature of their enterprises permitted them to remain static,

even for intermittent periods, or if their surplus earnings under regulation were sufficient to meet the costs of their expansion, their problems would be simple—merely the refunding of maturing obligations. Their real problems, however, arise from the need for the facilities they supply not only by the population and industries they serve at any one moment, but by every unit of every increase.

GREATEST HANDICAP HAS BEEN FIXED RATES

It may be admitted, to avoid argument, that the rates fixed in most cases have allowed a fair return on the capital invested at the moment. Too often, however, the utilities have failed to impress the commissions with the necessity of making provisions in advance for the large capital increases necessary in the business of providing an increasing population with facilities of constantly expanding use.

The rates fixed in pre-war periods were never sufficient to provide new capital out of surplus earnings; and often were insufficient to encourage the investment of new capital, either by allowing a sufficient margin of earnings above actual charges or the accumulation of a protecting equity. And in the face of rising prices, particularly during the war period, the greatest handicap to growth has been that the rates are fixed.

With the present costs of coal and all materials for operation, maintenance and construction doubled, and costs of labor largely increased, the utilities are limited to prices for their service rigorously regulated down to a scant return on capital already invested, based on pre-war costs.

Fortunately certain of the public service commissions are recognizing the necessity for increased rates to enable utilities to pay their operating costs, fixed charges and dividends on invested capital. In 462 rate applications reported so far for the year 1917, increases were allowed in 401 cases. These are but evidence of the increased rates which must follow the increased costs of operation, if the utilities, so necessary to national and community life, are to escape disaster.

COMMISSIONS HAVE BEEN SHORT-SIGHTED

The commissions must see to it that capital for great public service expansion is provided. The resulting benefits will inure to all the people through cheaper and increased national output and the resulting growth of the country's wealth. The penalty for failure to make these provisions now will be measured not merely by the investors' loss of profits, but by the country's loss of wealth through the fatal crippling of its chief agent in low-cost production.

The commissions have conceived their whole mission to be the prevention of large profits on capital already

*Abstract of report presented by Mr. Willcox, as acting chairman of public service securities committee, at Baltimore convention of Investment Bankers' Association of America, Nov. 12-14.

invested. They have fixed rates for service which are calculated to leave, after payment of expenses of operation in normal times, scarcely a fair return on the money invested.

They have conceived it to be in the public interest to penalize by loss, and make hazardous by low rates, capital already invested, oblivious of the far greater public interest in the constant expansion of the utilities' time and labor-saving service.

They have dealt with the utilities as already full grown and completed, and have fixed and limited the earnings on capital invested in the past, regardless of the requirements of capital needed for expansion in the future, vastly greater in amount and more necessary to public welfare.

They have dealt with history, while their business was preparedness. They have saved present operating costs by sacrificing the greater saving of capital costs. In their zeal to effect present economies they have been blind to the demands of the industries of the country for more public service and ever more service, and deaf to the utilities' cries for such regulation and such rates as would attract and not frighten the investors who must provide capital for the additional service required.

NEW CAPITAL IS COSTLY NOW

New plants and additions, betterments and extensions of old ones, will cost just twice what the old ones cost, on the valuation of which prevailing utility rates have been fixed, and costs of operation, maintenance and taxes have also nearly, if not quite, doubled. To discharge their obligations to the public the utilities, in addition to a fair return on the capital already invested, must show a margin of earnings and equities large enough to persuade investors to provide the capital for the expansion demanded by American industry in utility service in preference to other investment.

The rates for service required for these earnings would undoubtedly be paid, and freely paid, by the public served, because they represent no more than the value of the absolutely necessary service received. The federal government has recognized the justice of prices for necessities double the pre-war prices, in fixing the following prices:

| | Pre-War Price | Price Fixed by Government |
|------------------------|------------------|---------------------------------|
| Wheat, per bushel..... | \$0.90 | \$2.20 |
| Corn, per bushel..... | .60 | 1.10 |
| Copper, per pound..... | .14 | .23½ |
| Coal, per ton..... | 1.15 | 2.75 |
| Pig iron, per ton..... | 16.00 | 33.00 |

Notwithstanding, some of the utilities, because of drastic and punitive regulation in the past, do not even dare apply for fair increases in rates! To these we would say that more receiverships would result from a failure to apply for increases than from just and defensible applications.

Pending very general and necessarily large increases in rates, the utilities are faced with the difficulty at the moment of getting needed capital at any rates, and are compelled to pay high for piecemeal and temporary financing, as much because of the restraint on their obvious right to charge fairly for their own output, as because of the strain on capital.

Constant additions to the capital of the utilities is so insistently required by the country's industries, and so important to national production as well as to national

conservation of its sources and energies in these times of war, that it may be confidently expected that their requirements will receive instant and generous attention by a securities priority board, if national regulation of security issues becomes necessary.

IMPORTANCE OF UTILITIES IN POST-WAR PERIOD

After the war the peoples of the world will fight as strenuously as now for the world's trade, and the armies, the guns and the munitions of that battle will be labor, machinery and capital. We pay our labor more than any other people and we cannot and would not reduce the wages of American labor to the continental level; so we must always be at the disadvantage of higher labor costs. But we have always excelled in devising and using labor-and-time-saving machinery, and now we have great new additions to our wealth and capital. It is machinery and capital, and not cheap labor, that must establish our position as leaders of the world peace.

The commissions are charged by the public with the duty of visualizing now, even in these days of high costs and economic and financial strain, the destiny of all the utilities, and must make provision for the service the utilities have to perform for the nation in the trying and fiercely competitive period to follow the war. All the energies and all the talent of the country, co-ordinated to common effort, must be bent to the single task of reorganizing all the business activities on a peace basis to meet successfully the world's competition. Waste must be eliminated to reduce production costs, whether that waste is in the money costs of plants or materials, or in the time consumed in manufacture or transportation, or in the amount of labor employed in each operation; and our great time and labor and money-saving machinery, the public utility systems, will be our greatest contributor to low production costs.

CAPITAL FORTHCOMING IF COMMISSIONS ASSURE EARNINGS

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

Utility managers can and will devote the skill, resourcefulness and ingenuity of the American executive to the operating problems, uniting system with system, building greater plants, devising new economies to reduce America's production costs, if only the needed capital is provided. Investment bankers will undertake to divert the necessary part of the savings of the nation to utility securities if they can give assurances for the safety of the investment and the protection of return through adequate earnings.

It remains for the public service commissions to provide those assurances for the needed capital; to see, in the light of wisdom and experience, that the public welfare requires the lowest possible production costs for the nation's industry, and that the public has lodged in their hands the responsibility and the power to direct the upbuilding of public utility machinery so that it may adequately do its allotted work.

EQUIPMENT and MAINTENANCE

HAVE YOU A GOOD WAY OF DOING A JOB?

—Pass It Along

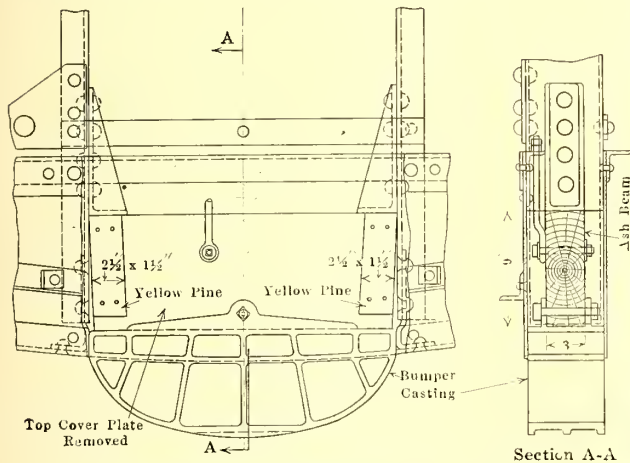
These Articles Have Been Selected to Provoke Thought and Stimulate Discussion. All of the Technical Departments Are Represented

Bumper Localizes Damage Resulting from Minor Collisions

BY KEITH MACLEOD

Engineer of Equipment Montreal (Que.) Tramways

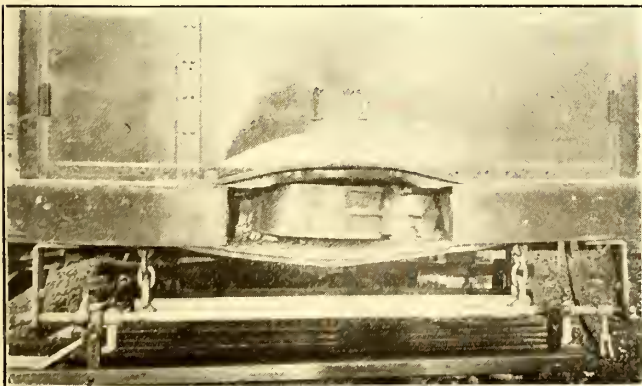
Without shock absorbers of some kind many small collisions between cars result in costly damage both to the platform and the car-body framing. To take up such



DETAILS OF WOOD-BACKED BUMPER FOR ABSORBING SMALL SHOCKS

shocks we have designed a bumper arrangement by which the damage is localized to parts which can be readily and cheaply replaced. The accompanying half-tone shows the results of a collision which would have been serious if no shock absorber had been provided. As will be seen, the bumper was demolished but the rest of the car was practically uninjured.

As indicated by the drawing the device consists of a malleable iron bumper casting with anti-climbing ribs



CAR AFTER COLLISION, SHOWING HOW THE SMASHING OF BUMPER HAS AVOIDED SERIOUS DAMAGE

backed by an ash beam which in turn rests against brackets attached to the center platform sills. The ash beam is reinforced at the sides by 2½-in. x 1½-in. yellow pine blocks. The bumpers, castings and beam are of sufficient strength to withstand small touches between cars and at carhouse bumpers, but are designed to give way if a heavier shock is encountered. It has been found that in many small collisions nothing further than a new wood block and sometimes a casting is required to repair the car.

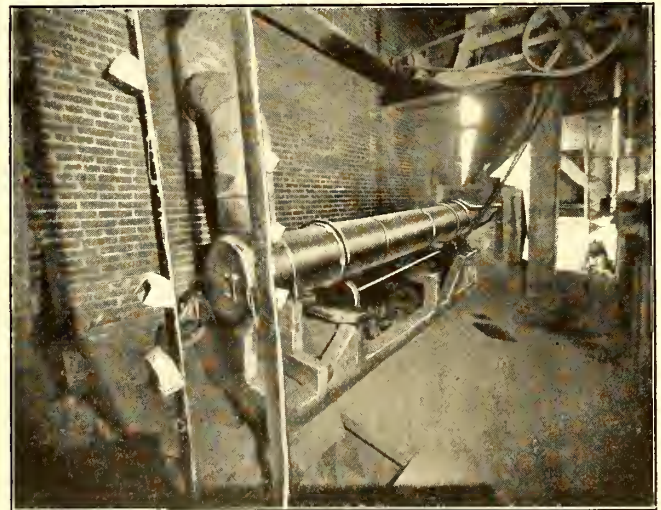
Sand Drier Operates Like Cement Kiln

BY R. A. WILLSON

General Superintendent Washington Water Power Company, Spokane, Wash.

We have constructed a sand drier arrangement which takes the sand from a storage bin, screens it, runs it through a rotary drier and then conveys it to a second storage bin.

On the right in the illustration is shown the bucket conveyor which carries the sand from the receiving bin



LARGE CAPACITY SAND DRIER OF WASHINGTON WATER POWER COMPANY

under the track to a hopper over the firebox. The sand is screened through a rotary screen, and it then goes through a chute and into the end of the cylinder which protrudes into the firebox. The latter is large enough for old track ties to be used as fuel without being cut. From the firebox the sand passes through a riveted steel cylinder 15 ft. long and 18 in. in diameter. This cylinder is patterned after a cement kiln. It is slightly tilted, sloping away from the firebox, and has blades ar-

ranged so that as the cylinder revolves the sand is raised to the upper side of the tube and then drops back again.

As the cylinder forms a flue between the firebox and the chimney, the hot air and gases come into immediate contact with the sand and not only dry it but also remove all clay and vegetable matter, this being dried to dust and carried up the chimney. The dry sand comes out of the left end of the drying cylinder and is conveyed to the dry-sand storage bins by a second bucket conveyor. The capacity of the outfit is about 8 tons per hour. It was made largely of scrap materials.

West Penn Railways' Interurban Car

Its Light Weight and Large Capacity, Motor-Operated Doors and Magnetic Brakes Are Among the Interesting Features

The West Penn Railways, Pittsburgh, Pa., has in interurban service fifteen cars of the type shown in Figs. 4 and 5. This car is 57 ft. 10 in. long, 8 ft. 6³/₈ in. wide, and has 33-in. wheels; the underframing and side girders are of steel, and the posts and roof are of wood. The car is equipped with magnetic and hand brakes, but no air brakes. The total weight is 46,000 lb., the seating capacity is seventy, and the total capacity, 200. The car bodies were built by the Cincinnati Car Company, and Brill type 27E-1 trucks were used. While the general construction of the car is not radically different from the modern type of interurban car, there are several unusual features.

LIGHT-WEIGHT BOLSTER

With economy of weight in mind, the box girder steel bolster shown in Fig. 1 was constructed in the railways' own shops. The top plate is 12 in. x 3/8 in., the bottom 9 in. x 1/2 in., and the sides of the box section are 6-in. x 1/4-in. plates which are arc-welded to the top and bottom members. Bracing webs 3/8 in. in thickness are located as shown in the drawing. These bolsters have been carefully checked up after two years of service and no deflection is apparent. It is estimated that 100 lb. per bolster is saved by using this type of construction.

MOTOR-OPERATED DOORS

Motor-operated doors are rarely used, but the design developed for these cars has proved so satisfactory

that it has fully justified its installation. The general appearance and the details of the device are shown in Figs. 2 and 6 respectively. The door-operating levers are actuated by a Westinghouse 1/12-hp., 250-volt d.c. series motor located over the doors and supported from the letterboard. There is one motor for each pair of center doors, and the control switches are connected to cords running the full length of the car, so that the conductor at any location in the car can open the doors by pulling one cord and close them by pulling another. The question may be raised as to what would happen if a person got his hand or foot caught in a door. To meet this emergency the edges of the door have been fitted with pieces of sheet gum which are flexible enough to bend back and avoid an injury. Should a person's whole body be caught, it would immediately stop the motor and no bad effects would result. Since

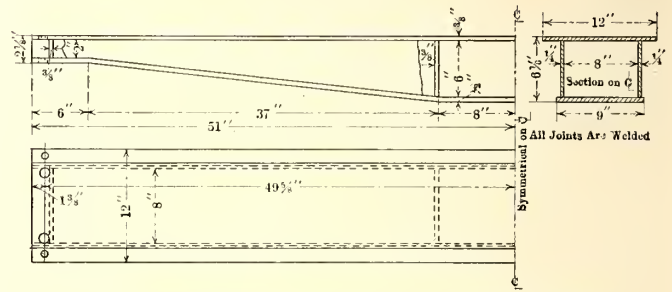


FIG. 1—DETAILS OF LIGHT-WEIGHT STEEL BOLSTER

the car is equipped with magnetic instead of air brakes there are no air compressors on the car. This is one reason for adopting motor-operated instead of pneumatically operated doors.

COMBINATION HEATER AND FOOT RAIL

Believing that the interurban passengers would appreciate a foot warmer, it was decided to locate the heaters under the seats, making a combination heater and foot rail by mounting a perforated guard over the standard Consolidated Car Heating Company's heating units. The details of the guard are shown in Fig. 8, and Fig. 3 shows the location of the unit under the seats. The guards were made in the West Penn shops at a cost of 33 cents each. The heaters consume 340 watts per unit, ten units being connected in series on 550 volts. Thermostatic control is provided.

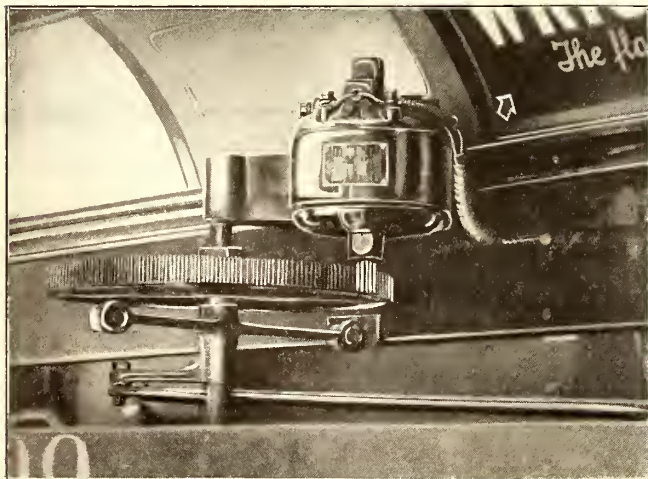


FIG. 2—ELECTRIC MOTOR FOR OPERATING DOORS

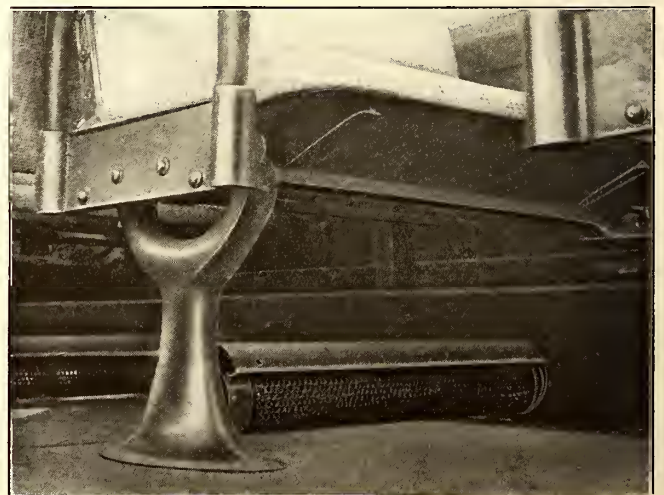
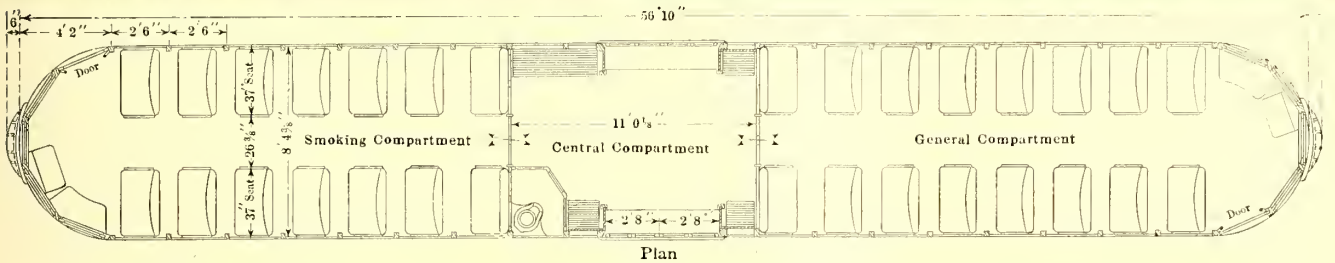
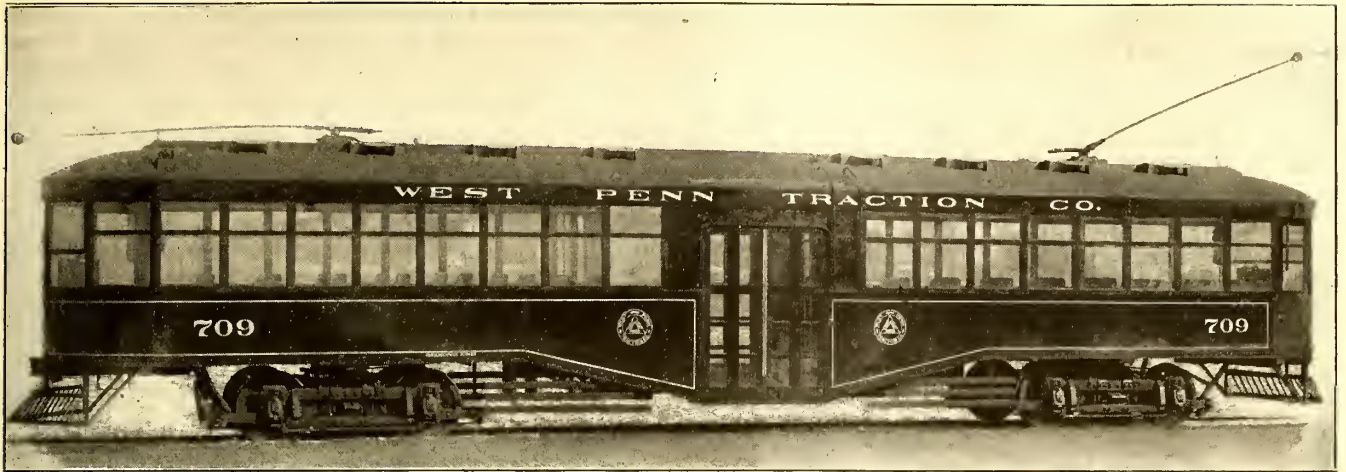


FIG. 3—VIEW OF HEATERS WHICH SERVE AS FOOT WARMERS



FIGS. 4 AND 5—WEST PENN RAILWAYS LIGHT-WEIGHT, LARGE-CAPACITY, CENTER-ENTRANCE INTERURBAN CAR

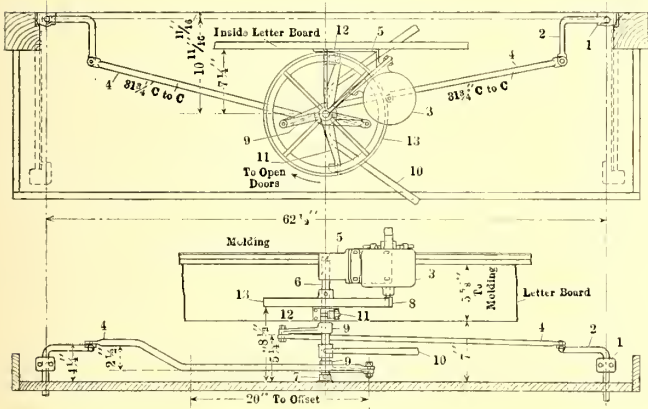


FIG. 6—LAYOUT OF MOTOR-OPERATED DOOR-OPENING DEVICE

DESCRIPTION OF MATERIAL

- | | |
|---|---|
| 1. Split bearing for door crank, brass. | 8. Fourteen-tooth steel pinion, 1 1/8-in. face. |
| 2. Door crank, forged. | 9. Lever arms, brass. |
| 3. Driving motor. | 10. Hand lever arms, forged. |
| 4. Connecting links, W. I. pipe. | 11. Bumper arms, brass. |
| 5. Bracket for motor, cast iron. | 12. Bumper, brass. |
| 6. Door mechanism shaft, 3/8-in. C. R. steel. | 13. 14-in. cast iron cut-tooth gear. |
| 7. Lower bearing for shaft, brass. | |

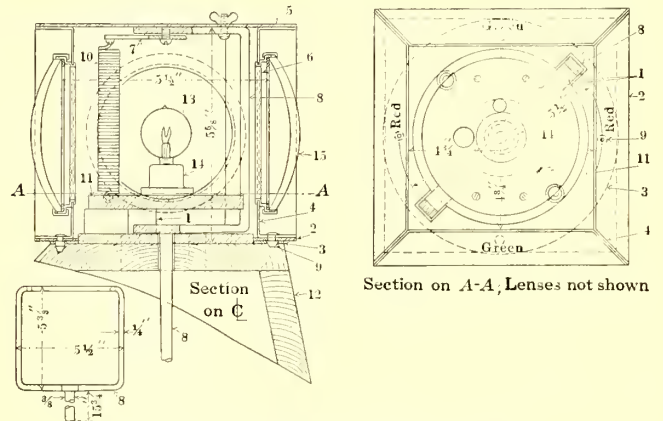


FIG. 7—DETAILS OF MARKER LIGHT

DESCRIPTION OF PARTS

- | | |
|--|--|
| 1. Oak segments. | 7. Spring pivot bar. |
| 2. Bottom plate, No. 24 galv. iron. | 8. Yoke. |
| 3. Bearing plate No. 16 galv. iron or steel. | 9. Combined pin and rivet. |
| 4. Slide plate, No. 24 galv. iron or steel. | 10. Spring, 1/2-in. x 3 1/2-in. |
| 5. Top plate, No. 24 galv. iron or steel. | 11. 3/8-in. oak disk, 4-in. dia. |
| 6. Lens holder, No. 24 galv. iron or steel. | 12. 3/4-in. poplar box, with 6 1/4-in. square top. |
| | 13. Tungsten lamp, 4 volts, 2 cp. |
| | 14. Lamp base. |
| | 15. Bull's-eye lens. |

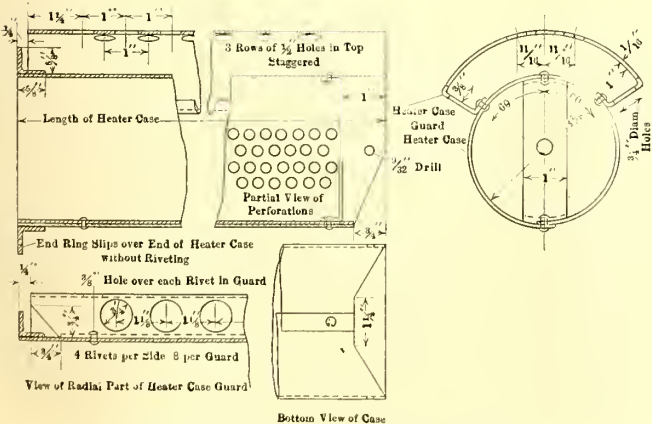


FIG. 8—DETAILS OF HEATER GUARD

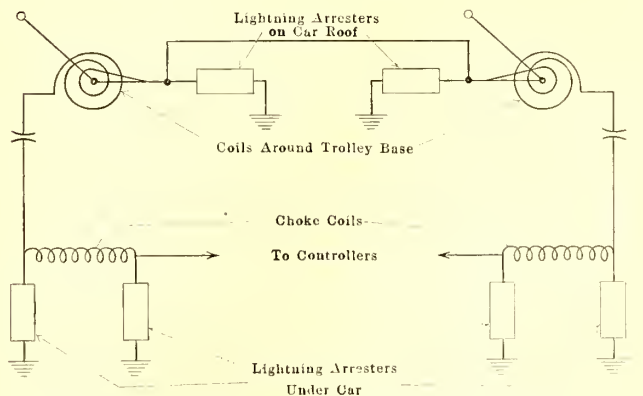


FIG. 9—CONNECTIONS FOR LIGHTNING ARRESTERS

The two marker lights and an emergency light in the center of the car are fed from a three-cell Edison storage battery which is charged by connecting it in series with a resistor and the headlight. Tungsten lamps, rated at 4 volts and 2 cp. are used for the marker. The box in which the lamp is mounted is shown in the illustration of the car, and the details of the marker are given in Fig. 7. The bull's-eyes and color lenses are attached to a strap-iron yoke so that they can be turned to give either a red or green indication. The handle of the yoke comes down through the roof of the car. To shift the color indication this handle is pushed up to disengage the yoke and it is then given a half turn and allowed to come down to its normal position again.

LIGHTNING ARRESTER CONNECTIONS

Lightning is very severe in the territory served by these cars. Six Westinghouse type MP lightning arresters are used on each car, and the method of connecting them up which has worked out the best is shown in the diagram. Two arresters are located on top of the car and two underneath each platform. Choke coils are connected as shown. On the top of the car the coils are wound around the trolley bases, while underneath they are mounted on wooden cylindrical blocks 5 in. in diameter.

Trapdoor Hinged to Vestibule Door on Interurban Cars

Canadian Railway Uses Simple Plan of Preventing Accidental Falling of Trapdoor

BY G. J. MEYER

Chief Engineer and General Superintendent Montreal & Southern Counties Railway, St. Lambert, Canada

On the interurban cars of this company we formerly used a trapdoor over the steps which folded up against the end of the body and was held in place with a catch. On the under side of the trapdoor was a grab handle to assist passengers in boarding and alighting. As it sometimes happened that the catch did not hold the

danger of the trapdoor falling. A stationary grab rail is attached to the bulkhead.

Of the accompanying drawings Fig. 1 is a plan view showing the trapdoor in its lowered position, the grab handle and the vestibule door and framing. Fig. 2 shows the lower part of the main door with the trapdoor folded up against it. In Fig. 3 the solid lines show the trapdoor in the lowered position and the dash lines in the raised position. The trapdoor is made of sheet iron about 3/16 in. in thickness.

How to Make a Proper Rail Connection

BY W. M. PEGRAM
Brooklyn, N. Y.

The early conception of a proper railroad track was an immobile structure laid on stones, later modified by the introduction of wooden tie supports with rigid fastenings for rails and ties. There is no engineering justification for such a structure. In fact, most of the trouble which necessitates so much of the present track maintenance comes from the retention of this idea.

A wheel rolling along a rail exerts three forces on it. Of these, downward pressure and thrust along the rail are combined in the dynamic load of the wheel. The third force, vibration, results from the rolling contact of the wheel and rail surfaces which are more or less uneven, but in the usual form of track construction no provision is made to minimize this vibration of the rail except at the ties where its presence is recognized in the trackman's formula: "Don't hit that spike the last tap." This vibration is the principal factor in the cupping which occurs on the receiving end of a rail.

To prove this, assume a pair of continuous rails laid on ties in the conventional manner. A pair of wheels rolling along these rails sets up synchronous vibration in wheels and rails. Now, suppose these continuous rails to be cut into rail lengths. Then, as the wheels roll over these disconnected but firmly bedded rail lengths, the vibration in the leaving rails is broken at the rail-length junctures, and the vibrating wheels,

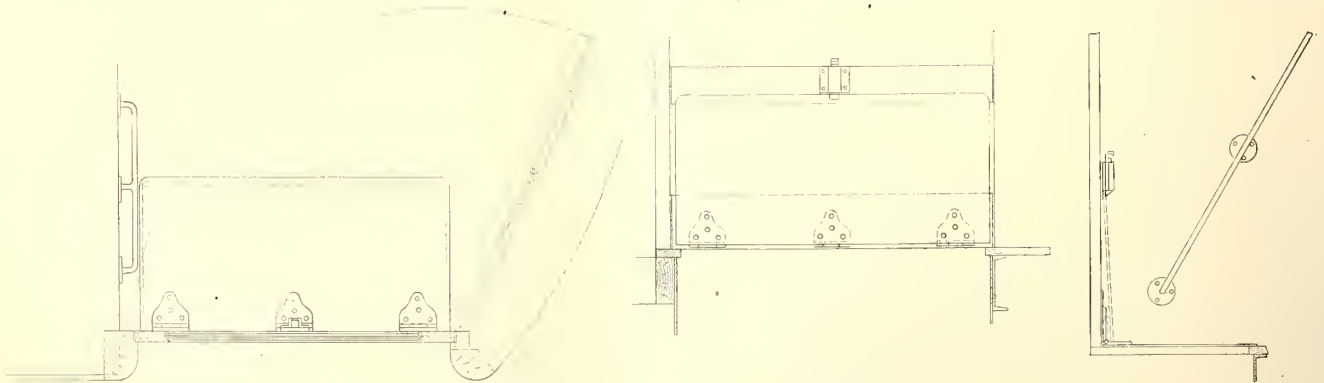


FIG. 1—PLAN SHOWING DOOR IN DOWN POSITION. FIG. 2—ELEVATION SHOWING DOOR IN UP POSITION. FIG. 3—END VIEW SHOWING DOOR IN BOTH POSITIONS

trapdoor securely there was a constant danger that injury would be caused by accidental falling of the door.

On recent cars a different arrangement has been provided, the trapdoor being hinged on the inside of the vestibule door, folding up against the latter when not in use. As before, a catch is used to hold the trapdoor in the open position. As the main door folds against the front of the vestibule there is no possible

passing to the receiving ends of the dead rails, rub the receiving rail ends and cause cupping.

To overcome cupping, the continuity of the rail lengths must be maintained so that the vibrations will travel synchronously from one rail to the next. This can be accomplished only if heads of the rails are supported independently of the rails and also if the joint connection provides a minimum addition to the sectional

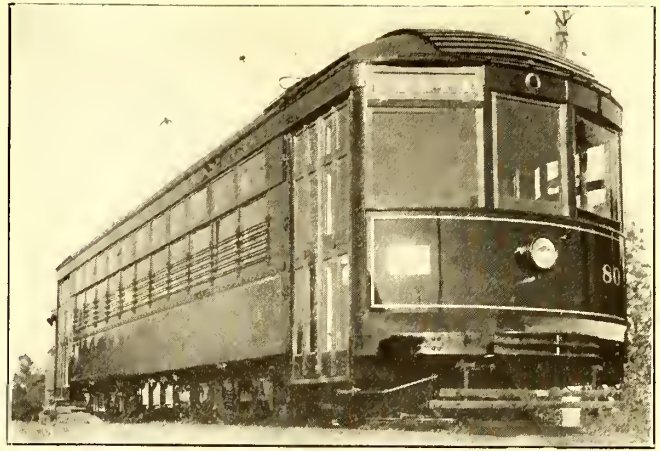
area of the rail. The reason for this latter precaution is that sectional area dampens vibration, and while the vibrations along the heads of the rails are continuous, the vibrations along the bases of the rails are interrupted by the ties, so that the bases must be isolated to reduce this dampening.

By analogous methods, creeping of rails may also be prevented. With a continuous rail, the cumulative thrust of the wheels eventually moves the rails in the direction in which the wheels are rolling. But if these rails are cut into disconnected rail lengths, as assumed in the previous example, the thrust is broken at the rail length junctures, and as this thrust is not sufficient to overcome the inertia of single rail lengths there is no sustained forward movement of these rail lengths. To overcome creeping, therefore, this independence of rail lengths must be maintained, and if the rail ends are connected so as to remain flexible vertically, as on a hinge, this result is obtained.

To understand the cause of the churning of ties, one needs only to observe the vibration of a tie under a moving train. The effect of the vibration is to loosen the tie in the ballast until it is free to move vertically with the wave motion of the rail. To overcome this churning, the vibration of ties must be minimized by so connecting the rails to the ties that there is a crowned surface transversely of the tie for the support of the base of the rail and a limited vertically loose fastening from the rail flange to the tie. The desired result is then obtained because a tangent contact is the practical minimum contact and the loose fastening interrupts the transmission of continuous vibration.

Although large numbers of rail joints have been patented, none of the patent specifications recognizes all of these functions of the track structure. There are rail joints which permit vertical flexibility so as to maintain the creeping independence of rail lengths, there are devices for supporting rail ends to maintain the vibratory continuity of rail lengths, and there are devices combining both of these functions. There are also tie fastening devices designed to allow loose connections and minimum contact with the rails. Proper rail connections should take heed of these qualities.

The Bloomington & Normal Railway & Light Company last year posted the following New Year's resolution: "Resolved, that I will do everything in my power to further the safety movement in view of the fact that I am the chief beneficiary."



FRONT AND SIDE VIEW OF JAMESTOWN CAR

Modern Steel Cars for Jamestown Street Railway

Structural Details of Ten New Double-Truck Cars Now Being Used in City Service

Flush platforms, arched roof, open arch ends instead of bulkheads, slat-type seats and 24-in. wheels are some of the characteristic features of the Jamestown Street Railway's ten new double-end, double-truck steel cars for city service. The car is 42 ft. long, 8 ft. 5 in. wide over side plates, seats fifty passengers and has a total weight of 39,697 lb. The doors are of the double folding type and swing inwardly, giving a 4-ft. opening, which is divided into two parts by a railing. This provides for two streams of passengers. From the street to the first step is 14⁵/₈ in., from this step to the platform floor is 14¹/₂ in., and there is a 1¹/₂-in. ramp to the car-body floor, making the latter 30⁵/₈ in. above the rail head or street surface. The general dimensions and weight of the car are as follows:

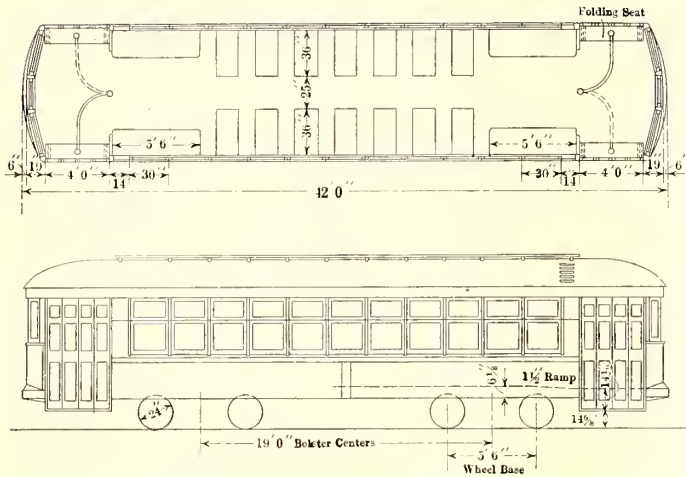
| | |
|--|--|
| Length over bumpers | 42 ft. |
| Distance between bolster centers | 19 ft. |
| Wheelbase of truck | 5 ft. 6 in. |
| Width over side girder plates | 8 ft. 5 in. |
| Height, rail to top of running boards | 10 ft. 8 ⁷ / ₈ in. |
| Height, top of rail to top of floor | 30 ⁵ / ₈ in. |
| Height, top of rail to top of platform floor | 29 ¹ / ₂ in. |
| Step height, rail to first step | 14 ⁵ / ₈ in. |
| Step height, first step to platform floor | 14 ¹ / ₂ in. |
| Weight of car body | 18,566 lb. |
| Weight of air brakes | 1,020 lb. |
| Weight of electrical control | 1,701 lb. |
| Weight of motors, 4GE No. 247B | 6,960 lb. |
| Weight of trucks | 11,450 lb. |
| Total weight | 39,697 lb. |



JAMESTOWN STREET RAILWAY'S NEW DOUBLE-TRUCK, FLUSH PLATFORM CAR FOR CITY SERVICE



INTERIOR VIEW OF JAMESTOWN CAR



SEATING ARRANGEMENT AND GENERAL DIMENSIONS OF JAMESTOWN CAR

Both car body and trucks were made by the St. Louis Car Company. The car body is framed for eleven windows on each side. The side posts are 2-in. x 1½-in. tees which run in one continuous length from side sill to side sill and thus form the carlines also. The post spacing is 30 in. center to center. The side sills are 5-in. x 5-in. x ⅜-in. angles, cross sills are 4-in., 5¼-lb. channels and the bolsters are of cast steel. Diagonal bracing is provided by 3-in. x ⅜-in. steel members laid across the sills and secured at the sides of the car to 3/16-in. gusset plates. The side knees are 7-in., 15-lb. I-beams, and the center plates are 4-in., 5¼-lb. channels. End sills are 6-in., 12¼-lb. I-beams, and side girders are 29-in. x ⅛-in. rolled plates.

The platform floor is flush with that of the car body and is made of 7/8-in. ship-lapped hard maple laid on stringers of yellow pine. The side knees are 7-in., 15-lb. I-beams, center knees 14-in., 5¼-lb. channels and bumper 6-in. x 4-in. x ⅜-in. angle. The crown beam is 2¼-in. white oak. The roof is of the plain arched type, having grooved poplar planking laid lengthwise and covered with No. 8 cotton duck laid in white lead. The car body flooring is a double layer of yellow pine under the seats and a single layer in the aisle, the aisle flooring being covered with longitudinal maple floor strips. The steps are of the boxed-in type and are fitted with 3-in. "Feralun" safety treads.

Cherry has been used for the interior finish, including the moldings, ceiling bands and curtain boxes, and "Nevasplit" for the headlining and the side lining be-

low the window sills. There are fourteen reversible cross seats having cherry slats, pressed-steel ends and pedestals. The longitudinal seats at the ends of the car are also of cherry.

Saving \$2,500 on a Half Mile of Track Retaining the Old Concrete Foundation and Using Steel Ties Made This Possible

Economies in labor and material in track construction in these times are imperative. This idea governed the Cleveland, Southwestern & Columbus Railway in rebuilding 2600 ft. of single track in Oberlin, Ohio, this year. The old track was built with 7-in. girder rail on 6-in. x 8-in. x 7-ft. white oak ties spaced at 2-ft. centers and laid on a solid concrete foundation 6 in. thick. This track had been in service under interurban railway traffic for about eighteen years, and both the rail and ties were badly in need of renewal. The ties were decayed and cut by the rail, the rail joints were low and pounding badly, and the track was out of alignment.

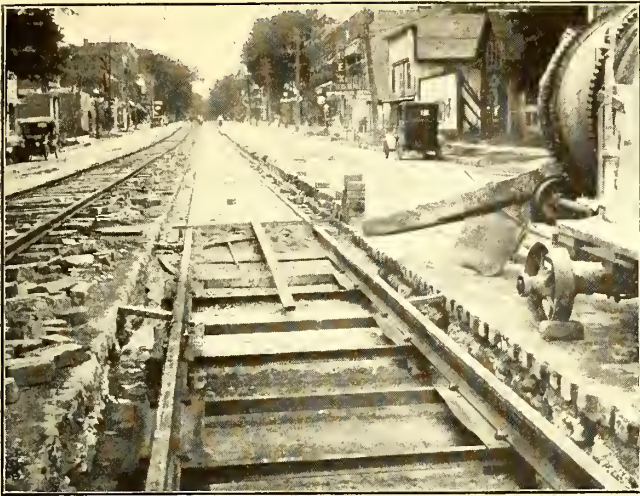
It was the original plan to remove entirely the old track structure including the rail, ties and concrete foundation. On opening up the job, however, the foundation below the wooden ties was found in good condition, and as its removal would cost at least \$300 in labor alone, it was decided to leave the old foundation in place, since this was possible by using International steel twin ties with the new rail.

The twin tie that was used on this work was 3½ in. in depth and 6 ft. 4 in. long. This permitted the use of a sufficient amount of concrete under and around the tie to make the work perfectly solid and absolutely first class. If wood ties had been used it would have been impossible to get any concrete whatever under them, and concreting would only have been possible between ties. This would have made a job that would not have been satisfactory to the company or acceptable to the city.

The old foundation after eighteen years of service



NEW TRACK BUILT ON OLD CONCRETE FOUNDATION, SHOWING TRACK HELD IN POSITION BY WOOD BLOCKS



CONCRETING WITH MIXER AT SIDE OF TRACK. TYPE OF PAVING AND FOUNDATION ALSO SHOWN

had reached a permanent bearing on the subgrade and, therefore, provided a better base for the new track than the subsoil could furnish. On the other hand, if wooden ties had been used it would have been necessary to remove this old concrete base. Accordingly, the city engineer was called and after inspecting the condition of the old concrete foundation, gave his consent to use it as a base for the new track.

The job was handled in the following manner. A temporary track built of old A.S.C.E. rail spiked to cedar ties was laid on the pavement at one side of the street. The old brick pavement was then torn up for a width of 7 ft. 6 in. and loaded into cars and taken to points along the private right-of-way where the embankments needed widening. The spikes were then pulled and the rail was cut into 30-ft. lengths with an acetylene torch. The cutting was done in one day at a contract price of \$40. The reason for cutting up the rail was that the old rail was in 60-ft. lengths and had to be cut in two to load it. Much time was saved by cutting the rail also at one side of the joint bars instead of removing the rusted bolts. After the cutting, the rails and fastenings were loaded on cars and hauled to the store yard where they were sold as scrap. The wooden ties were then taken out of the concrete and the 16-in. sections of concrete between them were broken up and loaded on cars. This left the 6-in. concrete foundation on which the new track was constructed.

In the new work steel twin ties were laid at 6-ft. centers and 100-lb. A. R. A. rail was fastened to them with eight malleable clips and wedges. Ordinary six-bolt, 30-in. angle bars were used at the joints, and they were supported on the 13-in. x 36-in. tie plates. The track was blocked to surface on bricks and wooden wedges, one set being placed under every other tie. The manner of blocking up the track for concreting and the method of holding it to line are shown in the accompanying illustrations. The depth of concrete below the new tie plates varied from 7 in. to 9 in. As the concrete mixer was not moved over this track in concreting the amount of blocking required was greatly reduced.

The type of mixer used is shown in the illustrations. A chute from the drum deposited the concrete in the trench, where it was thoroughly spaded beneath the ties and rail. A relatively wet mixture was used so

that this operation would be simplified. The cement, stone, brick and sand were delivered to Oberlin by the steam railroad and teamed to the job. The rail and ties were hauled to the job from the company's store yard at Elyria. The entire construction was handled by twenty men and a foreman. This gang averaged 300 ft. of completed track in an eight-hour day, including the concreting and paving. The entire job of rebuilding the 2600 ft. of track required seven weeks, including the ten days necessary to cure the concrete, before service was resumed.

By using the old concrete foundation rather than laying a new one not only was the finished job a better one, but an actual saving of about \$2,500 was made. The old foundation contained about 362 cu. yd. and the concrete cost \$6 per cubic yard. As it was estimated that the cost of taking out the old concrete foundation would have been about \$300, the total saving made possible by substituting steel ties for wooden ones was as stated. This company has in service about 8 miles of track built on steel twin ties. The first was built in 1911, and mileage has been added each year since that date. The satisfaction given by the track built on these ties has resulted in their being made standard for track construction in paved streets by the Cleveland, Southwestern & Columbus Railway.

M. C. B. Coupler Head Designed to Fit Ordinary Draft Gear

Anticipating an increasing need for coupler equipment which will make possible the interchange of cars between steam and electric railways during the next year, the Van Dorn Coupler Company, Chicago, Ill., has developed a new type of M. C. B. coupler which has a shank designed to fit any draft gear using the Van Dorn No. 15 or No. 18 coupler. These couplers use the No. 100 swivel draft gear manufactured by that company which is in use on a great many of the interurban lines throughout the country. At the present time a number of companies are using an adaptor for coupling onto steam cars. The high cost of material and labor has increased the cost of M. C. B. couplers to a point which makes the average electric railway hesitate to place orders for a change of coupler equipment. This new coupler head designed to fit the draft gear already installed on a great many cars will provide a suitable equipment for interchange purposes at an expense less than one-half the cost of a complete M. C. B. coupler with draft gear. Instead of buying a complete coupler electric railways companies can now buy simply this special head and install it on their cars without removing the draft gear.

Since the publication of the article on the Connecticut Company's trolley express and freight service in the issue of the *ELECTRIC RAILWAY JOURNAL* for Nov. 3, the concrete car shown on page 804 has proved to be troublesome in operation. This car was designed by a local contractor for use in a road-building job to carry mixed concrete from the mixing plant to the job. As the bin bottoms slope from one side to the other the load is considerably out of balance, so much so in fact that the car tends to derail. At present a multiple-dump car is being used in its place.

News of Electric Railways

Traffic and Transportation

Financial and Corporate

Personal Mention

Construction News

\$400,000 for Dallas Improvements

General Manager Meriwether Outlines Plans for Expenditure of This Amount for Work Under New Franchise

R. Meriwether, general manager of the Dallas (Tex.) Railway, operating the consolidated electric railways of Dallas, Tex., under the recently granted service-at-cost franchise, has outlined improvements proposed under the terms of the franchise requiring the expenditure of \$1,000,000 in betterments and extensions, and has asked the approval of the city authorities for the improvements.

Three new car lines will be established, and tracks on two streets will be eliminated. The tracks on Exposition Avenue between Fair Park and Gaston Park will be eliminated, and the tracks on South Austin Street between Commerce and Cadiz Streets will be taken up. The present Second Avenue line will be extended from Forest Avenue to the city limits, a distance of about 1 mile. A new line will be constructed from South Lamar Street to Akard Street on Cadiz. The South Belt line that now runs on Austin Street will be eliminated. The Harwood line, which now has its terminus on Grand Avenue, will be extended to Forest Avenue.

PLANS OUTLINED TO CITY COMMISSION

The proposed improvements were set out in a communication from Mr. Meriwether to the City Commission. In presenting the list of extensions and improvements it was stated that formal requisitions covering the individual items, with detailed estimates of cost, would be presented to the commission in a few days. The company asked for the approval of this work to-day in order that material may be ordered and arrangements made for proceeding with the construction without further delay. After reciting the various track jobs totaling \$274,253, which the company wished to have approved at this time, the statement to the commission was concluded as follows:

"We ask your approval and that of the commission of the purchase and construction of the following miscellaneous items, which will have an important bearing on the efficient operation of the road and the betterment of service to the public: Side destination signs for cars, construction equipment, twelve safety cars, trainmen's quarters at Oak Cliff, fare boxes, emergency tower truck, construction tower truck, wrecking truck, rehabilitation Oak Cliff trolley, three concrete pits at the Elm Street carhouse, controllers and trolley base for ten Oak Cliff cars, new G. E. air governors for 182 cars. The approximate cost of the above will be \$162,095."

SKIP STOP ON IMPORTANT LINES

Permission is also asked for the right to purchase special work for Austin and Commerce Streets, for Cantegral and Bryan, and for Swiss and Bryan. New curves will be established and the present Oak Cliff lines will be rerouted, making cross-town lines. Later the Lake Avenue line will be extended to the Parkland Hospital and to Woodlawn Cemetery. Skip-stop service will also be inaugurated on a number of the more important lines.

Steel rails for the new lines were ordered in May and are now ready for delivery. The company purchased this steel for \$57.60 per ton. The price at present is \$80 per ton. The company will soon be called on to bear considerable expense in connection with street improvements to be undertaken by the city. The company will have to lay heavier rails, adjust street crossings, and put in concrete foundations for tracks, etc., on a number of streets.

Seattle Arbitration Award

\$180,000 Added to Wage Expenditures in Seattle Alone—Review of the Award—Statements of the Arbitrators and the Company

The arbitration board sitting on the issues involved in the strike of the transportation employees of the Puget Sound Traction, Light & Power Company, Seattle, and the Tacoma Railway & Power Company, Tacoma, on Nov. 8 drew up a memorandum of awards covering wages and working conditions for the employees of both companies. The wage scale for conductors and motormen on the ordinary two-men cars was raised 4 cents an hour for each grade of employee. The old and the new scales of wages in cents per hour are as follows:

| Period | Seattle Scale | | Tacoma Scale | |
|------------------------|---------------|-----|--------------|-----|
| | Old | New | Old | New |
| First six months..... | 29 | 33 | 27 | 31 |
| Second six months..... | 30 | 34 | 28 | 32 |
| Second year..... | 31 | 35 | 29 | 33 |
| Third year..... | 32 | 36 | 30 | 34 |
| Fourth year..... | 33 | 37 | 31 | 35 |
| Fifth year..... | 34 | 38 | 32 | 36 |
| Sixth year..... | 36 | 40 | 34 | 38 |

OTHER CONDITIONS OF THE AWARD

This wage scale is to be in effect as of Aug. 1, 1917. The existing extra pay for the operation of one-man cars and cable cars, and for the instruction of student operators continues. Extra compensations are provided as follows: (1) Fifteen minutes of straight time to be paid by the company for extra time consumed in the preparation of accident reports. (2) Over-all time caused by split and swing runs which create unavoidable periods of rest in between trips is to be paid for at the rate of 6 cents an hour for every hour beyond eleven, the same to be paid for in fractions of ten minutes. This mode of payment does not apply to the work of extra men save when they are substituting on regular runs. These extra compensations will be put into effect the second half of November. Extra men will hereafter receive a guarantee of \$80 a month during the apprentice period. Hitherto the guarantee has been only \$65. This ruling is established for both the Seattle and Tacoma systems. Seniority is to determine the choice of runs, as hitherto, a man's seniority being determined by the date of beginning present service at the particular carhouse. Conductors and motormen in the employ of the company on maximum pay may re-enter the employ of the company on the following special system of pay, designed to credit previous experience: The first year of employment they shall be paid as first-year men, the second year as fourth-year men and the third year as sixth-year men. Hours of employment are to remain as at present. The uniforms of all platform men are to remain the same as at present. The company is to provide each man with \$5 in change. The company is to abolish free family street car tickets in Seattle. The scale for non-platform operators in the shops, carhouses and track and roadway departments was revised so that an increase of from 5 to 10 per cent was given to a large number of employees.

HOW THE BOARD WAS ORGANIZED

The board of arbitration began its last series of sessions on Nov. 6. It was composed of Dr. Henry Suzzallo, president of the University of Washington; C. J. Franklin, a public utilities expert of Portland, Ore., representing the company, and James A. Duncan, secretary of the Seattle Central Labor Council, representing the employees. Mr. Franklin appeared for the company in conferences with the men even before the strike was called, while Mr. Duncan

was a member of the strike committee. Dr. Suzzallo, the neutral arbiter, was practically assured of being chosen as the third man, during the negotiations, as his name was suggested by both sides.

NEUTRAL ARBITRATOR'S STATEMENT

Dr. Suzzallo on Nov. 8 issued the following statement: "The board of arbitration concluded its deliberations to-night. The three arbitrators have had an exceedingly difficult task. The great increase in the cost of living made it necessary to make a considerable increase in wage scales in a single award. The fact that both the Seattle and Tacoma companies are not paying concerns was a great restriction on the freedom of the arbitrators. We have arrived at the happiest compromise that could be made. All of the board of arbitration wished to reduce the hours of labor. This was unfeasible at the present time. It was the choice of increasing the wage scale to meet the increased cost of living or reducing the hours of service and keeping the present hourly rate of pay. The finances of the companies would not permit both, hence the available finances were allotted toward a living wage.

"The spirit of the whole arbitration has been excellent. The memorandum of award was signed by all three arbitrators, regardless of minor differences of judgment, in the belief that the awards represented the best possible progress at the present time. We have had remarkable co-operation from the officers of the company and from the advisory committees representing the unions. In addition we owe much to the twenty or thirty investigators who made special studies on the cost of living and on working conditions. All of us who wished to do much for the employees realized keenly that progress in alleviating the wage and working conditions of the workers is conditioned on the prosperity of the companies for which they work. Any refusal on the part of the public to permit a public utility to make a reasonable income is an indirect but inevitable obstacle to the bettering of the working conditions and wages."

EMPLOYEE, COMPANY AND PUBLIC MUST CO-OPERATE

C. J. Franklin, chosen as arbitrator by the companies, said:

"The fact that the award was unanimous makes it unnecessary for further comment as to its justice. It must be realized, however, by the public that they are partners with the public utility in this city, and that the interests of the company, the men and the public are beyond question. Public utilities are suffering from conditions imposed by franchises granted many years ago under conditions very different from those which prevail to-day, and under present abnormal conditions they have become a burden too heavy in many cases for the utilities to bear. Co-operation on the part of the employees, the company and the public is, therefore, necessary to secure relief from burdens without which the public utilities cannot prosper, and lacking this co-operation all three must suffer."

James A. Duncan, chosen by the employees as arbitrator, said that while the award did not represent the full attainment of union aims, he was satisfied that a good measure of justice had been obtained, that it was a progressive step in the relation of the men and the company, and that there was no reason why the passage of time should not bring a harmonious working together which would insure both peace in the electric railways of Seattle and benefit both to the company and the men.

PRESIDENT LEONARD'S PLEA

A. W. Leonard, president of the Puget Sound Traction, Light & Power Company, issued the following statement:

"When the company agreed to arbitrate the questions of wages and working conditions with its men before this board it did so with faith in the fairness of its decision, and we accept the verdict with the expectation of living up to it to the best of our ability. Proof of its fairness is found in the fact that the award is unanimous, something almost without precedent in arbitration proceedings in matters of this kind. The members of the board of arbitration devoted a great deal of time, labor, energy and painstaking research to a study of wages, working conditions and costs

of living, both here and elsewhere, in considering the large mass of evidence placed before them, and, we believe, did their work conscientiously, patriotically and unselfishly.

\$355,000 MORE IN WAGES IN SEATTLE ALONE

"It was a difficult and trying task to undertake in these times of war and stress. The award puts upon the company an annual wage increase of approximately \$180,000, in addition to the voluntary increase of \$175,000 already made since the first of the present year, or a total of \$355,000 more a year in wages in Seattle alone.

"The company will abide cheerfully by the result, and that it may not be hampered needlessly in putting its promises and the award of the board into effect, feels that it should have the co-operation of the public and all public officials. This co-operation should extend to relief not only from direct expenditures not absolutely necessary, but also from indirect expenditures which tend to increase the public's and the company's burdens."

MEN OUT SIXTEEN DAYS

The strike in Seattle lasted sixteen days. It was precipitated by the action of the men in Tacoma who on July 15 quit their cars after the company in that city had refused to grant their demands and had discharged seven of the men. On July 28 arbitration was agreed to under the State law. The agreement to arbitrate was signed on July 31. This proposal was ratified by both the Seattle and Tacoma men on Aug. 1. Service was resumed in both cities on Aug. 2.

Final Hearing in Rhode Island

Plea Made for Temporary Six-Cent Fare Pending Full Investigation

A final plea for the ordering of a 6-cent fare as a temporary measure to keep the Rhode Island Company's service in operation until a more complete investigation can be carried through was made at Providence on Nov. 9 before the special commission investigating the company's finances. George H. Huddy, Jr., represented the company. He summed up the evidence of the preceding hearings, saying that the nub of the whole question was whether the people of Providence expected to keep on getting something for nothing from the company, or were willing to pay enough for the service to keep the cars on the streets.

\$200,000 DEFICIT THIS YEAR

Mr. Huddy declared that the deficit this year will be \$200,000 and that part of the operating expenses is being paid out of borrowed money. The speaker expressed the belief that the city was disposed to be fair and that it was not unalterably opposed to a 6-cent unit. The data as to the company's condition have been compiled by the expert engineering firm of Sloan, Huddle, Feustel & Freeman, Chicago. The company was virtually in the hands of a receiver, five trustees appointed by the Federal Court being in charge. Unless these trustees could sell the road before 1919 it will be put up at auction. Mr. Huddy thought that the public would prefer to see present financial conditions improved rather than to have the ownership of the road pass outside the State, with resulting uncertainties of policy. The company needed to spend at least \$250,000 to provide the facilities that the public demanded. The company was at the end of its rope in regard to borrowing.

In discussing the jitney situation Mr. Huddy said that the city ought to be willing to consider changes in the twenty-year franchise because the company, on account of the jitneys, was not getting an exclusive franchise. The company maintained that its own rentals were fair and reasonable, and emphasized the fact that no dividends had been paid upon the stock since 1913.

After hearing opponents, who urged an investigation of the company's efficiency of management, the commission took the case under advisement. If it finds that the institution of a 6-cent fare is the just solution of the problem before the company its recommendation that such a fare unit be adopted, when transmitted to the Public Utilities Commission, will be put into legal effect by the latter body.

Few Utility Questions in Election

Notes on Results in New York, Massachusetts, Cleveland and Toledo

The election results on Nov. 6 are generally regarded as being of little significance to the public utilities as a whole and only passing interest in most of the cities and other political subdivisions where questions affecting the utilities were injected into the campaigns.

In New York City the Tammany candidates won in a four-cornered fight in which the issues were confused. One of the planks in the Tammany platform was public ownership of utilities, but this did not become an active issue during the campaign, although Judge Hylan, who was successful at the polls, made it his practice in his speeches to dwell upon the advisability of the city taking over the utilities.

In Massachusetts the electorate sustained the war administration of Governor McCall by a majority of nearly 100,000. Mr. Mansfield, the defeated candidate for Governor, failed utterly in an attempt to gain a favorable decision by attacking among other things the 6-cent electric railway fare developments under the present régime.

CLEVELAND SUBWAY ORDINANCE PASSED

Mayor Harry L. Davis was re-elected mayor of Cleveland by a plurality of 15,343 and the subway ordinance advocated by him was approved by a vote of 56,242 against 39,961. This practically insures preparations for subways and an underground terminal in the congested section of the city. Mayor Davis will appoint a commission under the State laws and it will have almost sole power as to the location of the subways and the manner of their construction. This commission may employ its own counsel and engineers. This was the objection made by opponents of the ordinance. They hoped to keep the control in the hands of the city officials entirely, although they advocated subways for relief in the downtown district.

TOLEDO AND CINCINNATI RESULTS

Cornell Schreiber, non-partisan candidate, was elected Mayor of Toledo over Robert T. Haworth, Socialist. It is not known just what effect this will have on the proposed settlement of the railway question on the community plan. However, it is believed that the matter will be largely removed from politics by the submission of the franchise to a vote of the electors.

John Galvin, Republican, will be the next Mayor of Cincinnati. The rapid transit question there has been settled so completely that the result of the election will not enter into it. The whole matter is under the supervision of a commission which is not affected by changes in office.

INTERBOROUGH ONLY A TENANT

Following the election in New York Theodore P. Shonts, president of the Interborough Rapid Transit Company, issued the following statement:

"My attention has just been called to the rather heavy selling this morning of tractions and utility stocks, presumably in the case of the former on the theory of municipal operation.

"There can be no municipal operation of Interborough lines except under the terms of our contract with the city. The title to all subways in New York—those in operation and those in process of construction—now rest in the city of New York. The Interborough is only a tenant operating under a lease.

"Under the terms of this lease the city cannot take over the existing subway as a whole until the expiration of the lease fifty years hence, nor the new subways now building until at least ten years after they are completed and put into operation, and then only on a remunerative basis—the formula for which is stated in the lease.

"As the city's partner, the Interborough is now and always has faithfully carried out all its contractual obligations, and expects to continue so to do.

"The present earnings are greatly in excess of original estimates, and unless the growth of New York City should go below its former average of increase these earnings should continue to grow faster than our estimates."

War Bonus at Washington

Increase in Pay of Two Cents an Hour for Nine Hundred Men

The Washington Railway & Electric Company, Washington, D. C., has posted a notice at its carhouses and informed the Public Utilities Commission that beginning Nov. 15, and until further notice, it will pay a bonus of 2 cents an hour to its motormen and conductors. The increase affects approximately 900 men.

This is the third increase in its wage scale made by the company during the last year. It involves an addition to its annual payroll of about \$50,000, as did each of the other two raises. The first increase in the wage scale took place last March, at the time of the strike, when contracts were entered into with the men calling for the payment of from 24 to 30 cents an hour. The previous wages had ranged from 23½ to 27 cents an hour. In July the contracts were altered by a further increase, by which the minimum pay was established at 26 cents an hour and the maximum at 32 cents. The new scale, just made public, ranges from 28 to 34 cents. The new scale is as follows: Less than one year in service, 28 cents an hour; second year, 29 cents; third year, 30 cents; fourth and fifth years, 31 cents; sixth and seventh years, 32 cents; eighth, ninth and tenth years, 33 cents, and more than ten years, 34 cents.

Clarence P. King, president of the company, in a statement which he made, said:

"In making this further advance the management of the company realizes that the high cost of food, clothing and all other living necessities makes it difficult for its employees to get along. No additional service whatever will be required of the men, the bonus being a voluntary gift by the company."

Request for Wage Increase

Cleveland Men, with Contract Expiring May, 1918, Request an Advance at This Time—Company's Offer Rejected

Notwithstanding the published statement that they would ask for no increase until May 1, 1918, when the present contract expires, motormen and conductors of the Cleveland (Ohio) Railway on Nov. 10 requested an advance to cover the rapidly increasing cost of living. A voluntary increase of 1 cent an hour was made on May 1 of this year, but the men claim that this is insufficient.

COMPANY MAKES OFFER

Conditioned on the consent of the city and Fielder Sanders, street railway commissioner, the company offered to make an increase of 3 cents an hour in the wages of the men dating from Nov. 1, and an additional 2 cents on May 1, 1918. The men voted to refuse the offer. It is said they expect to make a demand for an increase of probably 10 cents when the contract now in force expires on May 1, 1918. The men have told the company that if the present scale is maintained most of them will be compelled to go into other work. They hope to have the company increase the wages 3 cents an hour at once and then begin negotiations for a new scale to go into effect on May 1, 1918. First-year men now receive 32 cents an hour and all who have been in the service one year or more get 35 cents. The total membership of the union in Cleveland is 2300. About 1600 attended the meeting at which the company's proposition came up for consideration.

LOW FARE JEOPARDIZED

It is feared that even the 3-cent increase will make a change in the rate of fare necessary within a short time. At the present time the fare is 3 cents, with a 1-cent charge for transfers. The next raise, as provided in the Tayler franchise, will make the fare 4 cents cash and three tickets for 10 cents, with the 1-cent charge for transfers rebated. Company officials say that this will yield less than it is now receiving and that it will be necessary to add the charge for transfers, making two increases within a short period. Any disagreement between the company and the men on wages is subject to arbitration.

Wage Agreement in Kansas City

Offer of Vice-President of Kansas City Railways Accepted by All the Men Without Going to Arbitration

Employees of the Kansas City (Mo.) Railways voted on Nov. 13 to accept the increase in wages made on Oct. 15 in the offer of Clyde Taylor, vice-president of the company. This offer was as follows:

"To trainmen an average increase of 3½ cents, increasing the minimum from 22 to 25 cents and the maximum from 30 to 33 cents an hour, and reducing the time to reach the maximum scale from eleven years to six.

"To employees in the track, shops, carhouses and mechanical departments an increase of 3 cents an hour.

"To power house and substation employees an increase of 2 cents an hour.

"To all employees on a monthly basis receiving less than \$100 a month an increase of \$60 a year.

"In consideration of the fact that the men were willing to accept the offer without resorting to arbitration proceedings, a uniform bonus was given to trainmen. All those more than one year of service and less than five are to receive one uniform a year, and all those more than five years two uniforms a year. The increases were also dated back to Aug. 17 instead of Oct 1 as originally announced.

"These increases amount in round numbers to \$360,000 a year and affect 3000 employees."

AGREEMENT WITH ALL EMPLOYEES

The agreement was not made with the Amalgamated but with a committee representing all the employees in accordance with the settlement made when the men went back to work following the August strike. The open shop contention, won by the company at that time, is to continue in effect. The men returned to work under an agreement stipulating that the company would take up the matter of wages and working conditions with committees representing the various classes of employees and in the event of failure to agree, these matters were to be left to a board of arbitration for settlement.

HISTORY OF CONTROVERSY

On Sept. 26 an Amalgamated Association contract was presented to the company, demanding a scale from 35 to 45 cents with a three-year grade and a number of other burdensome conditions, some of which implied direct recognition of the union. Mr. Taylor refused to enter into negotiations on this basis and sent the contract back to be properly presented in accordance with the agreement made in August eliminating the objectionable union features. He insisted that it be made in the form of a contract with the employees of the company as such and that committees to take the matter up with him should be committees of the employees and not of any organization.

VOLUNTARY INCREASE MADE DURING NEGOTIATIONS

Before meeting with these committees and in the face of pending negotiations and arbitration proceedings, Mr. Taylor made a voluntary wage increase in an announcement to the employees. At that time he told the men that in making the increase he had gone the limit of the company's ability to pay, and that he was offering them more than in his opinion they would secure from any fair board of arbitration. This increase was put into effect on Oct. 1. Following this Mr. Taylor spent three weeks in negotiations with the committee. This committee, after making a thorough investigation and becoming convinced that the company had given all that was possible under the present revenue, advised the men to accept the offer. This they did.

MEN TO HELP SECURE INCREASED REVENUES

The 3000 employees of the Kansas City Railways in their meetings have taken the stand that in order to better themselves individually it will be necessary to assist the company in every way to secure additional returns. As soon as the proper method is worked out a determined effort will be made to provide some means for increasing the revenue of the company.

Strike Declared in Akron

Trainmen of the Northern Ohio Traction & Light Company Tie Up Railway Lines in the Great Akron Manufacturing District

The motormen and conductors of the Northern Ohio Traction & Light Company, Akron, declared a strike early on the morning of Nov. 12. About 800 men are affected, and all the lines are involved with the exception of the local line in Canton and the portion of the interurban road between Akron and Canton. Cleveland, Bedford, Cuyahoga Falls, Kent, Ravenna, Barberton and Wadsworth are all discommoded by the suspension of operation of the road.

WHAT THE MEN DEMAND

The men have been receiving 28, 30 and 33 cents an hour. They have demanded an increase of 10 cents an hour. After an all-day conference on Nov. 11, A. C. Blinn, general manager, proposed a compromise under which the men would receive an increase of 3 cents at once and 2 cents additional on May 1, 1918. They refused to accept this, but stated that no further action would be taken for twenty-four hours, as they desired to have a union official from Detroit present. This promise, however, was not observed.

On Nov. 12 the cars on the Canton-Akron branch were operating only to the outskirts of Akron. It is said that employees on that portion of the road belong to a different union from the one with which the strikers are affiliated.

Mayor W. J. Laub and President C. I. Morgan of the Chamber of Commerce asked for a meeting of company officials and representatives of the strikers on the evening of Nov. 12, in order to tender their aid in bringing about a settlement of the trouble.

On the evening of Nov. 12 the men refused the company's offer of an increase of 5 cents an hour, because the contract provided that the new schedule of wages thus formed should continue until May 1, 1919. The men did not want to tie themselves up for a period later than May 1, 1918.

MEN VOTE ON COMPANY OFFER

Late on Nov. 15 the platform men of the company were voting on the company's offer of an increase of 5 cents an hour to date from Nov. 1, this year, to May 1, next year, with other slight modifications of the former offer of the same rate of advance. At the office of the company it was said to be very uncertain when the result of the vote would be known. J. V. Oliver, president of the retail merchants association, has offered his services as a mediator. Cars on the Canton division are still in operation, although the strikers assert the men on this branch will walk out if it becomes necessary in order to win their point. No men have been employed to take the places of the strikers. The men now out have placed pickets at vantage points.

On Nov. 13 Mr. Blinn said no attempt would be made to operate cars until the management was sure that a settlement could not be reached.

Proposal to Settle Wage Disputes

In the course of the deliberations of the arbitration board which recently settled the wage dispute between the San Francisco-Oakland Terminal Railways and its employees, it was decided to make certain recommendations to the Governor and to the California congressional delegates. It is suggested that state and national legislatures take up at once the creation of industrial courts for the settlement of all wage disputes. In commenting on this recommendation Mr. Sinsheimer, one of the board, formerly identified with the Railroad Commission of California, said:

"Hearings before us have served to emphasize that there is no jurisprudence in existence to-day for the adjustment of wage disputes, and the lack of it is a grave omission in our economic and industrial system. The creation of industrial courts, the board is convinced, would prove a boon both to employers and employees. It would then be possible for either side to a wage dispute to initiate proceedings just as any other form of litigation is now initiated by a party with a grievance."

Municipal Railway Bond Bill

While the City Council of Seattle, Wash., on Oct. 30 passed an ordinance providing for the issuance of \$400,000 of utility bonds for the extension of Division A of the Municipal Railway to Market Street and Leary Avenue, the introduction of an ordinance transferring \$35,000 from the general fund to the Municipal Railway construction fund, in addition to the \$20,000 already transferred from the general fund, revealed that it is not the intention of the Council at present to rely on the sale of bonds to extend the road. The committee of the whole recommended the passage of the ordinance transferring the \$35,000 and the Council "accepted" the report, voting that action be deferred until the next meeting. With the temporary injunction obtained by T. N. Haller, of the Seattle Chamber of Commerce and Commercial Club, fresh in the minds of the councilmen, unusual precautions were taken to insure the legality of every step in the progress of the borrowing legislation.

In an opinion furnished by Assistant Corporation Counsel Walter F. Meier, one of the legal ways by which the municipal line may be extended was for the Council to authorize and sell utility bonds, and the action referred to above is the result of that opinion. Mayor H. C. Gill, who directed the superintendent of streets to build the line into Ballard from funds levied for the maintenance of streets and sewers, will approve the new plan of financing the railway.

\$1,000,000 Bonds for Chicago Lines

The employees of the Chicago (Ill.) Surface Lines subscribed \$825,400 to the second Liberty Loan. The number of employees who took bonds was 12,219, which represents 90 per cent of all the company employees. In the transportation department, 95 per cent of all employees, including practically all trainmen, subscribed to the loan. The company subscribed a balance sufficient to make up a total of \$1,000,000. The turn-in on this campaign was not made until the last day, when the achievement received very favorable comment from the local press. The sale of bonds was made to employees on the basis of the payment of \$1 a week for each \$50 of bonds taken. The bond subscription by departments was as follows:

| Department | Subscribers | Amount |
|------------------------|-------------|-----------|
| Transportation | 8,876 | \$558,750 |
| Engineering | 2,797 | 172,650 |
| Electrical | 276 | 17,450 |
| Legal and claims | 141 | 34,850 |
| Executive | 129 | 41,700 |
| Total | 12,219 | \$825,400 |

Strike on Ohio Electric Railway.—Service has been resumed on the lines of the southern division of the Ohio Electric Railway, Springfield, Ohio, following a strike of the trainmen which lasted a week. The differences between the management and the men will be settled by conciliation.

Men in Burlington Strike.—The line of the Burlington County Transit Company from Moorestown through Mount Holly to Burlington, N. J., was tied up on Nov. 13 by the motormen and conductors striking to enforce their demands for an increase in wages from 25 to 30 cents an hour. The directors of the company on Nov. 12 offered the men 27 cents, but this was not accepted.

Call for Technical Men for Army.—The government has issued a special call for technical men, *i. e.*, men skilled in any line of science or mechanical or electrical or mining or railroad building or that are handy men in any line. Such volunteers should be between the ages of eighteen and forty years. Any man who has not been called by a local examining board may volunteer. Major J. E. Bloom, U. S. A., recruiting officer, Newark, N. J., can give particulars.

Increase in Wages in Altoona.—The Altoona & Logan Valley Electric Railway, Altoona, Pa., on Nov. 8 announced a voluntary wage increase for motormen and conductors, effective from Nov. 1, being the fourth time this year the employees have received an advance in wages. An extra cent and one-half is provided for each man. First-year men now receive 25 cents an hour; second-year men, 27 cents; third-year men, 29 cents; fourth-year men, 30 cents, and fifth-year men, 31½ cents.

Exemption Granted on Transportation Grounds.—Lawrence Kerns, chief clerk in the transportation department of the United Railways, St. Louis, Mo., has been granted exemption from service in the National Army by the District Appeals Board in that city on industrial grounds. An affidavit filed by Bruce Cameron, superintendent of transportation for the company, declared that the electric railway is essential to the operation of munition plants and other factories in that it transports employees of such plants to and from work.

Increase for Springfield Men.—An increase will be made in the wages of the trainmen of the Springfield (Mo.) Traction Company in accordance with a voluntary agreement made on June 16 that employees receive an increase of 1 cent an hour, platform time, for each \$100 daily receipts in excess of average receipts of \$600 daily. At the settlement of the recent strike the company was unable to put the new plan in force, but it allowed the men an increase of 1¼ cents an hour at that time and offered them the bonus which the receipts for October now make possible.

Skilled Workmen Needed in Army Air Service.—The government needs many more skilled workmen for the army air service behind the lines abroad. These men must be recruited continuously from now until March 31, 1918. The men will receive special training consisting of practice work on airplane motors, trucks, airdrome construction, etc. The several trades from which the men are needed include electricians, machinists, draftsmen, painters and pattern makers. Applicants must be physically fit, white and from eighteen to forty years of age. Applications should be addressed to Volunteer Bureau, 119 D Street, N. E., Washington, D. C.

Hearing on Seattle Injunction Order.—The hearing on the order restraining the city of Seattle, Wash., from completing Division A of the Municipal Street Railway System began on Nov. 2 in Judge Calvin S. Hall's department of the King County Superior Court. The hearing of the case was ordered on Oct. 22 by Presiding Judge Kenneth Mackintosh, following the filing of a suit by T. N. Haller seeking to enjoin the city officials from extending Division A into Ballard. The Seattle Central Labor Council has adopted a resolution opposing efforts made to block by court injunction the extension of the line into Ballard. The Council voted to lend its moral support to Ballard taxpayers, who have employed an attorney to oppose the suit.

Programs of Association Meetings

New England Street Railway Club

The regular monthly meeting of the New England Street Railway Club will be held at the Quincy House, Boston, Mass., on Nov. 22, at 6 p. m. The speaker will be Frank Silliman, Jr., first vice-president of the Cumberland County Light & Power Company, Portland, Me., associated with E. W. Clark & Company, Philadelphia, Pa., as manager of their Eastern properties. Mr. Silliman has had extensive experience in power and lighting properties. His earlier work was done in Boston, representing the same company he is now with in Philadelphia. His subject at the meeting in Boston will be "Depreciation as an Unsettled Question in Fare Regulation."

National Safety Council

The executive committee of the National Safety Council has decided to accept the invitation from St. Louis, Mo., to hold the 1918 congress in that city. The headquarters of the congress will be at the new Statler Hotel. The Council and its members will practically own the hotel for the third week in October, 1918. The 1918 annual congress program committee has been appointed and preparations are already under way to shape the program. Many innovations are planned for this congress, including printing and distributing the formal addresses six weeks previous to the congress, so that each member will be prepared in advance to ask questions and participate in the discussions. Only synopses of addresses will be read at the meeting, so that more time will remain for discussions and questions. Another feature of the 1918 congress will be inspection trips over the electric railway and steam railroad lines, and visits of sectional members to leading industries in the city.

Financial and Corporate

Financing Under War Conditions

Bankers State that Government Business Should Have Right of Way, but Maturing Obligations and Imperative Betterments Must Be Cared For

With dropping bond prices, a flooded short-term note market and ethical considerations arising from government financial needs, the problem of raising money for corporate purposes is to-day very pressing. Views of different bankers on this subject, as currently stated in the financial journals, show a realization of the fact that government financing is of paramount importance, but they also indicate refunding and improvement needs of corporations that must not be forgotten.

MORATORIUM ON MATURING ISSUES

In the opinion of Craig Colgate of Colgate, Parker & Company, New York, N. Y., government loans will have to take absolute precedence over private and municipal financing for the duration of the war. As the demands of the government for money become more insistent, the financial undertakings in this country will have to conform more and more to the plan that has been put into execution in various foreign countries—namely, that private corporate financing, where it interferes with governmental, will have to be regulated.

Yet, Mr. Colgate avers, the maturing obligations of perfectly solvent railroad, municipal and public utility companies will have to be taken care of in some fashion or universal hardship will result. If the government should adopt the step of declaring an embargo on this form of financing, preventing bankers from taking refunding issues, there would be only one alternative and that is to declare a moratorium on all debts of this nature. The United States, however, is rich enough and its financial resources have been up to the present time so little called upon that it is perfectly able not only to supply the amounts needed for government loans but also to take care of all necessary corporate financing of a refunding nature. Hence Mr. Colgate does not feel that a drastic attitude toward all corporate financing is necessary at the present time.

PRIORITY BOARD MAY BE NEEDED

Charles H. Sabin, president Guaranty Trust Company, New York, N. Y., feels that all possible competition with government issues should be eliminated, and that to meet the pressing demands of war the government should have the right of way in its demands. He says:

"Both public and private needs which are not absolutely compelled by the exigencies of their situation should be held in abeyance, and no new financing encouraged which does not meet an absolute and immediate need. Municipalities, corporations and individuals should all be guided by this major consideration and should subject every proposition to the close analysis of war requirements. It may even be necessary to suggest the formation of a government board to pass on the priority of public financial offerings as is now being done in the fields of transportation and production."

FINANCING CORPORATIONS FROM NATIONAL TREASURY

Mortimer L. Schiff of Kuhn, Loeb & Company believes that the government must be prepared, if necessary, to monopolize the investment market. It may be said that other borrowers can tempt money out of the pockets of the people by the attractiveness of the terms they offer, but even if this is possible, it should not be permitted in the interest of the country at large.

But how then, asks Mr. Schiff, are corporations and political subdivisions to finance those needs, such as refunding and absolutely necessary additions, betterments and

improvements, which are imperative and cannot be postponed, if they are unable or not permitted to sell their own securities? It seems to him that there is but one logical answer to this question. The national treasury may have to provide funds for this purpose, just as it is financing the needs of the Allies in this country. Continuing, Mr. Schiff says:

"Some may fear the acquisition by the government of corporate securities would be a step toward government ownership, but it does not appear that such reasoning is sound. These securities would be obligations, not stock; the relationship of the government would be that of creditor, not of owner, and the bonds and notes thus acquired would be in such form as to be readily saleable after the war. In fact, it is probable that this could be done at a profit, when normal conditions are again restored.

"If the time should come when such issues must be curtailed or even prevented, the most effective means of control and supervision would probably be through a central board, with power, possibly subject to review by the Secretary of the Treasury, to deal with this situation."

Annual Report

Commonwealth Power, Railway & Light Company

The income statement of the Commonwealth Power, Railway & Light Company, Grand Rapids, Mich., for the years ended June 30, 1916 and 1917, follows:

| | 1917 | 1916 |
|---|--------------------|--------------------|
| Earnings on stocks owned of subsidiary companies | \$2,629,631 | \$2,776,499 |
| Interest and other earnings..... | 624,032 | 580,811 |
| Gross earnings | \$3,253,663 | \$3,357,310 |
| Expenses and taxes..... | \$170,272 | \$149,948 |
| Amortization of debt discount..... | 28,932 | 28,932 |
| Interest charges | 598,103 | 630,182 |
| Total deductions | \$797,307 | \$809,062 |
| Net income, available for dividends, replacements and depreciation..... | \$2,456,356 | \$2,548,248 |
| Dividends on preferred stock..... | 1,066,485 | 971,075 |
| Balance | \$1,389,871 | \$1,577,173 |

The 1917 gross earnings of the holding company, though not so large as in 1916, were greater than in 1915, when they amounted to \$2,985,541. The same statement holds true with regard to the net income available for dividends, replacements and depreciation, the 1915 figure in this case being \$2,175,676.

Of the amounts standing to the credit of the surplus accounts of the subsidiary companies, there were accruing to the Commonwealth Power, Railway & Light Company on June 30, 1917, undistributed earnings amounting to \$3,753,824.

Deficits for Edmonton and Regina Municipal Lines

According to Edmonton and Regina newspaper reports, the municipal electric railways in these cities are in a bad way. The Edmonton system is carrying 25,000 passengers a day and losing 1 cent on each passenger. If the number of passengers per day could be increased to 35,000 it is estimated that the railway would break even, but this is not regarded as possible while war conditions continue.

The alternatives, it is said, are to raise the rates, to cut down expenditures by cutting down service, or to go on ignoring the sinking fund which should be put aside to meet the bonds. The Edmonton *Bulletin* urges the taking of definite steps to make the system a self-sustaining business proposition, declaring that "a city with millions of back taxes cannot afford to run chances on the indefinite continuance of a loss of \$250 a day on its electric railway system."

The showing in Regina is not as bad as Edmonton's. According to figures submitted to the City Council recently and certified to by the auditors, Regina's electric railway loss for the nine months ended Sept. 30 was \$48,958, or an average loss of about \$180 a day.

Service-at-Cost Plan Proposed

Details of Plan Suggested by Homer Loring in the Interest of Security Holders for Stabilizing Massachusetts Investments

Homer Loring, Boston, Mass., representing the Association of Owners of Massachusetts Street Railway Securities, on Nov. 7 addressed the special legislative commission on street railway financial problems and submitted a plan of service-at-cost which it is hoped will remedy the present situation in Massachusetts electric traction circles. The association with which Mr. Loring is connected represents securities totaling more than \$60,000,000. He advanced the opinion that the present discouraging financial condition of the electric railways was not due to poor management or to errors in commission regulation, but to the fundamental weakness of the 5-cent fare as a fixed unit of compensation for railway service. He pointed out that the institution of the fixed fare unit of 5 cents was due in large part to a misconception of the economies to be anticipated from the electrification of horse railroads. Unforeseen expenses and the insatiable public demand for new cars, more rapid and more frequent service soon absorbed and offset the economies which the change in motive power had effected. The advent of the automobile and later of the jitney cut into the growth of traffic needed to pay the constantly increasing costs of operation, and the rise of supply prices resulting from the war (to say nothing of labor) capped the climax.

The speaker pointed out the impossibility of selling permanently any product at less than cost—a thing the electric railways had been attempting to do for some time. The industry had been trying to sell transportation at a fixed price in the face of ever mounting costs, and thus had gone against a simple but inflexible economic law. The only strange point about the whole matter was that the roads had withstood the economic onslaught so long. Poor credit invariably resulted in poor service. The demands of the public for more, larger and better cars and for increased trackage could not be met without good credit. Unless capital could be attracted, the public could not receive the service to which it was entitled. Mr. Loring said that the credit of the electric railways could not be revived until investors were assured that rates of fare would promptly fluctuate with changed conditions of operating cost. He asserted that the \$200,000,000 invested in Massachusetts electric railways were largely the savings of the people of that State. Thirty-five millions were held by the Massachusetts savings banks and 25,000 security holders were vitally interested. These investors had proved their faith in Massachusetts by supporting home industries. A plan which would insure a reasonable interest return would encourage the investor to enter the field again.

DETAILS OF SERVICE-AT-COST PLAN

The service-at-cost plan proposed by the association is as follows:

"1. Enact a law which any electric railway in the State may elect to accept. Such law to provide for railway service-at-cost; cost to include operating expenses, maintenance, depreciation charges as fixed by the Public Service Commission, and 6 per cent on investment value.

"2. Investment values shall mean moneys honestly and prudently invested and shall be determined in the manner now provided by the orders of the commission.

FARE TO BE ADJUSTABLE

"3. Upon acceptance of the law each operating company shall provide a reserve fund equal to 3 per cent of its investment value, but in no event more than \$1,000,000. Companies to be permitted to issue bonds beyond the present legal limit to obtain this reserve fund, such bonds to mature 10 per cent annually and to be paid from earnings. One-quarter of this fund to be cash and three-quarters invested in United States bonds. This reserve fund to be drawn upon only to pay interest and dividend charges and then only in the event that operating income is not sufficient to meet these charges.

"4. Any withdrawal from the reserve fund to be reported to the Public Service Commission within ten days. Any

substantial withdrawals from the reserve fund shall be promptly investigated by the commission. Whenever withdrawals have reduced this reserve fund to the extent of 30 per cent of such fund, the company shall be permitted immediately to increase its revenues by such rearrangement of service, readjustment of fares or restriction of free transfers as may in the judgment of the commission promptly restore the reserve fund to its normal amount. Such increase in revenues may be permitted at the discretion of the commission before the reduction in the reserve fund reaches 30 per cent.

"5. The operating balance remaining each month after payment of the charges specified in Paragraph 1 shall be added to the reserve fund. Whenever the reserve fund reaches an amount of 15 per cent in excess of the normal amount the Public Service Commission shall require improvements in service, concessions in fares or transfer privileges requisite to reduce the reserve fund.

"6. All companies shall be required to set aside accident and snow funds to be fixed by the Public Service Commission so that rapid changes in the reserve fund due to unusual conditions shall be avoided.

STATE REPRESENTATION ON EACH BOARD OF DIRECTORS

"7. The Governor shall appoint a director to the board of directors of each electric railway, who shall be a resident of a city or town served by such company, but not an owner of its stock or bonds.

"8. The commonwealth shall be divided into ten electric railway districts and for each district the Public Service Commission shall appoint a resident electric railway supervisor for a term of three years, his salary and expense allowance to be fixed by the commission and paid by the companies. It shall be the particular business of this supervisor to see that the companies properly serve the public. He will consult with the management and State director and can appeal to the commission if his recommendations are not adopted.

"9. To prevent delays in the readjustment of fares, the commission shall continuously employ two examiners, who shall be experienced in the electric railway business. It shall be the duty of the examiners to supply the commission with information as to the condition and operating efficiency of the companies and to suggest such changes as may seem to them necessary or advisable.

"10. Any company accepting the plan shall be entitled to all of its benefits and provisions notwithstanding anything to the contrary contained in the laws and charters now in force.

"11. The Public Service Commission shall determine upon a program of gradual rehabilitation for each electric railway desiring to accept the plan, and shall reasonably assure itself before permitting the plan to become effective that this program will be undertaken."

Saved from the Scrap Heap

Providence & Fall River Property Taken Over by Local Interests and Service Resumed

The Providence & Fall River Street Railway, sold for junk recently, has been saved from the scrap heap. The residents of the towns through which the company operated were successful in exercising the option which they obtained on the property and service was resumed from the Swansea-Somerset town line to Masons turnout, North Swansea, on Nov. 8 after the road had been shut down for more than seven weeks. The fare through the town is 6 cents flat and for the present no transfers will be issued or accepted. The successor company is known as the Swansea & Seekonk Street Railway. Its right to operate the former property of the Providence & Fall River Street Railway has been approved by the Massachusetts Public Service Commission. The new company organized at a meeting on Nov. 6. The officials are as follows: Emery C. Kellogg, Swansea, president; Willard C. Gardner, Swansea, vice-president; Charles W. Greene, Warren, treasurer; Algernon H. Barney, Emery C. Kellogg, Arthur E. Horton, Willard C. Gardner, William E. Bowen, Thomas Lahey,

Everett M. Marble, Joseph Luther, Louis Gray, Chester E. Horton and Jeremiah Wheeler, directors. J. H. Hearn, who had charge of the road when it was operated by the old company, has been engaged to act as superintendent of the line. The circumstances connected with the abandonment and sale of the road have been referred to at length previously in the *ELECTRIC RAILWAY JOURNAL*.

Another Road Abandoned

The stockholders of the Mexico Investment & Construction Company, which has been operating an electric railway from Mexico to Santa Fé, Mo., about 12 miles, have decided to dissolve the company and abandon the operation of the road. W. W. Botts, secretary and treasurer of the company, has issued a statement to the public in part as follows:

"We have now been operating the road from Mexico to Santa Fé for more than two years at a loss. It took a large part of the proceeds from the sale of the material in the south end of the road to pay the deficit in operating expenses and to replace worn-out equipment. There was no balance with which to pay taxes, interest or dividends. No stockholder of the company or officer has received any pay for his services and no return on his investment.

"We see no prospect for improvement. The only way to make the road self-sustaining is to extend it to Perry and then operate it with power from Keokuk. But we have not the capital with which to do this, nor can we get it. When this enterprise was started ten years ago, railroads were prosperous and railroad securities were regarded as good investments. Now they are not wanted at any price. We are convinced also that the road is not, under present conditions, of sufficient public utility to justify the expense of operation. We are therefore forced to the conclusion that, unless the road should be wanted as a part of a through line from Hannibal to Mexico, the enterprise is a failure and ought to be abandoned."

Change in Short Line Officers

At a meeting of the directors of the Kansas City, Clay County & St. Joseph Railway, held in Kansas City, Mo., on Nov. 6, J. R. Harrigan was elected vice-president of the company and W. S. Tuley, secretary and treasurer. Mr. Harrigan had been general manager of the company since six months before the road was placed in operation. He retains the title of general manager. T. A. Reynolds, who has been vice-president as well as chairman of the board of directors, retires from the office of vice-president. The following directors were present at the meeting: W. T. Kemper, John S. Downing, E. F. Swinney, C. F. Enright, J. G. Schneider, W. S. Tuley and J. R. Harrigan. W. S. Tuley became auditor and assistant treasurer of the company in March, 1915. He succeeded H. F. Mayer as treasurer in June, 1916. As secretary he succeeds Inghram D. Hook, who is now with the National Army.

Last-Minute Effort to Save Road

Another community has become alarmed at the prospect of losing its local railway line. It is the city of Catskill, N. Y. At that place on Oct. 24 the property and franchises of the Catskill Traction Company were sold under mortgage foreclosure to Joseph Joseph & Brothers Company, New York. The road consists of 5 miles of line between Catskill and Leeds. Confronted with the prospect of the road being dismantled and torn up, George B. Austin, president of the Chamber of Commerce of Catskill, appointed a committee consisting of Herman C. Cowen, Percival Golden, Howard C. Smith and L. Carleton Austin for the purpose of interesting local capital in taking over the road and continuing it in operation. Figures submitted by Mr. Austin at a meeting of the Chamber of Commerce showed that the road some years ago was a paying proposition. He expressed the belief that with an increase in fare and with the village board of trustees co-operating in the way of regulating the automobile service which parallels the electric railway, the road could be again made to pay.

Barre & Montpelier Traction & Power Company, Barre, Vt.—Judge L. P. Slack has been asked to appoint a receiver for the Barre & Montpelier Traction & Power Company in a chancery suit brought by Henry M. Deavitt, Chicago, a bondholder who alleges that bonds of \$100,000 which matured on Nov. 1 have not been paid. Judge Slack set Nov. 22 for the date of hearing. A controlling interest in the company is held by the Montpelier & Barre Light & Power Company. The total issue of bonds which matured on Nov. 1 is for \$100,000. They are secured under a first mortgage dated 1897 running for twenty years, under which the American Trust Company, Boston, is trustee.

Bluffton, Geneva & Celina Traction Company, Bluffton, Ind.—Judge Eichhorn at Bluffton has ordered the sale of the property of the Bluffton, Geneva & Celina Traction Company under foreclosure.

Bristol County Street Railway, Taunton, Mass.—The property of the Bristol County Street Railway will be sold under foreclosure at public auction on Nov. 28. The company's lines run from Attleboro to Taunton, with a branch to Pawtucket, about 17 miles.

Columbus, Delaware & Marion Electric Company, Columbus, Ohio.—The Columbus, Delaware & Marion Electric Company has made a mortgage to the Cleveland Trust Company as trustee to secure an issue of \$7,500,000 of twenty-year 5 per cent bonds, dated July, 1917. The Columbus, Delaware & Marion Electric Company is the successor to the Columbus, Delaware & Marion Railway, the property of which was sold at receiver's sale on June 11. As announced in the *ELECTRIC RAILWAY JOURNAL* of July 7, page 34, it is proposed that the new company will have outstanding at the present time \$1,900,000 of 5 per cent bonds, \$650,000 of 7 per cent preferred stock and \$700,000 of common stock.

Danbury & Bethel Street Railway, Danbury, Conn.—A hearing upon the confirmation of James E. Walsh, Greenwich, Conn., as receiver of the Danbury & Bethel Street Railway and for the appointment of two appraisers will be held before the Superior Court in Danbury on Nov. 20. The appointment of Mr. Walsh as temporary receiver of the company was noted in the *ELECTRIC RAILWAY JOURNAL* of Nov. 3, page 835.

Dallas (Tex.) Railway.—The Dallas Railway, the consolidated company that has taken over the electric railways in Dallas, has filed with the City Commission a map of all electric lines leased from the Northern Texas Traction Company, a Stone & Webster property, that had been operating the Oak Cliff lines. A schedule of all properties and equipment was also filed. The lease contract shows that the Dallas Railway will pay to the Northern Texas Traction Company an annual rental of \$115,000 for the first three years, \$120,000 during the fourth year, \$125,000 during the fifth year, \$135,000 during the sixth year, and \$150,000 a year thereafter. The lessee reserves the right to purchase the property outright at a fixed price of \$2,000,000.

Gary & Interurban Railroad, Gary, Ind.—The Indiana Public Service Commission has authorized Charles D. Davidson, receiver of the Gary & Interurban Railroad, the present owners of the Goshen, South Bend & Chicago Railroad, to discontinue service on the road. The railway runs west from Laporte 20 miles without touching a town and terminates at Goodrun, a railway junction. The commission has authorized the city of Laporte to buy that part of the line which lies within the city limits.

Grafton Light & Power Company, Grafton, W. Va.—The United States District Court at Philippi, W. Va., has adjudicated the Grafton Light & Power Company as bankrupt. John T. McGraw is said to be an unsecured creditor to the amount of \$150,000. The company was incorporated in West Virginia in April, 1914, with \$500,000 authorized capital stock and funded debt reported as \$300,000, as a consolidation of the Grafton Traction Company and the Grafton Gas & Electric Company. A. W. Burdett and G. W. Ford, Grafton, are the receivers of the company.

Illinois Traction Company, Peoria, Ill.—Subsidiaries of the Illinois Traction Company have filed applications with the Illinois Public Utilities Commission for permission to increase stock as follows: Bloomington & Normal Railway &

Light Company, \$53,000 preferred; Urbana Light, Heat & Power Company, \$35,000 common; Decatur Railway & Light Company, \$180,000 common; Danville Street Railway & Light Company, \$49,000 common; Danville, Urbana & Champaign Railway, \$550,000 preferred; Urbana & Champaign Railway, Gas & Electric Company, \$32,000 common.

Los Angeles & San Diego Beach Railway, San Diego, Cal.—The Los Angeles & San Diego Beach Railway has filed with the California Railroad Commission an application for an extension until Nov. 15, 1918, of the time in which it may sell bonds previously authorized by the commission. The company was authorized to issue \$375,000 of bonds, and says that so far it has sold only \$29,000 of the bonds, and that it may be necessary to sell more of them. The company says that it owes \$218,329 on notes and a running account, and that for the past six months its operating expenses have been more than its gross revenue.

Mahoning & Shenango Railway & Light Company, Youngstown, Ohio.—The Mahoning & Shenango Railway & Light Company has sold to Lee, Higginson & Company \$500,000 of first and consolidated mortgage 5 per cent bonds, due November, 1920. The proceeds will be used to complete the 20,000-hp. addition to the Lowellville power house, which the company expects will be ready to operate about the first of the year. The company now has an application pending before the Ohio Public Utilities Commission for permission to issue \$3,700,000 of its 7 per cent preferred stock to be sold at not less than \$90 a share.

Mansfield Railway, Light & Power Company, Mansfield, Ohio.—The Mansfield Electric Light & Power Company, a subsidiary of the Central Ohio Gas & Electric Company, which in turn is controlled by the Cities Service Company, has completed arrangements which have been pending to acquire the property and franchises of the Mansfield Railway, Light & Power Company. Application to consolidate the two properties has been filed with the Ohio Public Utilities Commission. The Mansfield Railway, Light & Power Company operates the electric railway in Mansfield and an interurban line to Shelby. It also has an electric plant, but this will be shut down and power for the traction lines supplied from the Melco station of the Mansfield Electric Light & Power Company. When united with the Mansfield Electric Light & Power Company, the new property will be operated with the old, under the management of R. E. Burger, manager of the original Mansfield properties.

Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Company, Minneapolis, Minn.—C. E. Warner has succeeded Charles T. Bratnober as receiver of the Minneapolis, St. Paul, Rochester & Dubuque Electric Traction Company. The new receiver has been acting as attorney for the receiver and as operating manager ever since the road was thrown into receivership. It is said unofficially that plans are under way by the Patron's Protective Association and by the civic and commerce committee to rehabilitate the road and continue it in operation as a going concern. Under the ruling by the court the date for the sale of the road has been advanced to Dec. 1. Hope is expressed that it will be possible in the meantime to arrange some plan under which the receivership will be lifted.

Northern States Power Company, Chicago, Ill.—The Northern States Power Company has sold to the Harris Trust & Savings Bank, Chicago; H. M. Bylesby & Company, Chicago; Bonbright & Company, New York, and the Guaranty Trust Company, New York, an issue of \$500,000 of 5 per cent first and refunding mortgage bonds, due in 1941.

Richmond & Rappahannock River Railway, Richmond, Va.—Thomas B. Love, Richmond, Va., has been appointed receiver of the Richmond & Rappahannock River Railway. Mr. Love is also president of the road. Interest on the bonds was in default. The principal stockholder and also the holder of a majority of the bonds, it is stated, is Joseph E. Willard, United States Minister to Spain, to whom is owing \$53,000 for interest.

Third Avenue Railway, New York, N. Y.—At the annual meeting of the stockholders of the Third Avenue Railway

on Nov. 14, James F. Seeley was elected a member of the board of directors, succeeding James A. Blair. The remaining members of the board were re-elected. The principal point of discussion at the meeting was the question of increased fares. Edward A. Maher, president of the company, made a statement explaining the action which the management had taken in seeking the permission of the Public Service Commission to charge 2 cents for transfers. Mr. Maher said he was advised that the subway and elevated lines would not make any request for a 6-cent fare and it was deemed inadvisable for the surface lines to seek relief through such an increase on account of the greater competition that would result with the elevated and subway lines. In reply to a question by a stockholder concerning municipal ownership, Mr. Maher said: "I am not in favor of municipal ownership. I am able to say this impartially, as I am retiring at the first of the year from the active management of the company, after more than a half century. I shall step aside to permit younger men to take my place, but I am firmly convinced that municipal ownership does not afford the solution of the problem which confronts the Third Avenue system." A review of the report of the company for the year ended June 30, 1917, was published in the issue of the ELECTRIC RAILWAY JOURNAL for Oct. 20, page 736.

Electric Railway Monthly Earnings

| ATLANTIC SHORE RAILWAY, SANFORD, ME. | | | | | | |
|---|-------------------|--------------------|------------------|---------------|-------------|--|
| Period | Operating Revenue | Operating Expenses | Operating Income | Fixed Charges | Net Income | |
| 1m., Aug., '17 | \$24,863 | \$12,408 | \$12,455 | \$430 | \$12,025 | |
| " " '16 | 53,860 | 29,350 | 24,510 | 650 | 23,860 | |
| AURORA ELGIN & CHICAGO RAILROAD, WHEATON, ILL. | | | | | | |
| 1m., July, '17 | \$220,802 | *\$143,462 | \$77,340 | \$35,790 | \$41,550 | |
| " " '16 | 209,030 | *129,436 | 79,594 | 36,117 | 43,477 | |
| 7 " " '17 | 1,218,890 | *885,051 | 333,839 | 250,385 | 83,454 | |
| 7 " " '16 | 1,155,862 | *771,002 | 384,860 | 254,627 | 130,233 | |
| KEY WEST (FLA.) ELECTRIC COMPANY | | | | | | |
| 1m., Aug., '17 | \$12,405 | *\$8,082 | \$4,323 | \$2,479 | \$1,844 | |
| " " '16 | 10,161 | *7,023 | 3,138 | 2,525 | 613 | |
| 12 " " '17 | 132,089 | *86,870 | 45,219 | 30,061 | 15,158 | |
| 12 " " '16 | 114,801 | *77,249 | 37,552 | 30,363 | 7,189 | |
| NORTHERN TEXAS ELECTRIC COMPANY, FT. WORTH, TEX. | | | | | | |
| 1m., Aug., '17 | \$210,459 | *\$123,538 | \$86,921 | \$29,149 | \$57,772 | |
| " " '16 | 155,378 | *97,617 | 57,761 | 28,916 | 28,845 | |
| 12 " " '17 | 2,178,387 | *1,271,677 | 906,710 | 349,938 | 556,772 | |
| 12 " " '16 | 1,844,384 | *1,131,646 | 712,738 | 341,845 | 370,893 | |
| PADUCAH (KY.) TRACTION COMPANY | | | | | | |
| 1m., Aug., '17 | \$23,298 | *\$18,663 | \$4,635 | \$4,549 | †\$2,911 | |
| " " '16 | 26,157 | *17,627 | 8,530 | 7,163 | 1,367 | |
| 12 " " '17 | 305,834 | *227,882 | 77,952 | 77,952 | †9,366 | |
| 12 " " '16 | 307,276 | *198,215 | 109,061 | 87,692 | 21,369 | |
| PENSACOLA (FLA.) ELECTRIC COMPANY | | | | | | |
| 1m., Aug., '17 | \$34,399 | *\$19,932 | \$14,467 | \$7,833 | \$6,634 | |
| " " '16 | 24,398 | *13,379 | 11,019 | 7,712 | 3,307 | |
| 12 " " '17 | 319,397 | *185,338 | 134,059 | 93,221 | 40,838 | |
| 12 " " '16 | 278,596 | *154,295 | 124,301 | 89,934 | 34,367 | |
| PUGET SOUND TRACTION, LIGHT & POWER COMPANY, SEATTLE, WASH. | | | | | | |
| 1m., Aug., '17 | \$774,847 | *\$490,870 | \$283,977 | \$196,691 | \$87,286 | |
| " " '16 | 671,861 | *421,667 | 250,194 | 184,963 | 65,231 | |
| 12 " " '17 | 8,837,724 | *5,388,166 | 3,449,558 | 2,275,183 | 1,174,375 | |
| 12 " " '16 | 7,775,272 | *4,988,526 | 2,786,746 | 2,204,547 | 582,199 | |
| SAVANNAH (GA.) ELECTRIC COMPANY | | | | | | |
| 1m., Aug., '17 | \$86,570 | *\$57,580 | \$28,990 | \$24,369 | \$4,621 | |
| " " '16 | 69,891 | *47,833 | 22,058 | 23,713 | †1,655 | |
| 12 " " '17 | 914,212 | *605,435 | 308,777 | 287,627 | 21,150 | |
| 12 " " '16 | 795,821 | *535,472 | 260,349 | 260,350 | †20,164 | |
| TAMPA (FLA.) ELECTRIC COMPANY | | | | | | |
| 1m., Aug., '17 | \$79,321 | *\$48,306 | \$31,015 | \$4,652 | \$26,363 | |
| " " '16 | 74,194 | *43,219 | 30,975 | 4,398 | 26,577 | |
| 12 " " '17 | 1,006,862 | *551,913 | 454,949 | 52,482 | 402,467 | |
| 12 " " '16 | 966,144 | *522,216 | 443,928 | 52,334 | 391,594 | |
| TWIN CITY RAPID TRANSIT COMPANY, MINNEAPOLIS, MINN. | | | | | | |
| 1m., Sept., '17 | \$849,506 | \$556,756 | \$292,750 | \$167,620 | \$125,130 | |
| " " '16 | 854,747 | 504,810 | 349,937 | 149,328 | 200,109 | |
| 9 " " '17 | 7,732,106 | 5,104,861 | 2,627,245 | 1,356,714 | 1,270,531 | |
| 9 " " '16 | 7,594,988 | 4,629,777 | 2,965,211 | 1,292,995 | 1,609,216 | |
| UNITED LIGHT & RAILWAYS COMPANY, GRAND RAPIDS, MICH. | | | | | | |
| 12m., Sept., '17 | \$2,029,465 | *\$165,565 | \$1,863,900 | \$665,301 | \$1,198,599 | |
| 12 " " '16 | 1,855,886 | *139,385 | 1,716,501 | 571,087 | 1,145,414 | |
| NORTHERN OHIO TRACTION & LIGHT COMPANY, AKRON, OHIO | | | | | | |
| 1m., Aug., '17 | \$545,039 | \$350,725 | \$194,314 | \$71,486 | \$122,828 | |
| " " '16 | 473,434 | 245,684 | 227,750 | 93,615 | 134,135 | |
| 8 " " '17 | 4,183,053 | 2,565,681 | 1,617,372 | 627,863 | 989,509 | |
| 8 " " '16 | 3,334,077 | 1,647,168 | 1,686,909 | 767,403 | 919,505 | |

*Includes taxes. †Deficit.

Traffic and Transportation

Inquiry Into Heat in Vestibules

Connecticut Company and Shore Line Each Directed to Equip Four Cars and Report Before March 15, 1918

The Public Utilities Commission of Connecticut has handed down its finding with respect to the petition of the Connecticut Joint Conference Board of Electric Railway Employees filed on April 3 for an order requiring the heating of the vestibules of electric railway cars from Nov. 1 to April 1. The commission says it seems desirable before any mandatory order shall be issued that a series of experiments be conducted under the observation of the commission with the idea of developing a solution of the question satisfactory to the companies and to the men. With this end in view, the commission has directed the Connecticut Company and the Shore Line Electric Railway to make immediate preparations to install a heating device or heating devices on at least four cars of each company in active operation on interurban or long-distance routes and to make final report to the commission upon the results of the trial on or before March 15, 1918. The commission has also directed all the electric railways in the State to equip the vestibules of their closed cars with suitable battens or such other weather protection as may be necessary to assure the maintenance of reasonably tight joints and the absence of large cracks or openings through which drafts could enter.

The matter of heating the vestibules of cars has been before the Legislature of Connecticut at various times, but that body has declined to pass any act covering the matter because it considered that the Public Utilities Commission was the proper body for investigating the claims of the railway men. Upon the failure of the last Legislature to enact favorable legislation, the Connecticut Joint Conference Board representing the motormen and conductors brought a petition before the commission. At the hearing the claims of the men and the counter-claims of the company were presented.

CASE PRESENTED FOR THE MEN

The men urged that the car vestibules were so uncomfortable in cold weather as to endanger health and that many of the vestibules were not sufficiently weather-proofed. Men who had operated cars on interurban runs where the arc headlights were installed stated that the resistance coil in use in connection with the arc headlights at one end of the car served to take the chill from the vestibule in which the resistance was located, and from this the suggestion developed that similar coils if installed in all cars might be sufficient to meet the needs of the motormen.

The companies claimed that the heating afforded by the arc headlight resistance coil was serviceable only at night, on cars equipped with such lights, and in sections where arc headlights were permitted to be used, and they objected generally to any system of heating the vestibule, whether by resistance coils or other electric heating devices, based upon grounds of expense involved, partially in the original installation and principally in supplying the necessary additional current. A further objection was the fear that if the already-inclosed and storm-protected vestibules were heated there might be a tendency to drowsiness on the part of the motormen which would lead to inattention to duties and endanger the occupants of the car. It was further stated by the representatives of the several companies that in some instances the men themselves objected to the heating of the vestibules, preferring to depend upon extra clothing for warmth rather than to pass from heated vestibules into the cold air outside and incur the danger from colds which frequent passage from warm vestibules to cold outside air might present. It was also noted that most of the closed cars purchased recently were of the type in which the warmth of the whole car was shared by the motormen, there being no partition to set off the vestibule at each end.

Following the public hearing on this matter the commission undertook an investigation and inquiry into methods of heating car vestibules, with a view to determine the feasibility of installing heaters or devices for increasing the motormen's comfort, and to ascertain the cost thereof. It appeared that the practice of heating vestibules was so limited that practical operating illustrations were unavailable, and few if any devices were on the market subject to comparison and examination. In this particular the commission says:

"Certainly there is nothing to which the attention of the commission has been directed which offers a clear solution to this question."

Texas Interurbans Increase Fares

One-Quarter Cent a Mile Added to Present Tariffs to Meet War Tax and Increased Costs

An increase in the rates for passenger travel on all the interurban electric railways operated by the Texas Electric Railway and the Northern Texas Traction Company has been announced. The rate heretofore has been approximately 2½ cents per mile. The new rate is approximately 2¾ cents per mile. In discussing the advance, and the causes that led to it, James P. Griffin, passenger agent for the Texas Electric Railway, said:

REASONS FOR THE INCREASE

"The rate increase is to cover the Federal war tax and the increased cost of operation. The increase, however, will hardly cover the added expense of the company on account of the war. Hereafter we will sell round-trip tickets with a thirty-day limit instead of a ten-day limit, as in the past. Effective at once all cash coupon tickets issued will be usable by the purchaser and family, instead of purchaser and wife, as heretofore.

"The announcement of the increase in rates came after an exhaustive survey of the traction situation. The upward trend in the prices of all materials and the high cost of living, which has caused the company to raise the salaries and wages of practically all employees, foreshadowed the necessity for an increase in passenger rates. The levying of the 8 per cent war tax had made the addition of a tax levy on transportation rates necessary. At the same time a serious shortage of cents was faced, which made impracticable an odd-cent increase in the rates. The rates becoming effective to-day will make the fare between all points on the three interurban lines in even change and obviate the inconvenience of using cents. The company is unable to obtain cents in large quantities.

"Everything we buy in large quantities has become costlier. There is no exception to this. Even the tickets we sell are being printed at a much higher cost. The rate increase is hardly commensurate with the added cost of operation."

Auto Stages and Trucks Regulated

The Railroad Commission of California on Nov. 7 issued an order establishing regulations for the operation of public automobile stages and trucks engaged in passenger or freight transportation in California. This affects all stages operated outside cities or towns, but not the local jitneys running entirely within municipalities. The order was made after a complete investigation into the automobile, stage and jitney business in the State. The commission says it has had in mind the convenience and safety of the public and also the rights of the transportation companies.

Public hearings were held by the Railroad Commission in its investigation of the public automobile business under its jurisdiction and an exhaustive study made of the subject by experts during the past year. The commission says that the hearings revealed a universal spirit of co-operation by all interested parties in the matter of the successful regulation of this comparatively new and fast increasing mode of transportation. It is the opinion of the commission that this form of transportation has come to stay and that properly developed it will become a very necessary public convenience.

Fare Increases Asked in Indiana

Necessity for Increased Rates of Fare for Indiana City and Interurban Roads Reflected in Petition Filed Within Last Few Days

The Indianapolis Traction & Terminal Company presented a petition on Nov. 15 to the Public Service Commission of Indiana setting forth that if the company was to continue to furnish efficient service in the city of Indianapolis, and to do any further improvement and maintenance work on its property, it would be absolutely necessary to secure greater revenue. This could only be done by increasing the rates of fare in Indianapolis over those at present existing. The company asks for a uniform rate of fare of 5 cents, eliminating the tickets now sold at the rate of twenty-five for \$1 or six tickets for 25 cents.

PRESIDENT TODD'S STATEMENT

Robert I. Todd, president of the company, issued a statement in explanation of the causes which necessitated the petition for an increase in the rate of fare. He said in part:

"In applying to the authorities for relief from the extraordinary financial burdens imposed on all electric railway properties by the existing war conditions, the Indianapolis Traction & Terminal Company is obliged to follow the lead of more than 100 city and interurban railways that have asked and are now receiving additional rates of fare over those prescribed in their franchises.

"The conditions of increased cost of operation that led the proper authorities to grant additional revenue to the companies referred to above exist in Indianapolis. In fact, in some respects the local situation is even more acute, as in addition to the increased costs of operation results show that in the first ten months of 1917 the company carried 1,396,579 fewer revenue producing passengers than for the same period in 1916. The petition asks only for sufficient additional revenue to enable the company to meet increased operating costs brought about by the present extraordinary conditions.

NO DIVIDENDS SINCE 1913

"The Traction & Terminal Company has not paid a dividend since 1913. Prior to that time its payment of dividends since its organization amounted to only 1.56 per cent per annum. In 1914 the deficit of the company amounted to \$128,611. In 1915 the deficit amounted to \$117,556. In 1916 there was a deficit of \$68,413. In the first nine months of 1917 there has been a deficit of \$139,888. With a positively indicated decrease in the number of revenue producing passengers, and with the costs of operation and maintenance continually soaring with taxes increased, earnings decreased, and an accumulated deficit of \$480,981, to be increased to at least \$980,981 in 1918 if the present rate of fare is maintained, the company faces a situation that makes some immediate relief absolutely necessary.

"We believe that the citizens of Indianapolis prefer satisfactory electric railway service at a reasonably increased fare to inevitable curtailment of the present service at the present rate of fare. The directors of the company have therefore petitioned for the right to discontinue the sale of tickets at a rate that makes the fare less than 5 cents. It is not expected that the relief sought will do away entirely with the anticipated deficit of 1918, but such relief is asked with the expectation that with the utmost economy the company will be able to operate satisfactory schedules and keep the property in such a condition of repair as to enable it to maintain efficient service."

I. U. T. REQUESTS INCREASE IN CITY AND SUBURBAN FARES

The same day that the Indianapolis company presented its request to the commission the Union Traction Company of Indiana filed a petition asking for a 6-cent fare on its city lines in Anderson, Marion, Muncie and Elwood and an increase from 5 to 7 cents on the Indianapolis-Broad Ripple suburban line. The petition says that the base rate of 2 cents per mile under the copper zone system should be increased, but pending action toward that end the company asks that certain special interurban fares be increased. A

request has also been made for authority to increase the round-trip rate between Indianapolis and Fort Benjamin Harrison from 25 to 35 cents. The petition states that the operating costs for the nine months of 1917 are 26.6 per cent higher than for the same period in 1916, not including \$139,730 expended for improvements during the first nine months of 1917. The gain in revenues for the same period was only 11.42 per cent.

On Nov. 13 the Louisville & Southern Indiana Traction Company, as lessee of the property of the New Albany Street Railway and the electric railways in Port Fulton and Jeffersonville, asked the commission for authority to charge a straight 5-cent fare in those cities, cancelling the rates under which tickets were sold six for 25 cents. The petitioner also proposes to change the schedule of tickets for school children in Jeffersonville and Port Fulton from forty tickets for \$1 to thirty-five tickets for \$1, which is the rate now in effect in New Albany. The commission is also asked for authority to make changes in the routing of cars in New Albany and also for changes in the transfer system which has been used on the lines between New Albany, Jeffersonville and Port Fulton.

Reducing Traffic and Load Peaks

Public Service Companies Take Steps to Conserve Equipment, Labor and Materials

On Nov. 12 the Public Service Railway and the Public Service Electric Company appointed a committee to plan for the redistribution of the traffic and power loads as far as possible so as to reduce the "peaks." This action is in line with the general tendency to conserve labor and material and to make the most of existing equipment. The purpose of the committee is thus to assist the companies in their effort to co-operate with the manufacturers and others in their territory, a large proportion of whom will be engaged in the production of war materials. The committee will endeavor to co-operate in a helpful way with all interests concerned in the hope that opening and closing hours will be adjusted so as to eliminate all preventable congestion.

The committee comprises P. S. Young, vice-president, both companies; H. C. Donecker, assistant general manager Public Service Railway; Farley Osgood, general manager Public Service Electric Company, and J. L. O'Toole, assistant to the president, both companies.

The situation which makes it especially necessary for Public Service to study the matter at this time is the present and prospective concentration of government work, particularly near Newark and Camden. The line between Newark and Jersey City on the Lincoln Highway is already heavily taxed and will be much more so in the near future. At Port Newark the Submarine Boat Corporation is building an enormous plant for the construction of ships, under contract with the Emergency Fleet Corporation. It is probable that 16,000 men or more will be employed. At this point also the Quartermaster's Department of the United States Army has under construction a group of at least ten buildings 1100 ft. long and 165 ft. wide.

On the Lincoln Highway also the Engineers' Depot is putting up a number of light buildings, requiring about 700 men on construction work. On the east bank of the Passaic River south of the Lincoln Highway the Foundation Company is erecting a plant for the construction of wooden ships, and is at present employing from 2000 to 2500 men.

On the west bank of the Hackensack River south of the Lincoln Highway a subsidiary of the United States Steel Corporation is installing a permanent plant, employing from 2500 to 3000 men at present. This is known as the Federal Shipbuilding Company. The whole aspect of Avenue R, on the west shore of the Passaic River and Newark Bay, has changed remarkably during the recent past.

Those mentioned are among the most important of the local developments in the vicinity of Newark and are cited to indicate the general nature of the transportation problems now confronting the Public Service Railway. In the southern territory, at Gloucester, the New Jersey Shipbuilding Company is equipping an enormous plant, and the Pennsylvania Shipbuilding Company will also have a plant on one of the islands in the Delaware River between Philadel-

phia and Camden. At Camden the New York Shipbuilding Company has increased its force from 4000 to 8000 men. At Elizabeth the John Stevenson car building plant has been taken over by an airplane manufacturing concern and will also require special electric railway facilities.

Taken as a whole, the handling of the men for the above-mentioned plants will tax the local transportation facilities to the limit, and it will be to the interest of the public and the manufacturers to facilitate in every possible way the solving of the electric railway company's problems.

New One-Man Cars for Dallas.—The Dallas (Tex.) Railway has ordered twelve one-man cars of the same type as those now operated on the Summit Avenue line in Fort Worth. The new cars will be smaller and lighter than those now operated in Dallas. Their use in Dallas is in the nature of an experiment.

Conductors in Cleveland Will Have Seats.—In accordance with a law enacted last winter the cars of the Cleveland (Ohio) Railway are now being equipped with seats for the conductors. They are of the folding type and are attached to the farebox frame so that they may be moved out of the way when not in use.

Round-Trip Tickets to Be Withdrawn.—The Atlantic City & Shore Railroad, Atlantic City, N. J., proposed to withdraw the sale of round-trip tickets between Atlantic City and Ocean City by way of Pleasantville on Nov. 8. The Board of Public Utility Commissioners will hold a hearing on the matter at the State House, Trenton, to decide whether the change should be approved.

Increase Asked in Chartered Car Rates.—The Fort Wayne & Decatur Traction Company, Decatur, Ind., has filed a petition with the Public Service Commission of Indiana asking an increase of \$10 for the chartering of special cars between Fort Wayne and Decatur. The present cost is \$25 and the company asks that it be raised to \$35, stating that the present price is below the cost of operation.

Policemen Must Show Their Badges.—Policemen in Knoxville, Tenn., in order to ride free on the cars of the Knoxville Railway & Light Company, must show their badges to the conductors. This is according to an order of the chief of police, who announced to the patrolmen that the railway was under no obligation to let policemen ride free and that free transportation to the men was an act of courtesy on the part of the railway.

Request for Use of One-Man Cars Exclusively.—The Texas Electric Railway, which owns and operates the electric railways in Sherman, Tex., has petitioned the City Council of that city for permission to employ one-man cars exclusively, with the promise that the number of cars in operation will be increased. H. W. Head, manager of the lines in Sherman, has announced that flagmen will be employed at all grade crossings during the hours that electric railway cars are in operation.

New York Fare Hearings Postponed Two Weeks.—At the request of the companies, the fare hearings for electric railways in New York City, scheduled for Nov. 12, were postponed by the Public Service Commission for the First District until Nov. 26. The general reason was that complete data had not yet been prepared by the companies or their engineering experts. At the annual meeting of the Third Avenue Railway, however, President E. A. Maher said that it would be wise to defer further hearings until the full commission was in session. The places of Commissioners Hayward and Hodge, who are absent on war duty, are to be filled.

How Lexington Company Advertised the War Tax.—In announcing to the patrons of its interurban lines the terms of the federal war tax on railway transportation the Kentucky Traction & Terminal Company, with headquarters at Lexington, Ky., used display advertisements in the local papers and in papers in towns which are reached by the lines of the company. In addition to the display advertising the company also received reading notices further amplifying the paid announcements. There has been little difficulty in making the collections, except that a severe dearth of cents in central Kentucky has been an annoyance. Some of the business men of Lexington, Ky., are giving a dollar for 90 cents.

Cincinnati Commission Seeks Transportation Information.—In an address before the Federated Improvement Association on Nov. 8 W. C. Culkins, street railroad commissioner of Cincinnati, Ohio, said that 15 per cent of the passengers on electric railway cars stood by preference. He said that in Wisconsin the standard recognized for loading was sixty-seven seats for 100 passengers, and in Illinois eighty seats for 100 passengers. The skip-stop problem was also discussed. Mr. Culkins said that in general people spent too much time on cars. Local cars were being checked up to learn just what measures were needed for relief. He asked for information, but stated that mere expressions of opinion would be of no practical value.

One-Man Car System at Calgary Praised by Transportation Expert.—W. G. Murrin, assistant general manager of the British Columbia Electric Railway, and W. M. Rae, tramway inspector at Vancouver, B. C., after an inspection of the one-man car system at Calgary, stated that they were very favorably impressed by the methods followed in the operation of this type of car by the Calgary (Alta.) Municipal Railway. They were convinced as to the efficiency of the one-man car and propose to advocate the use of cars of this type in British Columbia. The one-man car is being used exclusively in Calgary and is saving the company \$250 a day. The system as operated there was described fully in the *ELECTRIC RAILWAY JOURNAL* of Sept. 22, page 516.

Soldier Traffic and the Smoking Rule.—Visiting days at Camp Zachary Taylor, the National Army cantonment just outside of Louisville, Ky., bring many thousands of people to the city, and the camp line of the Louisville Railway is taxed to capacity in handling the crowds. The demand from the soldiers for transportation comes mostly on Wednesday afternoons and Saturday afternoons, which are known as "recreation" periods. No insurmountable difficulties have been encountered by the company in this service, except perhaps that of enforcing the no-smoking rule. When the cars fill up at the camp with town-bound soldiers, all regulations are duly observed except the one which prohibits smoking. Every car is a smoking car so far as the khaki-clad lads are concerned. With the car full of the soldiers and no room for anybody else, the proposition is just a little out of reach.

New Publication

Street Railway Accounting. By Irville A. May, C. P. A., comptroller The Connecticut Company, New Haven, Conn. The Ronald Press Company, 20 Vesey Street, New York, N. Y. 454 pages. Half leather, \$5.

Mr. May has, through this book, done a service of inestimable value to the electric railway industry. Not in the field of accounting theory, which has been well standardized under official classifications, but in the realm of systems that have been built up in the application of such classifications to daily work, does he find his subject-matter. As a practical work the book is most heartily recommended to those interested in electric railway accounting.

Mr. May has covered the ground well. The organization of the accounting department; its work outside in connection with passenger traffic, freight and express traffic, purchasing and the like; its work inside with the general and subsidiary books of account, and statements; statistical and auditing work; the use of forms—all these and many other pertinent topics are discussed in detail and liberally illustrated.

The book, Mr. May says, is not designed as an encyclopedia of all existing electric railway accounting practices. In his thorough and analytical treatment of the practical work of several large companies, however, he has covered important points, points peculiar to the industry and points difficult in practice in such a way that the reader cannot fail to obtain a most comprehensive idea of the extent to which electric railway accounting procedure has been developed. Local conditions, of course, have their effect in diversifying the accounting systems of particular companies, but to all accounting officers in the industry this book will certainly be useful for purposes of comparison, and to many it will be suggestive.

Personal Mention

J. Summerhayes has resigned as superintendent of the International Transit Company, Sault Ste. Marie, Ont.

Alva E. Moore has resigned as freight and passenger agent for the Anderson division of the Union Traction Company of Indiana.

C. C. Weldon has been appointed superintendent of the International Transit Company, Sault Ste. Marie, Ont., to succeed J. Summerhayes, resigned.

B. B. Greer has been elected president of the Colorado Springs & Cripple Creek District Railway, with offices at Denver, Col., to succeed E. S. Koller, deceased.

W. M. Fraser, electrical superintendent of the British Columbia Electric Railway, Ltd., Vancouver, B. C., has been given full charge of the operating end of the business.

F. S. Easton, hydroelectric engineer of the British Columbia Electric Railway, Ltd., Vancouver, B. C., has been given full charge of the power-producing plants of the company.

T. A. Reynolds, who has been vice-president and chairman of the board of directors of the Kansas City, Clay County & St. Joseph Railway, Kansas City, Mo., has retired from the office of vice-president.

A. H. Roberts has been appointed assistant to the superintendent of railways of the Charleston Consolidated Railway, Charleston, S. C. Mr. Roberts entered the employ of the company four years ago as a conductor. He has been chief inspector for some time.

Horatio Adams of Dallas, Tex., has been appointed by J. F. Strickland, president of the Dallas Railway, as his assistant. Mr. Adams' work will be largely that of an industrial and publicity agent. He is now a member of the Dallas City Health Board and has had much experience in industrial work.

A. J. Wittchell has been appointed assistant to the general superintendent of the Spokane, Portland & Seattle Railway, including the Spokane & Inland Empire Railroad, the Oregon Electric Railway, the Pacific & Eastern Railway, the United Railways and the Oregon Trunk Railway, with headquarters at Portland, Ore.

A. L. Linn, Jr., has been elected treasurer of the United Gas & Electric Corporation and the United Gas & Electric Engineering Corporation, New York, N. Y. Mr. Linn was formerly assistant to Horace E. Andrews, president of the New York State Railways and the Mohawk Valley Company, controlling the electric railways and the electric lighting and gas companies in Rochester and vicinity.

Thomas Dreier, assistant to the president of the Bay State Street Railway, Boston, Mass., is the subject of an article by Donald Lowrie in the October-November issue of the *National Magazine*. The article, which is entitled "The Sermon on the Mount in Business," presents various interesting views of Mr. Dreier in regard to the necessity of injecting human feeling into the methods of modern business.

J. K. Brassill, superintendent of motor and marine equipment for the Northwestern Pacific Railroad, has been appointed superintendent of the southern division with headquarters at Sausalito, Cal. Mr. Brassill succeeds W. N. Neff, who resigned to become vice-president and general manager of the St. Louis & Southwestern Railroad. G. H. McMullan, chief train dispatcher on the southern division, has been named as Mr. Brassill's assistant.

Maj.-Gen. William A. Bancroft, who has been connected with the Boston (Mass.) Elevated Railway for nearly twenty-seven years, retired as chairman of the board on Nov. 6. The resignation was read at the annual meeting of the stockholders. Major-General Bancroft, in his letter of resignation, said that he hoped the community would so understand the needs of the company that the Legislature would place the business on a sound basis and enable it to render to the community the service which it has always been the aim of the company to give, and permit the

company to receive a proper return upon the investment. Major-General Bancroft retired as president of the Boston Elevated Railway in September, 1916, after having served in that capacity since 1899.

M. P. Groftholdt, who has been superintendent of the eastern division of the Pacific Electric Railway, Los Angeles, Cal., has been appointed general traffic inspector of the entire system, reporting to J. McMillan, general manager. Mr. Groftholdt was superintendent of the San Bernardino Valley Traction Company and has been superintendent of the eastern division of the Pacific Electric Railway ever since the Southern Pacific bought the Huntington electric railway interests.

E. Burt Fenton, formerly publicity manager of W. S. Barstow & Company, has been appointed publicity agent of the Northern Ohio Traction & Light Company, with headquarters at Akron, Ohio. Mr. Fenton entered the utilities field from the editorial desk of a daily newspaper, after serving eighteen years in that field. His first connection in the utility field was with the Sandusky Gas & Electric Company, for which he did the publicity work through two "municipal ownership" campaigns, the latter of which was followed by a very productive campaign of "good-will" advertising. In 1915 he was appointed publicity manager of W. S. Barstow & Company, New York, in charge of the publicity work of the utility properties controlled by that company. He became temporarily associated with the Northern Ohio Traction & Light Company in August, 1917, and on Nov. 1 was appointed to his present position. Mr. Fenton is the author of "Snuggling Up to John Smith" and "The Missing Link," papers which have attracted wide attention in the utility field. He is a member of the Jovian Order and, until his removal to Ohio, was on the entertainment committee of the New York Jovian League.

G. H. McFee, as noted briefly in the *ELECTRIC RAILWAY JOURNAL* for Nov. 3, has been appointed superintendent of transportation of the Boston & Worcester Street Railway, Framingham, Mass., effective from Nov. 1. Mr. McFee was connected with the Boston & Maine Railroad from 1894 to 1901, serving as telegraph operator and train dispatcher. From 1901 to 1903 he was connected with the Boston (Mass.) Elevated Railway as a towerman on the elevated division of that company. In accepting his present appointment as superintendent of transportation of the Boston & Worcester Street Railway Mr. McFee is returning to the service of that company, he having been con-



G. H. MCFEE

nected with it as chief dispatcher for the ten-year period from 1903 to 1913. Since his resignation from the company in 1913 he has been connected with the United Fruit Company, Bocas Del Toro, Panama. Mr. McFee is a Canadian by birth.

H. C. Eddy, formerly engineer of the Public Utilities Commission of the District of Columbia, has been appointed to the position of senior traffic inspector of the Board of Public Utility Commissioners of New Jersey, as the result of a competitive civil service examination. The duties of this position include the supervision of the regulation of the maintenance and operation of all the electric railway properties within the State. Mr. Eddy has had a wide experience in the construction, regulation, operation and maintenance of electric railway properties, having been engaged during the greater part of the last twenty-five years in this line of work. Among the positions which he has occupied are the following: Assistant superintendent and electrical engineer for J. G. White & Company, Inc., in connection with the construction of a complete and extensive electric railway system in the city of Auckland, New Zealand; superintendent of overhead construction in connection with

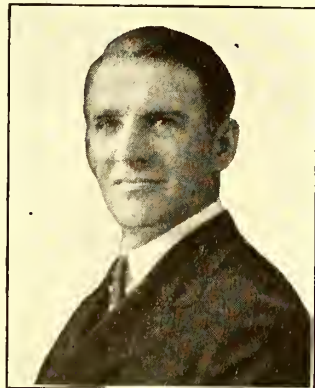
the construction of the Rochester, Syracuse & Eastern Railroad; in charge of the remodeling of the power station of the Navy Department at Indian Head (Md.) proving grounds, and the installation of several boilers, coal conveyor, auxiliary apparatus, etc.; executive officer and secretary of the District Electric Railway Commission, and engineer for the Public Utilities Commission of the District of Columbia.

C. A. Houghton has been appointed general manager and purchasing agent for the Southern Cambria Railway, Johnstown, Pa. This follows his previous appointment as appraiser for this road. Mr. Houghton was born in Woodstock, Vt., in 1881. In 1902 he entered the electrical test course of the General Electric Company at Lynn, Mass. Later he was detailed to the newly organized steam turbine department and was actively associated with the subsequent development work of the Curtis steam turbine. In 1904 he was loaned to the Pennsylvania Railroad, where he was successful in completing some important experimental steam turbine work for the motive power department of that company. In 1905 he returned to the General Electric Company to enter the construction department, and during the following three years was in charge of several important turbine installations. In 1908 he accepted a position as chief engineer for the Pittsburgh, Harmony, Butler & New Castle Railway, the first road to adopt a potential of 1200 volts direct current for motive power, and continued in that position until 1912, when he resigned to become assistant electrical engineer for the Indiana Steel Company at Gary, Ind. He continued with the Indiana Steel Company until 1914, when he resigned to take charge of extensive rehabilitation work for the Pittsburgh & Butler Railway and its affiliated companies, the Butler Passenger Railway and the Butler County Light Company. In 1916 the latter was sold to the West Penn interests, and Mr. Houghton became district superintendent for the West Penn Power Company, with headquarters at Butler, Pa., serving in that capacity until his appointment to the Southern Cambria Railway.



C. A. HOUGHTON

C. L. Cadle, electrical engineer of the Rochester lines of the New York State Railways, has been promoted to chief engineer of those lines following the resignation of Edward J. Cook as chief engineer of the New York State Railways System. Mr. Cadle has been electrical engineer of the Rochester lines for the last ten years. He went to Rochester from Cleveland, Ohio, where he had been for two years general manager of the Electric Railway Improvement Company. For about a year previous to that time he was engaged in the power department of the Cleveland Railway. Mr. Cadle has been very active in association work. He has been a member of the power distribution committee of the American Electric Railway Engineering Association since 1910, the last two years as chairman, and has also been on the executive board of the Engineering Association in 1916-1917. He was a member of the American Association committee to confer with the Bureau of Standards on the Electrical Safety Code in 1915 and 1916 and is now chairman of the committee of the Engineering Association to confer with the Bureau of Standards on the Electrical



C. L. CADLE

Safety Code 1917 and 1918. Mr. Cadle is at present a member of the national joint committee on overhead and underground line construction. He is also a member of the American Institute of Electrical Engineers.

W. S. Tuley, elected secretary-treasurer of the Kansas City, Clay County & St. Joseph Railway, Kansas City, Mo., on Nov. 6, has had long experience in accounting and auditing work in connection with construction and operation of railroads. He joined the Bion J. Arnold forces about 1905 and acted as auditor on the construction of many large railroad and electric railway properties. The last three years of his connection with the Arnold company were spent chiefly in valuation work on public utilities. In 1914 Mr. Tuley had a leave of absence of several months from the Arnold company, during which he had charge of the accounting work on the Metropolitan Street Railway, Kansas City, Mo. He also represented the Kansas City Electric Light Company in the appraisal of its property by the Public Service Commission of Missouri. In the latter work he handled the accounting department, while Philip J. Kealy, later made president of the Kansas City Railways, had charge of the appraisal. Mr. Tuley became connected with the Kansas City, Clay County & St. Joseph Railway as auditor and assistant treasurer in March, 1915, and succeeded H. F. Mayer as treasurer in June, 1916. Since I. D. Hook left Kansas City several months ago for the officers' training camp, Mr. Tuley has been performing the duties of secretary.

J. R. Harrigan, who has been general manager of the Kansas City, Clay County & St. Joseph Railway, Kansas City, Mo., was in addition elected vice-president of the company at a meeting of the directors on Nov. 6. Mr. Harrigan on Oct. 31 was also elected president of the Kansas City Interurban Freight Terminal Company, the station of which was opened for business on Oct. 10 for use by the interurban electric railways entering Kansas City. Immediately after he was graduated from the high school at Eau Claire, Wis., in 1886, Mr. Harrigan entered street railway work as manager of the Eau Claire Street Railroad, operating a horse-car line. Two years later he went into other business,



J. R. HARRIGAN

but returned to Eau Claire in 1897 to assist in the electrification of the street railroad property, and to act for four years as general manager of the road, the Chippewa Valley Electric Railway. In 1901 he went to Ohio as general superintendent of the Dayton, Springfield & Urbana Railway. In 1902 he became general manager of the Columbus, Buckeye Lake & Newark Traction Company and the Columbus, Newark & Zanesville Railway, in which capacity he continued for years, until the roads were purchased by the so-called Widener-Elkins syndicate. In 1906 he assumed the management of the Canton-Akron Railway, and was general manager of the company until it was absorbed by the Northern Ohio Traction & Light Company. In January, 1907, Mr. Harrigan was appointed assistant general manager of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y. After a year in Buffalo he became, in 1908, general manager of the Columbus, Delaware & Marion Railway, Columbus, Ohio. He resigned this position in the fall of 1910 to become vice-president and general manager of the Des Moines (Iowa) City Railway and the Interurban Railway, Des Moines. On July 4, 1912, he left Des Moines to take charge of the Kansas City, Clay County & St. Joseph Railway as general manager. During the following six months he completed the arrangements for placing the road in operation, service starting on Jan. 1, 1913. His election as vice-president of the Kansas City, Clay County & St. Joseph Railway is considered a well-merited recognition of his valuable service to the company. The additional office will, it is obvious, give Mr. Harrigan greater prestige especially in local affairs.

T. W. Passailaigue, superintendent of the railway department of the Charleston Consolidated Railway & Lighting Company, Charleston, S. C., was recently elected vice-president of the Charleston Consolidated Railway, Gas & Electric Company, a subsidiary property to succeed J. G. Bradley, resigned. Mr. Passailaigue entered street railway work in Charleston in 1876 as an office boy and has therefore seen forty-one years of continuous service with the street and electric railways in that city. He assisted in promoting most of the horse car systems in the city and helped to build many of them, and also lent his aid later on in electrifying the lines and in consolidating the various systems in 1897.



T. W. PASSAILAIGUE

He was for a time president of one of the companies now included in the system of the Charleston Consolidated Railway & Lighting Company. In the early days of street railroading in Charleston passenger receipts were small, but a very large business was done in handling freight. At that time the steam railroads operating into Charleston were not extended to the waterfront and all freight was handled by flat cars hauled by mules for transfer from the different lines of steamers to the railroad freight station. Ever since his entrance into railway work Mr. Passailaigue has been interested in the American Electric Railway Association and its predecessors. He dates his first attendance at a meeting of the association back to the time that William J. Richardson became secretary and treasurer of the association at its organization in 1882. Impressed with the fact that the repeated absence of Philip H. Gadsden, president of the Charleston Consolidated Railway & Lighting Company, from Charleston made it imperative that the duties of the president should in his absence devolve upon a vice-president located permanently in the city, the board of directors of the company decided that Mr. Passailaigue was best qualified for the office by his long experience with the company and his intimate knowledge of local affairs.

Obituary

Charles Edward Brown, treasurer of the Washington Railway & Electric Company and the Potomac Electric Power Company, Washington, D. C., died on Nov. 9. Mr. Brown was born in New Concord, Ohio, forty-four years ago. He entered electric railway work as paymaster with the Nassau Electric Railroad, Brooklyn, N. Y., and later occupied a similar position with the Brooklyn Rapid Transit Company, which took over the Nassau property. Mr. Brown went to Washington in 1900 as paymaster of the Washington Railway & Electric Company and the Potomac Electric Power Company. In 1910 he was elected treasurer.

John D. Crimmins, well known as a contractor, died at his home in New York on Nov. 9 in his seventy-fourth year. Mr. Crimmins was educated in the public schools and St. Francis Xavier's College, New York, and at the age of sixteen became a clerk in the office of his father, Thomas Crimmins, a contractor. At twenty he was taken into partnership by his father. The Crimmins firm built a large part of the first elevated railway in the City of New York, and acted as contractor for the Broadway, Columbus Avenue and Lexington Avenue cable lines and many other important pieces of work. Mr. Crimmins was considered an authority on labor questions and was often called upon to act as arbitrator or expert in disputes of this character. He was a director in many companies, including the Pennsylvania Tunnel & Terminal Company, which is a subsidiary of the Pennsylvania Railroad. He was at one time president of the Metropolitan Street Railway, New York, and for several years was a director of the Consolidated Traction Company of New Jersey.

Construction News

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

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

RECENT INCORPORATIONS

Alabama Interurban Corporation, Birmingham, Ala.—Incorporated to construct an electric railway from Birmingham or Bessemer to the Warrior River, about 20 miles. Capital stock, \$50,000. Officers: Thomas L. Cannon, president; Roy McCullough, secretary; Job Going, treasurer; B. M. Allen, general counsel, and H. M. Gassman, chief engineer. [Sept. 8, '17.]

FRANCHISES

New York, N. Y.—An extension of time on the construction of the new trolley line of the Manhattan & Queens Traction Corporation, extending from Manhattan over the Queensboro Bridge to Jamaica, has been granted by the Board of Estimate in so far as the extension from Jamaica to St. Albans is concerned. The residents of the Jamaica South Side and St. Albans sections have been clamoring for the completion of the work, but war-time conditions make it impossible to proceed as fast as the officials of the company would like.

Cincinnati, Ohio.—An agreement has been reached between Street Railway Commissioner Culkins and City Solicitor Groom, acting for the city of Cincinnati, and Stanley Shaffer, attorney for the Cincinnati, Lawrenceburg & Aurora Street Railway, as to the proposed new twenty-year franchise to be granted the company for a private right-of-way through a portion of the city. Its present franchise has eight years to run, but the company proposes to abandon it and accept a new one based on the laws governing interurban railways. Should the new franchise be granted, Mr. Shaffer said that the company, which is now in the hands of a receiver, will be refinanced and needed improvements will be made to the service.

Amarillo, Tex.—The City Commission of Amarillo has adopted an ordinance forfeiting the franchise of the Amarillo Street Railway, which operates about 8 miles of track in Amarillo. This action by the city commission was due to the recent suspension of the operation of cars by the company.

TRACK AND ROADWAY

Los Angeles (Cal.) Electric Railway.—An extension will be built by the Los Angeles Electric Railway up Tenth Street, thence through a short private street in the Bowers tract to the new Los Angeles High School.

San Diego & Southeastern Railway, San Diego, Cal.—Plans are being made by the San Diego & Southeastern Railway for the construction of an extension from Lakeside to Santa Ysable.

Jacksonville, Miami & Tampa Interurban Railway, Jacksonville, Fla.—It is reported that surveys will soon be made of the proposed electric railway of the Jacksonville, Miami & Tampa Interurban Railway from Jacksonville to Miami and from Melbourne to Haines City and thence to Tampa. It is expected that construction will be begun this winter. Contracts have not yet been let. True Davis, president. [Sept. 29, '17.]

Caldwell (Idaho) Traction Company.—Resolutions have been passed by the City Council of Caldwell to request the Boise Valley Traction Company and the Caldwell Traction Company to reconstruct their tracks within the city limits to conform to the franchise under which they operate. It is understood that the action is taken to compel the railroads to lower their respective tracks to the street grades. In several places, it is said, the tracks are higher than the surrounding streets.

Rockford (Ill.) City Traction Company.—Owing to the refusal of military authorities to allow the Rockford City

Traction Company permission to extend its tracks farther into the camp, officials of the company believe that they will have to seek the advice of the State Public Utilities Commission in extending the line into closer touch with the buildings of the cantonment. At present the line terminates before the cantonment buildings are reached, which causes dissatisfaction both among the soldiers and among the general patrons.

Indianapolis Traction & Terminal Company, Indianapolis, Ind.—This company will construct a 1-mile extension to its Bismarck Avenue line.

Thibodaux, La.—It is reported that rights-of-way have been obtained for the major portion of the proposed electric railway between Donaldsonville and Lockport and that work will soon be begun on the first link between Donaldsonville and Thibodaux. Walter Ohlmeyer, Plattenville, is interested. [Aug. 22, '14.]

Boston & Maine Railroad, Boston, Mass.—This company has ordered materials for an electro-pneumatic interlocking machine at tower C, East Somerville, Mass., from the Union Switch & Signal Company, Swissvale, Pa.

Public Service Corporation, Newark, N. J.—Work has been begun by the Public Service Corporation on the improvement of its Park Avenue line in East Rutherford. The company is tearing up its tracks preparatory to laying one track only from Paterson Avenue to Main Street. The improvement, including the laying of a granite block pavement, will cost about \$10,000.

New York Municipal Railway, Brooklyn, N. Y.—In order to prevent an undue delay in construction, owing to inability to obtain necessary steel, the Public Service Commission for the First District has decided to have Section 3 of the Culver rapid transit line in Brooklyn, from Avenue X to Coney Island, built for the most part as a reinforced concrete structure. The commission last summer received bids for the construction of this portion of the line, but on account of the high prices quoted for steel and the twenty months required for delivery of this material, rejected the bids and took the possibility of an alternative scheme under consideration. A reinforced concrete structure has now been determined upon as a solution of the problem, in view of the fact that steel manufacturers could not promise definite deliveries on any new considerable orders other than government work for many months or possibly a year or more. It is estimated by the commission's engineers of design that the cost of the reinforced concrete structure will be substantially the same as though steel were used, and construction can begin forthwith.

Cincinnati, Lawrenceburg & Aurora Street Railroad, Cincinnati, Ohio.—Street Railway Commissioner Culkins is endeavoring to reach an agreement with the Cincinnati, Georgetown & Portsmouth Railroad, the Interurban Railway & Terminal Company and the Cincinnati, Lawrenceburg & Aurora Electric Street Railroad for the use of certain sections of their tracks for extensions of the local street railway service. Extension to the Pleasant Ridge and Kennedy Heights, Mount Washington and Sedamsville routes are desired, and to provide for this joint use of the tracks is necessary. The interurban companies are expected to raise the question of charge for using the street railway tracks for entrance to the city, when this matter is put up to them.

Niagara, St. Catharines & Toronto Railway, St. Catharines, Ont.—This company has practically completed the reconstruction of about 4½ miles of its line in Niagara Falls.

Toronto & York Radial Railway, Toronto, Ont.—Officials of the Toronto & York Radial Railway have been making a general study of the operation of the Mimico division between Toronto and Port Credit and propose to make a number of improvements in the line within a short time. It is also proposed to lay additional tracks to permit a closer headway than the present twenty-minute service.

Altoona & Logan Valley Electric Railway, Altoona, Pa.—This company has issued bonds to the amount of \$53,000 to provide for improvements to its line.

Dover-Rossville Transit Company, Dover, Pa.—The project to construct a trackless trolley line between Dover and Rossville by the Dover-Rossville Transit Company is being

revived. A petition asking State Highway Commissioner J. Denny O'Neil, Harrisburg, to grant a permit to erect poles along that portion of the State highway between Dover and Rossville is being signed by residents of Dover and vicinity. [Jan. 20, '17.]

Seattle (Wash.) Municipal Street Railway.—The Board of Public Works of Seattle on Nov. 2 opened two bids for track construction and special work, etc., for the Loyal Heights extension of the Seattle Municipal Railway. Both were submitted by Meacham & Babcock, local contractors, who offered to build a new line for \$117,146 with new material or for \$114,146, using second-hand trolley to be bought from the city. At this meeting of the board, H. W. Treat, president of the Loyal Railway, offered to sell that line, covering practically the same ground to be served by the proposed extension, for \$70,000, payment to be made in utility bonds, interest and principal to be met from the revenues of the Seattle Municipal Railway.

SHOPS AND BUILDINGS

Connecticut Company, New Haven, Conn.—This company will reconstruct its carhouse in New Britain which was recently badly damaged when a heavy trolley car struck a supporting pole. The company will not build the second story, which was entirely destroyed, but extensive repairs are contemplated.

Salina (Kan.) Street Railway.—The carhouse of the Salina Street Railway on North Street will be abandoned to make way for paving and a widened street.

Regina (Sask.) Municipal Railway.—The City Council of Regina contemplates the erection of a railway station at the corner of Hamilton Street and Eleventh Avenue, to cost about \$15,000.

POWER HOUSES AND SUBSTATIONS

Georgia Railway & Power Company, Atlanta, Ga.—Plans are being made by the Georgia Railway & Power Company for the extension of its high-tension transmission line from Emory University to the Decatur plant, about 2 miles. The company has a contract to furnish electricity to operate the pumping station of the municipal water works system.

Missouri & Kansas Interurban Railway, Kansas City, Mo.—Plans are being made by the Missouri & Kansas Interurban Railway for installation of coal-burning equipment, and when this is done the company will generate current for the operation of its line outside the city limits of Kansas City. At present the line gets its current, both inside and outside the city, from the Kansas City Railways, putting into service itself in emergencies a gas-burning plant at Overland. As the cost of gas has increased, the use of this plant has diminished.

Mansfield Electric Railway, Light & Power Company, Mansfield, Ohio.—The property of the Mansfield Electric Railway, Light & Power Company has been taken over by the Mansfield Electric Light & Power Company, controlled by the Cities Service Company. The power plant of the former company will be discontinued and power for the operation of the line will be obtained from the recently completed Meleo plant of the Mansfield Electric Light & Power Company.

Mahoning & Shenango Railway & Light Company, Youngstown, Ohio.—This company has sold \$500,000 of bonds, the proceeds to be used for the completion of the 20,000-hp. addition to its Lowellville power house, which the company expects to place in operation about Jan. 1, 1918.

American Railways Company, Philadelphia, Pa.—This company has been compelled to again place in operation the old electric plants in both Salem and Bridgeton because of the failure to get enough electric current from the plant at Wilmington, across the Delaware River.

Rutland Railway, Light & Power Company, Rutland, Vt.—Plans are being made by the Rutland Railway, Light & Power Company for the immediate installation of two new 1000-kw. transformers in its West Rutland station. The company is completing the installation of a new water wheel at its Pittsford station.

Manufactures and Markets

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

Purchasing Agent's Advice on Market Conditions Invaluable

Co-operation Between Superintendents, Storekeepers and Purchasing Agents Will Largely Overcome Difficulties of Present Materials Situation

E. E. Stigall, purchasing agent, Kansas City Railways, issues a letter about once a month, or more frequently if conditions warrant, to the various department heads which is in the nature of a warning to them to watch the materials situation closely. If they are soon to be in need of supplies other than those which can be obtained from local dealers, they are advised to figure ahead so many months for electrical equipment, so many months for rails, etc. The letter tabulates the approximate delivery which may be expected on a large number of the most important supplies. Mr. Stigall believes that if the department heads do not know the trend of the market and are not fully advised as to how early they should anticipate their needs, it is the purchasing agent's fault. If they are properly informed by the purchasing agent and do not observe the warning, then it is their own fault. This is the system which is followed on the Kansas City Railways and it is proving helpful in avoiding shortages of materials and delays in securing equipment.

CO-OPERATION WITH MANUFACTURERS PREVENTS SHORTAGES

As further protection against shortages Mr. Stigall secures information from the manufacturers from time to time on what deliveries they can make. In accord with this information, the storekeeper marks up on a temporary record what the maximum and minimum quantities of each supply should be to correspond with these delivery possibilities. If three or six months is the delivery period on a certain supply, then the minimum stock indicating the time at which a new order should be placed, should be that quantity which will satisfy the need for three months or six months, respectively. If it takes three times as long to get a certain supply as it does under normal conditions, then the minimum quantity should be three times as great. By ordering more frequently than customary, it will not be necessary to have any particular increase in the size of the order or in the amount of the carrying charges.

Purchasing agents and storekeepers should insist, Mr. Stigall says, that the master mechanic, the superintendent of overhead and the superintendent of track, should report to them any contemplated work which will require more than the usual amount of supplies, so that they can prepare for the requirements. If an extra number of cars are to be overhauled, or if a section of overhead line is to be rebuilt, etc., the department heads should let the storekeeper know as soon as they know, and thus avoid later delay through lack of co-operation. This is simply a matter of the departments working together as a company instead of departments working individually as departments.

ANOTHER INSTANCE OF VALUABLE ADVICE FROM A PURCHASING AGENT

The foresight of a purchasing agent of another system two years ago, led him to advise the heads of the various departments of the condition of the markets and what he thought the future would be and requested that they anticipate their needs as far in advance as possible. By so doing, this road has been able to make all necessary repairs promptly and thus maintained its usual good service, thereby avoiding unfavorable comment by the public.

Cars and rail are the only products which this company has been unable to secure in a reasonable amount of time.

A number of cars have been on order for eleven months and delivery of the first of these is expected within a week or two. Although delivery of this equipment was to commence within 150 days it was one year from the date of order before the first car was received. This is evidence of the scarcity of materials and the inability of the car manufacturers to secure satisfactory deliveries from the supply manufacturers. Ten thousand tons of rail were ordered in April, 1916. The first delivery, consisting of 2500 tons, was made early in September.

Better Deliveries in the East on Railway Supplies

Track, Line and Rolling Stock Equipment Generally Steady in Price, Although Some Advances Are Expected

While the majority, if not every one, of the car-building plants temporarily are almost wholly engaged in governmental work, the supplies, accessories and appliances contingent are doing some business. Even if development work is halted, the maintenance of the track and transmission equipment cannot be entirely neglected; and though the quantity of new commitments for rails, special work, bonds, rail joint equipment, etc., are not so important nor as large as in normal periods, still some of the orders represent fairly sizable quantities in the aggregate. Poles, overhead line material, insulators, section insulators, etc., are also being sought, with prices still as firm as previously noted. In certain material the statement is made that no surprise should be occasioned if advances occur. Generators, motors, controllers, etc., are in slightly better position on deliveries, with no change in quotations. Repair equipment and motor maintenance material are mentioned as being in steady demand.

With the release of pressure for early deliveries on quite a few lines of car equipment supplies, shipments on staple requisites have been shortened, and a decided improvement for the better is acknowledged. On fabric for upholstering and curtains the market is reported as extremely difficult, not only rigid in price but as likely to go from bad to worse. This, according to a prominent manufacturer, is owing to fluctuations and uncertainties in cotton. Deliveries, however, on these goods are said to be of a satisfactory shape, for special reasons. Though the consumption of car headlinings is just now limited and held firm, they are likely to change in price to a higher level. Car-heating devices and appliances, according to reports, are slow in delivery, although a rush order might be pushed through in quick time if strong enough pressure was put behind it. On some types, rumors of an advance are heard. In addition to the order for 20,000 strap hangers, now under way, placed by an Eastern railway company, to which reference was made in last week's ELECTRIC RAILWAY JOURNAL, several other important orders are pending and may be placed in the near future with the same manufacturer. An advance of 10 cents each on certain types of these goods is announced, effective Nov. 1. Orders for fare boxes, pending for a month, have been closed and deliveries arranged. No price changes are noted in ventilators, safety brakes, roller bearings, etc.; but, in not a few instances, deliveries are easier.

Freights remain an element of disturbance in all lines, especially on shipments coming from the Middle West into Eastern and the seaboard territory. Labor is also unsettling many calculations, and it is to be reckoned with on future deliveries and prices in connection with a majority of articles listed in railway supplies.

The Asbestos Market Situation Improving

Prices Are Generally Lower than Last Year, While
Production Has Caught Up with Demand
in Some Lines of Material

Asbestos in the various forms employed by the trade is and has been for some time, as a market proposition, in an unsettled condition. Prices are up and down, but as a rule are on a lower scale than a year ago. Changes have occurred in the meantime, and in some instances the advances are sharp. Deliveries are reported as good as might be expected under the present abnormal circumstances, but few delays, more than two weeks, are heard of, according to the shippers—including jobbers, distributors and manufacturers. When shipments fail to reach destination at a later date than prescribed, freight congestion, which is a nightmare to many, is blamed for non-deliveries.

The situation is improving, though governmental commitments, which are given primary consideration at every stage, have interfered with the prompt attention usually accorded orders from private sources. The demand has greatly increased, and a wider use is found for stock or standard goods. The call for specialties to meet specified requirements is also expanding in a marked degree. Recently business has been caught up with in some lines, orders have been filled and shipment completed, and the future, an unknown quantity in several respects, is now being considered. Labor troubles are a factor of importance, but the visible supply of material seems to be ample.

Listing or woven tape, 0.015 grade, is selling for from \$4 to \$6 a pound, according to deliveries, the latter being figured as a controlling condition. Asbestos paper for fire-proofing and switch boxes, formerly quoted at 4 cents a pound, is now 13 cents, with a strong stock available. Tubing, flexible and rigid, commands a special price, dependent upon diameter and quantity, ranging from \$2.85 to \$3 a pound. This represents an advance of 100 per cent as against normal figures.

Buying Quieter in Southeast

Much of the Additional Equipment Required for
Cantonments Now Largely Purchased—Good
Business Still Reported in Some Lines

Reports from a number of sources covering the Southeast indicate a tendency toward dullness in nearly all lines, after the abnormal activity in cantonment transportation. At that time the manufacturers and representatives handling electric railway material were literally "snowed under" with inquiries and orders, but the demand has settled down now on a more definite basis, which accounts, no doubt, for the apparent slackening off in the trade. The various electric railways in the Southeast have ordered this year considerable new equipment, which is already in operation or being installed, but with the exception of scattered buying very little equipment of note has been ordered during the last month. The general conditions with reference to money, material and labor is not conducive to liberal purchases, and many companies which need new equipment badly are buying from hand to mouth, hoping to tide over the present conditions. With the exception of orders for new equipment placed recently the air-brake business is dull and shipments average about six months.

There was more or less activity in headlights during the early summer months, but this line has also had a temporary setback.

Manufacturers report a very good business in armature coils, with a growing tendency toward longer deliveries. The volume of coil sales was especially heavy during the "second-hand" flurry, when neither reasonable deliveries nor new equipment could be obtained. The owners of good second-hand motors are in velvet, as prices now received are 25 per cent in advance of those prevailing for new motors before the war. A quantity of second-hand motors has been purchased in this section, a fact which has reflected the long deliveries for new motors.

The gear and pinion market shows very little life, and

shipments are not improving. Rail bonds are fairly active. The demand for rails, ties and spikes is strong in limited areas and where army camp extensions are being made. The extensions under way are progressing rapidly. The Georgia Railway & Power Company has completed its single track to within 2000 ft. of the main entrance to Camp Gordon, Atlanta. Trolley wire and feeder cable remain active in the face of discouraging conditions.

Rail Bond Deliveries Better

Stocks Being Accumulated and Prompt Shipments
Now Can Be Obtained

A reduced demand for rail bonds is probably accountable for the improved deliveries. The heaviest buying is during the spring, when new construction work is contemplated or is under way. Several orders of importance are reported as pending but as yet not closed. With some concerns prompt shipments are being made, as the raw material had been arranged for or is in hand, and with the factory in a position to accept business at least on standard goods and promise of delivery. Special bonds are not in so favorable a position.

Buying, it is felt in the trade, should be good; but there is a noticed hesitancy in placing orders, and this is contributing to the quietness now characteristic of the current rail-bond market. A manufacturer operating on a large scale stated to a representative of the ELECTRIC RAILWAY JOURNAL that so far as his company could figure, the evident sluggishness was due to the reluctant buying of all railway material by the traction companies. He added that prices were 10 per cent less than a month ago, when a discount of 10 to 17½ per cent was announced as the controlling quotation.

The same authority was also quite emphatic in making a statement to the effect that prices on rail bonds were now made for immediate acceptance; in other words, by return mail. Otherwise an advance may be made without further notice, as is mainly the case with all metal products. Possibly the price might hold for a week, but that, it was stated, is a chance to be considered by the buyer.

Production of Spelter

As the result of a canvass by the United States Geological Survey to ascertain the production of spelter in the United States during the third quarter of 1917, C. E. Siebenthal estimates, on the basis of returns of more than 95 per cent of the production, that the output of primary spelter from domestic ores was 132,700 short tons and from foreign ores 23,900 tons, a total of 156,600 tons, as compared to an average of 180,569 tons per quarter during the first half of 1917, 175,502 tons per quarter during the last half of 1916, and 158,226 tons per quarter during the first half of 1916. In addition to the primary spelter, the amount distilled from skimmings, drosses, etc., was 4400 tons, as compared with 6000 tons in each of the two quarters preceding. The total production for the first nine months of 1917 was 444,267 tons from domestic ores, 73,457 tons from foreign ores, and 16,550 tons from secondary materials. The stocks of spelter at smelters on Sept. 30 amounted to 47,186 tons, as compared with 33,147 tons on June 30 and 17,598 tons on Jan. 1.

Lumber Production Falls Off Slightly

The National Lumber Manufacturers' Association reports that during the month of September, 707 sawmills cut 1,297,400,000 ft. of lumber and shipped 1,247,300,000 ft. The cut in September this year was 10 per cent less than that during the same month last year on account of labor shortage and unsettled conditions, but shipments were only 4 per cent less. During the last twelve months the mills reporting to the association have shipped 16,000,000,000 ft. of lumber, or nearly 3 per cent more than was produced. The cut since Jan. 1, 1917, has been approximately 4 per cent less than during the same period of 1916. This indicates a total production by all sawmills in the United States of 40,000,000,000 ft. of lumber in 1917.

ROLLING STOCK

Rockland, Thomaston & Camden Street Railway, Rockland, Me., is expecting to purchase one snow plow.

Sheridan (Wyo.) Railway Company is in the market for a second-hand trailer, to be used in its interurban service.

Dallas (Tex.) Railway Company has ordered twelve one-man street cars at a cost of \$5,000 each similar to the ones in use in Fort Worth.

Beaver Valley Traction Company, New Brighton, Pa., which is reported as having ordered twelve new double-truck, center-door, pay-as-you-enter cars within a few months, has just received and placed in operation another one of the lot.

Panama Electric Company, Panama, C. Z., owing to climatic conditions, has rebuilt a number of its regular size cars. The work was done in the company's shops. A committee has been appointed to look into the advisability of buying and installing one-man cars some time in the future.

Buffalo & Lake Erie Traction Company, Buffalo, N. Y., reported as having ordered four new cars for use on its Dunkirk-Fredonia line, put the one which was received from the builders on the track recently. The car is of the pay-as-you-enter type and seats fifty passengers. It is electrically heated.

TRADE NOTES

Ward Leonard Electric Company, Mount Vernon, N. Y., is now represented in San Francisco, Cal., by the Electric Material Company, 589 Howard Street.

Wagner Electric Manufacturing Company, St. Louis, Mo., has opened a sales office, No. 15, at 116 Auburn Avenue, Atlanta, Ga. Charles M. Welch, formerly office manager of the company's branch in Indianapolis, Ind., will be in charge.

General Electric Company, Schenectady, N. Y., is having plans prepared for the construction of a new two-story drop-forge factory, about 85 ft. by 100 ft. The company will also build a new one-story and basement substation, 48 ft. by 100 ft.

Smith-Sewell Company, Inc., New York, N. Y., is giving preference in shipment to all orders which either directly or indirectly help in the production of munitions and other necessary war supplies, providing they are so designated and their use specified.

Westburg Engineering Company, Chicago, Ill., announces a change in its corporate name from that of the Badt-Westburg Electric Company, which handles the line of the Ward Leonard Electric Company, Mount Vernon, N. Y. This involves no change in management.

Nagle Corliss Engine Works, Erie, Pa., has opened an office at 39 and 41 Cortlandt Street, New York, N. Y., with Frank W. Richardson in charge. This gives direct representation and immediate personal attention to all inquiries on factory prices and delivery promises.

Gurney Ball Bearing Company, Jamestown, N. Y., announces the appointment of H. C. Marsh as electric railway representative. He was formerly employed in the railway departments of the General Electric and Westinghouse companies, and also in the railway department of the Ohio Public Service Commission.

H. T. Heath has accepted a position with the Economy Electric Devices Company, Chicago, and will be engaged in engineering and sales work. Mr. Heath has been with the Westinghouse Electric & Manufacturing Company for the last six years, having taken the apprenticeship course at the Pittsburgh plant and later working in the engineering and sales departments there. For the last two years he has been working from the St. Louis office of the Westinghouse Company. He graduated from Ohio State University in 1911 with degrees from the mechanical and electrical engineering departments.

Root Spring Scraper Company, Kalamazoo, Mich., reports that its heavy No. 6 track and devilstrip snow scraper is in great demand, and that this year's sales of this type of scraper has exceeded those of all previous years. In many cities, like Lansing, Jackson, Battle Creek, Grand Rapids, Saginaw and Bay City, these scrapers have been found so

efficient in handling snow and ice that they have permanently replaced the rotary sweepers. Six scrapers of this type with wing attachments were just shipped to the Northern Ohio Traction & Light Company, Akron, Ohio, for use in keeping the tracks open on the Akron city lines. Other shipments have recently been made to the following companies: Muskegon Traction & Lighting Company, Muskegon, Mich.; Winnipeg Electric Railway Company, Winnipeg, Canada; Jackson Railway & Light Company, Jackson, Tenn., and Indianapolis Traction & Terminal Company, Indianapolis, Ind. An unusually large number of other standard types of spring scrapers have been shipped this month.

NEW ADVERTISING LITERATURE

Ohmer Fare Register Company, Dayton, Ohio: Eight-page pamphlet on fare registering system entitled "An Acre of Diamonds."

Root Spring Scraper Company, Kalamazoo, Mich.: Eight page leaflet giving list of parts and instructions for installing Root spring scrapers.

Walter A. Zelnicker Supply Company, St. Louis, Mo.—Bulletin 228, now ready for sale, offers an "extra special" in storage tanks for immediate shipment.

Ingersoll-Rand Company, New York, N. Y.—Several new advertising leaflets which include Form 859, a full-page leaflet describing a pocket oil flask; Form 85-J, descriptive of steam-condensing plant; Form 3118, a thirty-two-page catalog on compressors and vacuum pumps for extraction of gasoline from natural gas; and Form 4302, a twenty-page catalog on Sergeant rock drills.

Carnegie Steel Company, Pittsburgh, Pa.—Sixth edition of the Carnegie Shape Book. In this edition the book has 265 pages devoted to profiles of rolled sections, an increase of thirty-eight pages over the number in the edition issued two years ago. This increase is attributed to the extensive use of steel cross ties for industrial and railway purposes, to the expansion in the automobile and shipbuilding industries and particularly to the great development in the use of steel in modern factory buildings. The book is bound in green leather as heretofore and can be obtained at any of the district offices of the Carnegie Steel Company at \$1 per copy.

NEW YORK METAL MARKET PRICES

| | Nov. 7 | Nov. 12 |
|--|----------|---------|
| Prime Lake, cents per lb. | 23 1/2 | 23 1/2 |
| Electrolytic, cents per lb. | 23 1/2 | 23 1/2 |
| Copper wire base, cents per lb. | 31 | 31 |
| Lead, cents per lb. | 6 1/4 | 6 1/2 |
| Nickel, cents per lb. | 50 | 50 |
| Spelter, cents per lb. | 7.87 1/2 | 8 |
| Tin, Straits, cents per lb. | 68 | 73 |
| Aluminum, 98 to 99 per cent, cents per lb. | 35 | 36 |

OLD METAL PRICES—NEW YORK

| | Nov. 7 | Nov. 12 |
|--|---------|---------|
| Heavy copper, cents per lb. | 22 | 22 |
| Light copper, cents per lb. | 19 1/2 | 19 1/2 |
| Red brass, cents per lb. | 17 1/2 | 17 1/2 |
| Yellow brass, cents per lb. | 16 | 15 1/4 |
| Lead, heavy, cents per lb. | 4 3/4 | 4 3/4 |
| Zinc, cents per lb. | 5 3/4 | 5 3/4 |
| Steel car axles, Chicago, per net ton | \$41.00 | \$41.00 |
| Old car wheels, Chicago, per gross ton | \$28.00 | \$28.75 |
| Steel rails (scrap), Chicago, per gross ton | \$33.00 | \$34.50 |
| Steel rails (relaying), Chicago, per gross ton | \$55.00 | \$55.00 |
| Machine shop turnings, Chicago, per net ton | \$16.00 | \$17.00 |

RAILWAY MATERIALS

| | Nov. 7 | Nov. 12 |
|---|---------|---------|
| Rubber-covered wire base, New York, cents per lb. | 34 | 32-35 |
| Rails, heavy, Bessemer, Pittsburgh | \$38.00 | \$38.00 |
| Rails, heavy, O. H. Pittsburgh, per gross ton | \$40.00 | \$40.00 |
| Wire nails, Pittsburgh, per 100 lb. | \$3.50 | \$3.50 |
| Railroad spikes, 9/16 in., Pittsburgh, per 100 lb. | \$5.50 | \$5.50 |
| Steel bars, Pittsburgh, per 100 lb. | \$5.00 | \$5.00 |
| Sheet iron, black (24 gage), Pittsburgh, per 100 lb. | \$5.80 | \$5.80 |
| Sheet iron, galvanized (24 gage), Pittsburgh, per 100 lb. | \$4.85 | \$4.85 |
| Galvanized barbed wire, Pittsburgh, cents per lb. | \$4.85 | \$4.35 |
| Galvanized wire, ordinary, Pittsburgh, cents per lb. | \$3.95 | \$3.95 |
| Cement (carload lots), New York, per bbl. | \$2.22 | \$2.22 |
| Cement (carload lots), Chicago, per bbl. | \$2.31 | \$2.31 |
| Cement (carload lots), Seattle, per bbl. | \$2.65 | \$2.65 |
| Linseed oil (raw, 5 bbl. lots), New York, per gal. | \$1.18 | \$1.18 |
| Linseed oil (boiled, 5 bbl. lots), New York, per gal. | \$1.20 | \$1.21 |
| White lead (100 lb. keg.), New York, cents per gal. | 11 | 11 |
| Turpentine (bbl. lots), New York, cents per gal. | 54 | 53 |