

# Electric Railway Journal

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Number 18

## **Company Section Activities Are Due to Begin**

**D**URING the war period there was a necessary let-up in the work of the American Electric Railway Association company sections. Meetings were maintained against all kinds of opposing influences. As a result, comparatively few papers of conspicuous merit were presented, and there was a marked tendency to devote the meetings largely to social relaxation, presumably as an offset to the depressing effect of war. Now is the time to forget the past and to plan for an aggressive campaign for the winter season. We hope that, without neglecting the social features, the chief emphasis will be placed upon constructive and inspiring addresses and papers, with the object of conveying information that the hearers want rather than that which the speakers are most anxious to impart.

One trouble with the company section paper, speaking broadly, has been that it was either over the heads of the audience or outside of its range of interests. It requires a peculiar knack to tell a story in terms that the listeners will understand. We suggest that in inviting speakers for the coming season, the program committees ask them well in advance to study carefully the prospective audiences which they will later face.

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## **Connecticut Company Zone Plan Seems to Be Working Smoothly**

**A**S THIS editorial is written the zone system has been in operation on the lines of the Connecticut Company for nearly two weeks. As was explained in an earlier editorial, the plan was adopted only after very careful traffic study and analysis of all possible methods of increasing the company's revenue. Although there have been numerous protests against the increases in fare which accompanied the inauguration of the zone system, and although there will undoubtedly be requests for investigation which the Public Utilities Commission will be obliged to heed, on the whole the clientèle of the railway company has taken the situation reasonably. It will now be up to the public to show that the rates of fare are so high as to bring an undue financial reward to the company, or are discriminatory as among different classes of patrons. To do this will, in our opinion, be difficult because, obviously, the company has worked out its rate schedule on the basis of charging no more than is actually necessary to keep the property going and giving the needed service.

The minimum fare on the Connecticut Company's system is 6 cents, as compared with 5 cents on the Public Service Railway, but the Connecticut Company officials were convinced that they could not give service in what appeared to them to be the ideal zone layout for this fare, and in view of the fact that the 6-cent fare has been in use in Connecticut for two years it seemed best to give the maximum service that could be given for that fare.

Those who are convinced that the zone system is right in principle and can be made right in practice, the number of whom we believe is increasing, will be encouraged by the results so far achieved in Connecticut. While all may not agree as to the details of the plan used there, it must be conceded that as it is highly important to have a number of properties operating under this plan in order that the imperfections may be worked out and public confidence may be secured the Connecticut Company is to be commended for getting something started. The plan which was adopted seems to us to be fundamentally sound, and we hope that it may appeal to the sober judgment of our friends of the Nutmeg state, or as the people themselves prefer to call it, "The State of Steady Habits."

As far as one can judge from observation of the new plan in practice and from discussion with employees of the company, the Connecticut Company firmly believes that it is practicable on this property. Such conviction will go a long way towards convincing the public. Although a great deal of general educational work has been done by way of advertising, verbal explanation, etc., it will be up to the platform men of the company, largely, to "sell" the plan to the public. For example, its motormen can hand zone checks to incoming passengers in such a way as to make the passengers feel that they have been the recipient of courtesy, or the motormen can make the passengers feel that it is an imposition to bother them with zone checks. Again, the conductors can very greatly facilitate the payment of fare and the alighting passengers, or they can develop any incipient tendency that the passengers may have in the direction of a "grouch." In other words, if the company management cannot sell the zone plan to its employees, it cannot sell this plan to the public. In Connecticut every effort was made to show the employees, apparently with success, that if the plan is good for the company it is good for them. We feel that the demonstration will have been as much an achievement in good salesmanship as in giving good service if the Public Utilities Commission ultimately puts its stamp of approval on the zone plan.



## Bus Facts

### Versus Bus Fancies

THERE is already a distressing amount of evidence that we are facing an era of bus-line promotion that threatens to repeat the worst features of the hey-day period of the electric railway. The undoubted utility of electric railways was exploited in the old days by more than one promoter whose enthusiasm led to the building of the roads but not to the paying of the promised roseate dividends. So, too, the undoubted value of the motor bus is the starting point for a later generation of what *The Spectator* used to term "projectors."

These thoughts are prompted by an examination of recent financial literature on the motor bus. The results with new routes are predicated upon returns obtained elsewhere under far more favorable conditions and in a far more favorable period of costs. For example, the motor bus operations of London are quoted as being highly profitable, whereas the rate of return has been badly below bank interest in the last two years or more, while the operations of the current year show a deficit. Of course, the reason is that labor and material costs have gone up much faster than income. To offer bus stock as a good investment upon the basis of what some other company earned in pre-war times is as misleading as it would be to try to sell street railway stock on the same basis. Indeed, the bus has suffered even more than the electric railway through increases in the dominant item of wages because the number of passengers per bus operative is decidedly less than per car operative.

The bus promoter is also likely to be too sanguine about the item of depreciation and obsolescence. The latter, in these days of rapid development of vehicles, actually may lead to the scrapping of the bus before it is worn out because the public will always be making comparisons between the bus for which their patronage is solicited and the latest automobile. Such comparisons are more hurtful to the bus than to the street car, since the bus is primarily a vehicle which makes its appeal largely on the grounds of more luxurious and more direct service and on which a high fare should naturally and can properly be charged.

Just as the bus promoter overlooks the effect of the recent enormous increases in wages and underestimates depreciation and obsolescence, so does he err in estimates of bus mileage and bus earnings. One estimate calmly assumes a performance of 40,000 bus-miles per annum; yet the actual performance of the same type has under similar conditions in another city averaged only 27,000 miles. While we may grant that a bus can average or slightly exceed a schedule of 9 m.p.h., its over-all performance through the year will be less than that of electric cars for two reasons. First, the bus day is shorter because of the smaller amount of early morning traffic; second, the bus spends more time in the shop undergoing inspection and repairs. In view of the fact that 40,000 miles per annum is good electric car performance, we would hardly expect more than 30,000 to 32,000 miles from the more complex bus. So in this item alone, we see that the bus man expects to handle his business with but 80 per cent

of the buses he readily needs, and his first costs, buildings, etc., are affected in proportion.

But most misleading of all can be the estimates of traffic. It is easy to multiply the estimated mileage by the estimated passengers per mile and rate of fare, and come through with a triumphant 20 per cent return upon the investment. Analysis shows, however, that the optimistic promoter expects to build up in one year against competition as much business as other bus lines have built up in ten years with every condition of non-competition, short riding, dense population, etc., in their favor!

Far be it from us to decry the many ways in which buses can be made an adjunct to and a part of the popular transit facilities of a community. The bus has a place, though a limited one, in city transportation, as we pointed out editorially in the issue of Sept. 20. But the present plight of the street railway is overwhelming proof that utility to the public and profit to the investor are by no means one and the same thing. Therefore would we say to the man who is asked to go into a bus company: There is no more financial magic about gasoline than there has proved to be about electric transportation. Don't put a dollar into the bus until you are satisfied that every lesson of electric railway experience—such as unchangeable routes, rising costs, the need for a service-at-cost basis, etc.—has been taken into consideration.

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## Referendums Usually a Failure in Deciding Economic Questions

THE failure of the Denver electorate to indorse either of the two plans submitted at the election on Oct. 22 to settle the railway franchise question in that city leaves the situation as it was. Two plans suggested were designed to put the transportation system on a permanent basis, and both involved certain elements of service at cost, although one was known officially by that name and the other as the "elastic 6-cent fare plan." The referendum was preceded by an extended publicity campaign on the merits of each plan by citizen committees, while the company remained neutral, asking only for some reasonable and permanent settlement. Yet in spite of this campaign, only 40 per cent of the registered voters took the trouble to go to the polls. In the vote cast, the "service-at-cost franchise," recommended by the committee of fifty-five, lost by only 244 votes according to the returns, while the elastic 6-cent fare ordinance was defeated by a vote of 10,884 to 4,577.

The election in Denver illustrates again the weakness of the referendum for settling the economic questions of a municipality. Such matters, especially where they involve the question of justice to others, should not be determined by popular vote. In the first place, the average citizen will not take the time and trouble to give them the consideration they deserve or often even to vote. But even if he should attempt to study the question carefully and decide impartially he is after all an interested party, and it is a maxim in jurisprudence that no man should act as judge in a case in which he is interested. Our greatest wonder, therefore, is not that the franchise was defeated but that it came within 244 votes of being carried.



If, then, such questions should not be referred to popular vote, who is to decide them, and is not a denial of the referendum in cases of this kind an imputation against the fairness of the American voter? By no means. The question of a proper fare should be settled by an expert and an impartial commission, assisted in its determination of legal matters by the courts. When this is done, the public, like any other good litigant, will accept an adverse decision if it is satisfied with the fairness of the judges, and such willingness is just as good evidence of good citizenship and far more reasonable to expect than that the public will decide against itself in a question of how much it should pay for a necessary commodity or service.

### **St. Paul's Cascade Electrification Will Soon Be in Full Operation**

**O**WING to the war there has been some delay in the completion of the plan of the Chicago, Milwaukee & St. Paul Railway for electrifying its Cascade Division. In a very few weeks now, however, the new passenger locomotives will be hauling the famous "Columbian" and "Olympian" across the Cascade Range, and the stored energy in these trains will be flowing back into the companies lines or even possibly into the transmission lines of the Washington Water Power Company as the trains go down the grade. When the new passenger locomotives have been delivered for the Rocky Mountain Division and the present high-speed locomotives on that division have been regeared for freight operation, the St. Paul Railway will have two splendid electric zones, separated by a short steam division of which the early electrification would seem to be inevitable. The steam division will be in a sense isolated, and from the standpoint of operating economy it will be necessary to electrify it. A stretch of more than 1000 miles of electrified track would certainly furnish a fine demonstration of the possibilities of heavy electric traction.

At a recent gathering of railroad men and others an operator high in the motive power department of one of our principal railroads said that some years back he had been prejudiced against electrification, but observation of the results secured from the St. Paul had entirely converted him, and he is now an enthusiast for it. May his tribe rapidly increase! Results such as those secured on this road, on the Norfolk & Western Railway and others are convincing the "doubting Thomases" that at least for surmounting ranges of mountains, electrification is the thing. To be sure, they insist on reminding us that contemporaneously with the improvement of the electric locomotive the steam locomotive development has not been slow. On fairly level track where there are no long tunnels, the competition between the two types of locomotive is bound to be increasingly keen. Mounting cost of coal, however, is going more and more to force conservation of this precious mineral. Electrification of all power-consuming devices is bound to come, and heavy traction is intimately tied in with this development. The approaching completion of the electrification of the western end of the St. Paul system is a milestone in the path of progress.

### **Protect the Car Storage Yard Adequately From Fire**

**T**HE fire hazard in an electric railway car storage yard is one worthy of even more serious consideration than it has received. We occasionally read of a holocaust, but there are many minor fires which receive no publicity but which in the aggregate cause the loss of much greatly needed equipment. As it is not uncommon to have rolling stock to the value of \$1,000,000 accumulated in one yard, the urgency of insuring suitable fire protection for this valuable equipment is obvious. The same principle applies in yards even where the possible loss is comparatively small.

Where conditions render it practicable, some such arrangement as that described by A. E. Harvey in an article appearing in the issue of this paper for Dec. 28, 1918, is highly desirable. In this article the writer explains why and how monitor towers were installed in a rearranged yard in Kansas City, so that any point in the yard could be reached without stringing hose across the tracks. In Mr. Harvey's yard the purpose in eliminating the hose was to obviate danger of interruption of the water supply by the cars which were being moved out of the danger zone. In the storage yards of lines which use third-rail there is an additional danger of electrical shock to firemen and others when hose is strung across the tracks. There are cases, however, where there are no fire hydrant connections of sufficient capacity in the immediate vicinity of a storage yard to permit the use of towers or hydrants, so that some other form of protection against fire must be resorted to.

An illustration of this last case was discussed in the issue of this paper for Oct. 18, namely, the practice of the Elevated Railways of Chicago, which has adopted cars equipped with chemical apparatus for the protection of yards not supplied with water. While these cars are not often called into service they have at times proved to be very effective means of protection. As the cars are not equipped with motors and control and were built by the company in its own shops, the investment cost was not large.

There is also very little maintenance expense, and the depreciation is practically negligible. The fact that the cars are not equipped with motors and control does not decrease their availability or flexibility, for whenever there are any cars lying idle in the yard one is always attached to a fire car. This motor will not be needed in service until all cars have been withdrawn from the yard, after which time there is no further use for the fire car.

These examples of recent progress in safeguarding equipment in the storage yard are cited simply by way of illustration of the general principle. While the insurance companies naturally exert all possible pressure on their policyholders to reduce fire hazard, it is a good thing for the electric railways themselves to exert their initiative in this direction. The question is not merely one of keeping down the danger of loss of property, but also one of preventing the possibility of the company being hampered in the giving of good service.







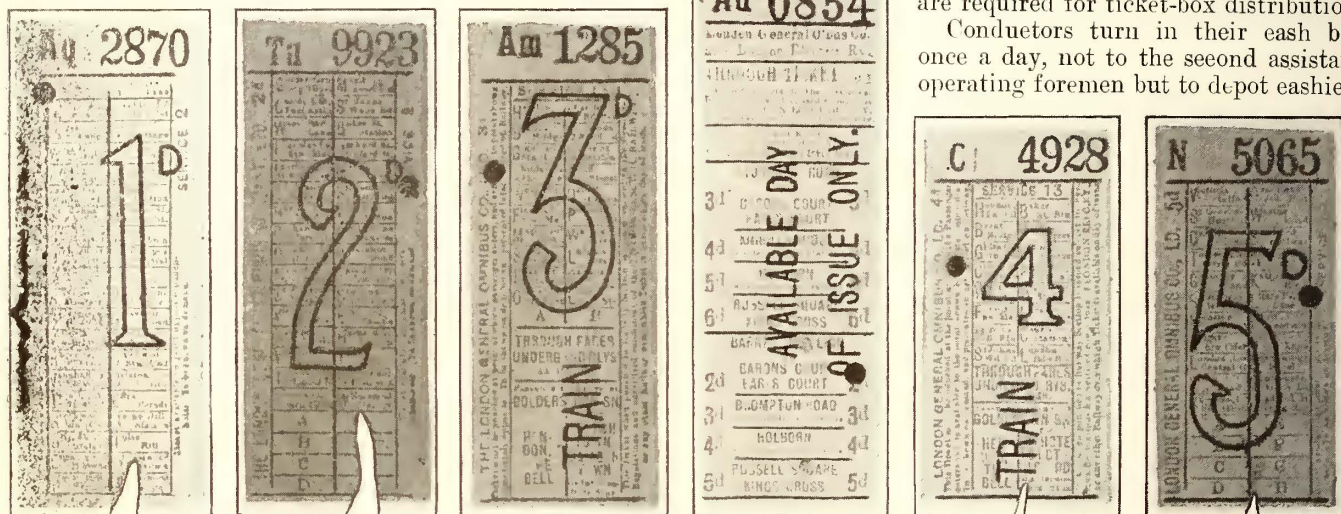




conductor to punch the destination stage. On the London General Omnibus tickets, however, the stages are so arranged that the punch mark shows both the entrance stage and, directly opposite, the destination stage.

For through booking with the Underground Electric Railways, the duplex type of ticket is being superseded by a single ticket of the general bus design in order to save work for the conductors. When a bus passenger buys such a ticket, it is punched in the entrance section as usual. On alighting at the underground station indicated on the ticket, he presents the ticket for a second punching which cancels it against reuse. He gives up the ticket on completing the underground ride exactly like any other subway rider. It should be added that the ticket also shows the names of the farthest stations to which he is entitled to ride, as for example: "Passengers change at Finsbury Park for Kings Cross (or) Russell Square, Holborn."

Passengers who book from the underground lines to the bus lines purchase a two-part ticket as will be described in a later article on underground railway tickets.



SPECIMENS OF LONDON BUS TICKETS

The tickets are supplied by the Bell Punch & Ticket Company of London. The lower rate tickets are stocked for six to eight weeks ahead and the higher rate tickets for longer periods. Advertising on the back of tickets is handled directly by the ticket printer.

TICKET CHECK WITHOUT AND WITHIN

It is obvious that in a city like London the enormous fluctuations in traffic and the large number of employees demand a greater proportion of supervisory personnel than in smaller cities where traffic changes are less violent and where there is a closer relationship between the platform employees and the management. This fact must be taken into account when it is stated that there are 650 inspectors for 3400 conductors.

However, only 30 per cent of the time of inspectors is charged against the ticket check account. These men begin the day's work as timekeepers at terminal points, and even during the hours when they are "jumping the buses" their duties cover the whole range of time and traffic supervision. In fact, sixty-nine so-called inspectors are women who are engaged exclusively as timekeepers. If due allowance is made for this, it will be found that the number of outside inspectors is 581 and that 30 per cent of their time is equivalent to the employment of 174 full-time ticket inspectors. These men board the buses at irregular intervals, examine the conductor's tickets and waybills to get the serial numbers, then visé the tickets of the passengers and finally initial the waybill as an indication of their in-

spection. Part of the inspectors constitute a flying squad for the intensive inspection of routes which appear to require it. In one week early in 1919 there were 10,930 ticket inspections on the entire system at a time when 198 men were on full time and 1439 men on part-time ticket checking.

The usual punch and ticket boxes supplied to conductors on graduated fare systems are furnished on this undertaking through garage clerks who are listed as "second assistant operating foremen." There are about twenty-five of these men. Their time is charged against the item "Running of depot staff" and not against the ticket system since the issuance of ticket boxes is no greater burden than handing out transfer pads to conductors in an American carhouse.

The tickets are put up in advance by the ticket department according to the estimated needs of each conductor. While one box is out in service another is being replenished. The boxes bear the usual identification of conductor's number, route number and station (garage) number. Five motor lorries are required for ticket-box distribution.

Conductors turn in their cash but once a day, not to the second assistant operating foremen but to depot cashiers

who receipt therefor by signing the conductor's cash total sheet where designated, in red ink. The cashiers bank the money locally and forward the receipts for their deposits to the head cashier.

This cash total sheet is a record of the conductor's financial operations only. It is entirely independent of his trip sheet or waybill which is prepared for the transportation department. It is on the cash total sheet, which accompanies his box, that the ticket department makes the customary entries of tickets issued, etc., as shown on the form itself. Each cash total sheet is copied into a book record before it goes out with its box.

Of all the undertakings visited, none appears to go into the matter of ticket check to so great a degree of refinement. As the tickets taken from stock are entered on the cash total sheet and placed in the box, they are counterechecked fare for fare by a second girl instead of depending upon one clerk alone. In accordance with the usual practice, each conductor's supply comes from one bin so that the cheaper tickets at least are furnished to him in serial order. Although a conductor must always work off his own remainders these remainders are carefully inspected to see that no intermediate tickets have been withdrawn or lost. This check is especially important on the bus system because of the fact that the fares run up to such high denominations. It is quite possible, also, for the bottom ticket of a pad to drop off, in which event the conductor must turn in a special lost ticket memorandum if he wants the debit against him wiped out.



Following the ticket check, the register reading is tallied against the ticket total. As one girl calls out the number shown on the punch, her mate responds with the total shown on the cash total sheet. Ordinarily, the punchings are counted only in the case of discrepancies, no matter how small these may be, but if a conductor is under suspicion the punchings will be counted even if there are no apparent discrepancies. Due to these refinements something like 500 to 550 counts out of 3000 punches are made every day. After the punches have been opened and inspected, they are reset to zero and sealed for reissue.

The last step in the handling of the box returns is to convert all ticket values to pennies as a tally against the cash statement. These extensions are made without the help of calculating machines except following a holiday, when the work is doubled. The machines are comptometers and are borrowed from the comptometer department which is referred to in the next paragraph.

The purpose of the comptometer department is to derive from the cash total sheets such traffic data as the daily, weekly and monthly earnings of the individual routes according to the denominations of tickets sold. Incidentally, the calculations of the comptometer department serve to check the count of the ticket department against the cash earning sheets forwarded by the garage cashiers. The individual service or route statements of the comptometer department also includes the totalized shorts and overs. The garage cashiers restore overs to the individual conductors only upon the order of the chief cashier, following the movement of the conductors' cash total sheets through the ticket department and the counter-checking comptometer department.

For the handling of 2,000,000 tickets a day, the auditing and cash return of 3,000 conductors' cash total sheets and the posting of traffic and different classes of ticket sales on more than 100 routes, the following central office personnel was required as of March 10, 1919:

General clerical staff.....	16
Forewomen .....	5
Assistants to forewomen.....	3
Cash and register clerks.....	17
Punch clerks .....	17
Ticket clerks .....	79
Messroom staff (meals furnished on premises).....	4
Porters (male) .....	9
Comptometer operators .....	8
<b>Total .....</b>	<b>158</b>



INSPECTOR CHECKING TICKETS OF WOMAN CONDUCTOR

The general American impression that Britons are physically deliberate would be quickly dispelled by observing the flying leaps to and from buses taken by both sexes and all ages of London's population. No marvel then that the London General Omnibus Company and its associated companies had to anticipate the wider campaign which the London Safety First Council has been carrying on for two years. The organization of this council of transportation companies, large employers, etc., along our

own lines of co-operative safety work has, however, the merit of getting a better and wider hearing from the public than could the best possible campaign of individual concerns.

Two plans are used by the L. G. O. to enlist the co-operation of its employees; one is to reward the individual and the other is to maintain a spirit of emulation among the forces of the twenty-three garages. The conductors who have been free from accident receive 1d. a day bonus payable quarterly. The drivers receive not only this bonus but another 2s. 6d. to 15s. quarterly depending upon their number of working days and whether they had one, two, three or more mishaps during the period. For the quarter ended September, 1918, the total accident bonus amounted to £2,466 of which £482 was the penny-a-day increment for conductors.

In the case of garage competition, a safety first shield is displayed by the garage which can show the least number of accidents per 10,000 miles every calendar year. For the year 1917-1918 the rating was shown pictorially by a party of mountaineers, each climber representing the relative position of a garage. Those garages which fell back a bit

THE LONDON GENERAL OMNIBUS Co., Ltd.—Cash Total Sheet.											
Service No.		Duty No.						Punch No.			
Date	Face of Ticket	1st No. at Close of Day	2nd No. at Start of Day	Quantity Sold	1d.	2d.	3d.	1/-	Total	£	s. d.
1d.									1d.		
1d.									1d.		
2d.									2d.		
3d.									3d.		
9d.									9d.		
10d.									10d.		
11d.									11d.		
1/-									1/-		
Cash paid in - £		TOTAL NUMBER OF TICKETS SOLD ...						£			
Coupons collected		Conductor's Signature _____						Badge No. _____			
TOTAL		FOR OFFICE USE ONLY						Total			
TO MOUNT PAID IN £		Cashier's Signature _____						Over			
								Short			

CONDUCTOR'S CASH TOTAL SHEET

TOTAL NUMBER OF FARE TICKETS SOLD												
TWO-JOURNEY EXCHANGE TICKETS.		Quantity Issued	Letter	Numbers	Quantity Issued	Letter	Numbers	Total				
1st No. at Close of Day	2nd No. at Start of Day											
Quantity Sold												
RAILWAY EXCHANGE TICKETS.												
1st No. at Close of Day	2nd No. at Start of Day											
Quantity Sold												
BLACKWALL TUNNEL EXCHANGE TICKETS.												
1st No. at Close of Day	2nd No. at Start of Day											
Quantity Sold												
NUMBER OF TWO-JOURNEY TICKETS RECEIVED.		NUMBER OF RAILWAY TICKETS RECEIVED.		NUMBER OF 2nd HALVES OF BLACKWALL TUNNEL TICKETS RECEIVED.				Total				
REMARKS.		GRAND TOTAL										
		PUNCH REGISTER										
		OVER										
		SHORT										
<p>The Conductor will be held responsible for every Ticket issued to him, and any not sold or returned will be charged for. The Punch and the remaining Tickets must be returned in the Tin Box to the Office.                  Keep the Ticket Box in the cupboard and the cupboard locked. This Bill to be handed to the Cashier with the money.                  All Tickets issued in error to passengers must be reported on a special report form addressed to Ticket Superintendent.                  Conductors must clearly state cause and give name and address of passenger and return report in his Tin Box.</p>												

CONDUCTOR'S CLASSIFICATION OF TICKET SALES



compared with last year are shown out of the perpendicular on the cartoon. In the preceding year, the relative performances were shown by means of the old-time sledge-hammer and scale, as also reproduced.

Unfortunately, it is impossible to reproduce satisfactorily the most interesting stimulator of all, namely, the race course. At each garage there is mounted a model of a race course comprising an inner ellipse for the order of merit in the preceding year and an outer ellipse for the order of merit during the current year. Each "horse" is a wooden oval bearing the name of a garage and is placed in the same relative position as the order of merit in freedom from accidents for every 10,000 miles operated. The outer course is brought up to date every month. The best garage showed in 1918 a record of only 0.99 accident per 10,000 miles—a most remarkable achievement at any time, but all the more creditable because it was made during a year when lighting restrictions were still in force and in a city whose fogs are proverbial for density and frequency. Furthermore, it should be stated that the word "accident" includes even such trifling mishaps as a broken window.

In addition to the usual warning signs placed on the buses, the company's appeal to the public includes a variety of cartoons and posters issued independently and many like publications issued in co-operation with the London Safety First Council. Among the latter are the two posters "Tips and Cues for Pedestrians" and "Look Around Before Crossing," shown in accompanying illustrations.

Returning to the matter of emulation between garages, it may be added that an efficiency shield is displayed by that garage which during the preceding year ran the great-

est number of consecutive days without loss of mileage. Further, the order of efficiency in the consumption of petrol in miles per gallon is posted on boards on a week to week basis.

Photographs of drivers, male and female, taken outside the Mansion House last April to receive "Freedom from Accident" competition badge and award of the London Safety First Council are shown in accompanying views.

CO-OPERATION BETWEEN COMPANY AND EMPLOYEES

The following are some other methods employed by the company in securing the co-operation of the staff, stimulating their interest and encouraging them to develop resource and initiative:

(a) Suggestion Scheme

Suggestions are invited from all members of the staff on every aspect of the work, and awards are made if the suggestion is approved. During 1917 and 1918, 1,000 suggestions were received from the staff and awards made number 230. The minimum award is 10s., as high a figure, however, as £50 has been paid for a suggestion.

(b) Lost Mileage, Accidents

The men at the garages are encouraged to discuss with the foreman matters relating to lost mileage, accidents, etc. Two views on page 822 show a group of men looking at the daily Running Record, the figures of which have just been chalked in by the foreman, and details of the record board.

These figures for all garages are compared from time to time, and there is keen competitive interest as to the num-

[Poster No. 5]

**LONDON SAFETY FIRST COUNCIL**

**"TIPS" AND "CUES" FOR PEDESTRIANS.**

An accurately turned Billiard Ball will always

*Look Round*

<p><b>S</b></p> <p><b>A</b></p> <p><b>F</b></p> <p><b>E</b></p> <p><b>T</b></p> <p><b>Y</b></p> <p><b>F</b></p> <p><b>I</b></p> <p><b>R</b></p> <p><b>S</b></p> <p><b>T</b></p>	<p>Don't turn your back to the traffic when crossing a street. <small>Face it, and</small></p> <p>Don't dodge behind the vehicle from which you have just alighted. <small>Make first for the kerb and—</small></p> <p>Don't dart straight across a road, but let your course be "V" shaped. <small>Bear first to the right, then to the left. By this method, the traffic is always faced. At the same time—</small></p> <p>Don't fail to use refuges wherever available. <small>These are found at most busy crossing places, and justify an extension of your journey to use them. In any case—</small></p> <p>Don't cross a street at a point where a side street intersects. <small>Make sure you are safe from the traffic in both main and side streets, and, metaphorically, use the Billiard Ball!</small></p> <p>Don't attempt to squeeze your way through a block in the traffic. <small>The vehicles may commence to move, and you would then run the risk of being crushed. Always—</small></p> <p>Don't omit to keep a sharp look-out for on-coming traffic. <small>Before stepping off the kerb—</small></p> <p>Don't fail to take special care, at night time. <small>Cross over a lamp!</small></p> <p>Don't attempt to board, or alight from, a vehicle until you are certain the road is clear. <small>Steady your nerves, adjust your parcels and—</small></p> <p>Don't neglect to look both ways before crossing a road. <small>In other words—</small></p> <p>Don't fail to warn other pedestrians who may be walking into danger. <small>They may be short-sighted, deaf, or absent-minded. Signal to them to—</small></p> <p>Don't forget that an essential principle of "Safety First" is to</p>	<p><b>L</b></p> <p><b>O</b></p> <p><b>O</b></p> <p><b>K</b></p> <p><b>R</b></p> <p><b>O</b></p> <p><b>U</b></p> <p><b>N</b></p> <p><b>D</b></p>
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*Look Round*

Printed by the London Safety First Council, 31, Westminster Broadway, London, S.W.1.

BILLIARD LANGUAGE APPLIED TO ACCIDENT PREVENTION

LONDON

**"SAFETY FIRST"**

COUNCIL

**"SAFETY FIRST"**

**"LOOK AROUND BEFORE CROSSING"**

Issued by the LONDON SAFETY FIRST COUNCIL, 31, WESTMINSTER BROADWAY, LONDON, S.W.1.

A DANGER WARNING IN BLACK AND WHITE



ber of days which can be run without any miles being lost. Frequently the garages have run 200 days without losing any miles at all, which is a remarkable record considering the surface condition of the routes, during the war the maintenance of which had been set back.

(c) Efficiency Meetings

Efficiency meetings are held during the winter in the company's cinema hall at the training school, Chelsea. Between 300 and 400 of the control and inspecting staffs attend. Papers are read, followed by open discussion. These meetings have been held during the last four winters and the fifth series was begun in October, 1919. The following subjects were taken at the series of 1918-1919:

1. Cinema lecture "Some Topical Cinema Productions in Connection with the Underground Railways and L. G. O. Co."
2. Bus maintenance.
3. "Problems of My Official Life." (Seven short papers.)
4. "A Day in a Traffic Controller's Office." (Three papers by the three traffic controllers.)
5. Railway maintenance—civil engineering.
6. "Safety First"—the progress and possibilities of accident prevention work.

(d) Records of Staff

Individual attention is devoted to the records of service of the staff and entries are made thereon for special merit. Commendation received from the public is also carefully noted, and frequently the men are brought to the chief office for personal commendation by a higher official.

The Omnibus Athletic Club has a membership of over 1,000 and includes cricket, football, tennis, swimming, dances, whist drives, concerts, summer outings. A horticultural society was formed in 1918 and has a membership of 500.

Two shows have already been held, the entries numbering 500 produce exhibits and 100 rabbits. The rifle club, with a membership of 400, is a flourishing phase of the athletic side. Seven ranges in various parts of London are provided and keen interest is taken in the competitions and matches arranged internally and with outside clubs. The company has fifteen billiard rooms and facilities for other indoor games. A photograph of one of the billiard rooms is reproduced.

The Athletic & Social Institution issues monthly its *Athletic & Social News*, 10,000 copies of which are distributed among the staff.

SPECIAL CONSTABULARY

In 1914, a division of the Metropolitan Special Constabulary of London was formed, known as the "L. G. O. C. Division," consisting of 450 of the staff, all of whom were obliged to pass a proficiency drill examination. Their duties were mainly allocated to the protection of the company's property and of the public during the air raids. A detachment of fifty of the corps stood by at the company's chief office every night during 1917 and 1918 to take duty at a moment's warning. In addition to this, the remainder of the corps were available on all occasions of air raids, and, with the use of the company's omnibuses, were sent to the various points of London to control the street crowds

**THE LONDON GENERAL OMNIBUS COMPANY, LTD.**

**ACCIDENTS PER 10,000 MILES**

**GARAGE ORDER OF MERIT**

1918. 1917.

THE ANNUAL CLIMB FOR THE "SAFETY FIRST" GARAGE SHIELD

**THE LONDON GENERAL OMNIBUS COMPANY, LTD.**

**ACCIDENTS PER 10,000 MILES**

**GARAGE ORDER OF MERIT**  
1916-1917

Hammer away for Freedom from Accidents.

Try your Strength in 1918.

1-0	1-0
1-1	1-1
1-2	1-2
1-3	1-3
1-4	1-4
1-5	1-5
1-6	1-6
1-7	1-7
1-8	1-8
1-9	1-9
2-0	2-0
2-1	2-1
2-2	2-2
2-3	2-3
2-4	2-4
2-5	2-5
2-6	2-6
2-7	2-7
2-8	2-8
2-9	2-9
3-0	3-0
3-1	3-1
3-2	3-2
3-3	3-3
3-4	3-4
3-5	3-5

MIDDLE ROW

HAMMERING AT ACCIDENT PREVENTION IS A FAVORITE OCCUPATION





LIGHTLESS NIGHTS AND RUTFUL ROADS DID NOT PREVENT THESE BUS DRIVERS FROM RUNNING ACCIDENT FREE

during the time of air raids. They have also been called out for duty on occasions of processions, and the following is an extract of a letter received from the chief staff officer:

I take advantage of the approaching official visit of the Inspector-General of Divisions to the L. G. O. C. Detachment of the Metropolitan Special Constabulary to express to the commander, his officers and men, my high appreciation of the valuable public service they have always given in the force.

Every duty assigned to the detachment has been performed promptly, regularly and well, and I acknowledge with sincere thanks the time, effort and other contributions to the service.

However exacting the duty, it has always been done with the utmost cheerfulness and good will.

It is with very great pleasure that I congratulate the commander and all ranks serving under him upon the high parade efficiency of the L. G. O. Detachment.

OPERATING DEPARTMENT'S TRAINING SCHOOL (FROM AN L. G. O. SOUVENIR BOOKLET)

The training school and employment bureau of the London General Omnibus Company, Limited, is situated in Chelsea, S. W. The area site occupies some 31,050 sq. ft., 5,396 of which comprise an open yard, in which various hazards, such as dummy refugees, pedestals, etc., are placed, in connection with the training of drivers to avoid such obstacles, to reverse, etc.

The buildings comprise:

(a) Five class rooms, in which lectures are given. In the drivers' rooms, various parts of the bus chassis and an actual section through one of the engines are exhibited, so that

learners may obtain a knowledge of the mechanical equipment and then be able to remedy small breakdown defects without having to send for assistance;

In the conductors' rooms, operation of the punch and tickets is taught, the fare stages explained and other parts of their duty discussed;

(b) The cinema hall, with seating accommodation for 400, where educational films of their work are shown to the men and women in training, actual conditions of service working, points in connection with avoidance of accidents, etc., being clearly discussed during the lectures;

(c) A mess room for the provision of food at practically cost price to learners;

(d) Small covered yard;

(e) Office accommodation;

(f) Photography section;

Adjoining the actual training school premises, are:

(g) Chemical laboratory;

(h) The clothing store, the headquarters of the clothing department, which is also under the control of the superintendent of employment, a competent tailor being in charge of the section, assisted by a staff of six storekeepers, clerks and tailresses. All uniform clothing necessary for the company's 10,000 drivers, conductors and inspectors is dealt with here, both in regard to receipt, storage, issue and record.

The tailor's shop is fitted with staff and machines for dealing with minor alterations to garments. The meas-



"WHEN CONSTABULARY DUTY'S TO BE DONE, TO BE DONE," THESE L. G. O. MEN MAKE GOOD

urements of the staff have been co-ordinated into twenty stock sizes, thus doing away with the difficulties of individual measurement of so large a number. This has been of material assistance in cost, delivery and speed in fitting.

As many as 600 men have been supplied and fitted with well-tailored suits in one day, and out of a total issue to



EXAMINING COMPARISONS OF LOST MILEAGE AND EFFICIENCY IN FUEL USE, AND A CLOSE-UP OF THE EFFICIENCY RECORD BOARD

THE LONDON GENERAL OMNIBUS COMPANY LTD		
HAMMERSMITH GARAGE		
RUNNING RECORD		
FOR 15 <sup>th</sup> March 1916.	LAST WEEK'S DAILY AVERAGE	
ACCIDENTS	NIL	12
LOST MILES	NIL	NIL
INVOLUNTARY STOPS	NIL	1
6 BEST & 6 WORST CARS ON PETROL CONSUMPTION		
6 BEST	6 WORST	
23	21	
24	28	
25	30	
26	35	
29	36	
70	37	





NOR ARE GOOD LOOKS A BAR TOWARD WINNING MEDALS AS CAREFUL DRIVERS DESPITE AIR RAIDS APLENTY

the 10,000 men and women concerned, only twenty remained which required alteration.

The office accommodation includes the headquarters arrangements of the twenty-three mess rooms and institutes, which have been established in connection either with the garages or terminal points in different parts of London, where the employees have special arrangements made to enable them to purchase refreshments at practically cost price, the company bearing the expense of accommodation, lighting, etc. About 3,800,000 purchases were made by the employees during 1917.

TRAINING OF DRIVERS

The following is an outline of the procedure in connection with the engaging and training of drivers:

The company does not accept new drivers for employment under twenty-five years of age, or over forty-five, and the minimum height measurement is 5 ft. 6 in. The medical examination is strict, particularly in regard to sight and hearing, and men who find it necessary to use spectacles are not accepted. The services of the most capable and experienced drivers in the employ of the company are utilized as instructors, and these, with special learners' buses, are attached to the various garages.

After men have been accepted for tuition, they are allocated to garages as near as possible to their homes, and are put through the first stages of their training at the training school, where, contemporaneously with lectures, practical lessons are given in gear changing and general control of the vehicle.

Driving instruction is first given on the school premises, and, subsequently, in quiet neighborhoods, where there is little or no traffic. Subject to satisfactory progress, learners

are then taken into streets carrying heavier traffic. After being finally tested by one of the chief instructors, they submit to the Scotland Yard police test, which includes an examination in a short arm reverse and actual driving through the busiest West End thoroughfares.

The average time taken to train a driver to become fully competent is twenty-eight days.

TRAINING OF CONDUCTORS

Conductors are not employed under twenty years of age, or less than 5 ft. in height, this minimum height being fixed by the police. No man or woman is accepted for employment unless he or she is physically sound in all respects, but the medical test is not so severe as in the case of drivers. Learners are required to attend at the training school to hear lectures on tickets, avoidance of accidents, and on general traffic work, and to see the cinematograph films. They are allocated to garages and begin their service work with an experienced conductor, in order to obtain practice in the use of the punch, tickets, handling of cash and the general duties of a conductor in actual service conditions. The average time taken to train as conductor is fourteen days.

Learners, both drivers and conductors, receive a food allowance while under tuition, this being for a maximum period of twenty-eight days with drivers and fourteen days with conductors.

INSPECTOR OUTPUT OF SCHOOL

Inspectors are promoted from the staff and attend at the training school for instruction and examination in regard to their new and more important duties, particularly in connection with dealing with the public and the staff, and a knowledge of traffic observation.

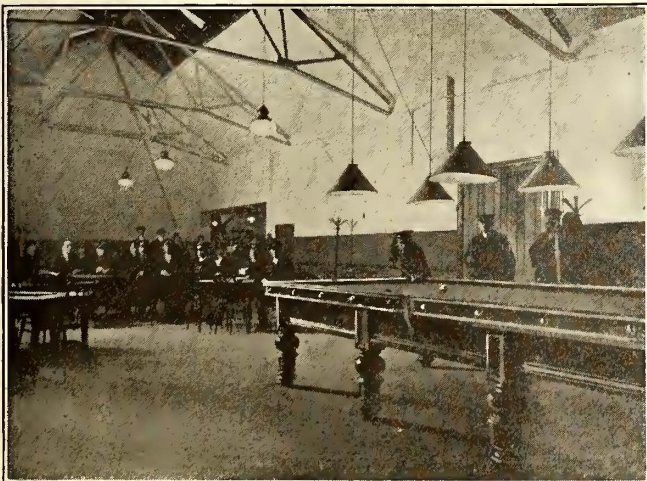
The following are the numbers of men and women passed out from the training school for service with the company:

	Drivers		Conductors	Inspectors
	New	On duplicate types of bus.		
To Dec. 31, 1913.....	4	81	...	1
Year ending Dec. 31, 1914..	1,149	994	528	91
Year ending Dec. 31, 1915..	650	278	521	83
Year ending Dec. 31, 1916..	74	87	1,922	127
Year ending Dec. 31, 1917..	44	53	1,717	106
			Male	Female
Year ending Dec. 31, 1918..	251	19	410	1,245
To date, 1919.....	659	161	884	12

Publicity Men Get Definite Organization

PRESIDENT PARDEE of the American Electric Railway Association has appointed the members of the executive board of the publicity men as elected at the Atlantic City convention, to be the members of a permanent standing committee of the parent association. This gives the publicity men a definite organization through which they can proceed to work out an instrumentality for the compilation and dissemination of data and information in a manner to amplify the value of the publicity men's work to the industry. Leake Carraway, Virginia Railway & Power Company, is chairman and the other members of the committee are E. R. Kelsay, Luke Grant, W. P. Strandborg and A. D. B. Van Zant.

A meeting of this committee of five men has been called by the chairman for Nov. 15 in the association office in New York for the purpose of laying plans for future activities. Then it is planned to have a meeting of the "committee of the whole," that is, of all publicity men, at the time and place of the mid-year meeting of the American Association. It is desired that all publicity men connected with the industry take membership in the committee of the whole and lend their support to the development of a system for the interchange of ideas and data.



THEY PLAY REAL BILLIARDS ON MAN-SIZE TABLES IN LONDON



# Utilities Commissioners Discuss Railway Problem

Thirty-first Annual Convention Hears Many Committee Reports, Some of Which Are of Interest to Railway Men and Are Here Abstracted

THE thirty-first annual convention of the National Association of Railway and Utilities Commissioners, of which Charles E. Elmquist, of Minnesota, was president, was held in Indianapolis from Oct. 14 to 17. The convention was addressed in its opening session by President Elmquist and by Governor Goodrich of Indiana. At the close of his address, the president announced his resignation as a solicitor of the association and his intention to return to law practice in St. Paul. The closing session elected Walter A. Shaw of Illinois president of the association and James B. Walker of New York secretary for another term.

Of the twelve standing committees, six did not make any report. Abstracts of those made, which are of interest in the electric railway field, are presented herewith:

## REPORT OF THE COMMITTEE ON PUBLIC OWNERSHIP AND OPERATION

The movement toward public ownership and operation has received succor from a wide variety of sources. The argument that the public should hold in its name the fee and title of those activities which serve the public and which the public regulates is an argument which many people accept as the last word on the subject. The argument that the public can do as it pleases with that which is its very own is in many quarters equally conclusive. One of the arguments that is seldom used, and never can be truthfully used, is that public ownership and operation is more efficient than private ownership and private operation. Instances do exist where a well-managed publicly-owned property is more efficient than a poorly-managed privately-owned property, but these are rare and do not in any way weaken the statement that the final desideratum in a public property is that degree of efficiency which is being obtained under private ownership and operation.

There has been considerably more agitation for public ownership during the past few years than ever before. The underlying reasons are many, and may perhaps all be traced back to the war and the conditions growing out of it. Local utilities have been affected fully as much as railroads and wire lines. The reasons for the impetus given to the movement for public ownership and operation may briefly be summarized as follows:

1. *The propaganda started by the governmental control of wire lines and railroads.* It was but natural that once the bigger utilities were taken over by the government, the movement should be reflected in the effort to municipalize water, gas and electric utilities.

2. *The failure of utility managements to meet the increased demands upon them.* This refers as much to service, depleted and depreciated, as to rates. It was no uncommon thing to find a gas or electric company, or even a water utility, unable to cope with the situations which arose, and too often the managements were prone to charge their own shortcomings against the regulatory body which had control over them. Inefficiencies in plant operation were brought to light which the general public never knew existed.

3. *The failure of regulatory bodies, either state or local, to sense the seriousness of the situations and to give utilities the needed assistance in time to avert disaster.* This is not meant as a reflection upon any commission, nor upon its policies, but the fact is that in the flood of applications

for increases in rates which were necessary to keep utilities alive a regulatory body was not able to discriminate as it should.

4. *The inherent thought with many people that public ownership and operation is a panacea for all ills.* So without thought or examination of the possible effect, with the propaganda praise of it ringing in our ears, many people became adherents of, and shouters for, public ownership.

5. *Increased rates have had a great effect.* In the case of street railways, especially, people have come to believe that a municipally-owned transportation system would be able to continue to give the people a low fare. In many cases the companies have asked to be relieved of their paving obligation or some measure of taxes in order to be able to continue a 5-cent fare. These requests have led people to believe that were the system municipally owned the fares would continue low.

There has been considerable legislation enacted, and still more introduced, which tends to make the process of municipalization or public ownership easier. New Jersey, California, Montana, Nebraska, Washington, Oregon, Nevada, Wyoming, Iowa and Wisconsin have all passed such laws. In Pennsylvania, Governor Sproul vetoed a bill which granted municipalities the right to own and operate street railways beyond their municipal limits. In New York, Governor Smith vetoed a measure authorizing the city of Buffalo and the International Railway Company to enter into a contract providing for the operation of the street railroads in the city of Buffalo.

This report cannot attempt to go into all or even part of the proposed legislation. Suffice it to say that the tendency toward ownership or a supervision which cannot differentiate between regulation and management has been marked. While the figures obtainable show little or no increase in the number of utilities municipalized, and for some utilities a decrease is shown, there is no question but that there is a quite decided awakening of public interest in the matter. Whether this public interest is a flurry as a result of unsettled economic conditions only time can tell.

There is another phase of the public ownership question which we have but mentioned, and which is probably the most prominent of the whole situation. Municipalities must have transportation systems. The financial status of the great majority of urban railways has become such that they have been unable to make extensions or to better the service they are rendering. And the increase of fare does not always wholly alleviate the situation. The people dependent upon the street railways are those least able to pay an increased fare. The constantly mounting cost of living and the consequent raising of wages affect the street railway systems more than other utilities, because between 40 per cent and 50 per cent of the operating expenses of street railways are the labor costs.

The President deemed the situation serious enough to appoint a commission to investigate the subject and make recommendations. For some months now this commission has been hearing evidence from all sides,—from the operators, the bankers, the mayors of communities served, and from labor. No recommendations have yet been made. But the hearings developed that the street railway problem was of utmost importance. Communities now realize it, although heretofore they have been prone to feel that the



companies were crying unnecessarily. Street railway securities are nearly a drug on the market. It is almost impossible to get new capital into the industry.

Many remedies have been suggested, and many have been tried without avail. The solution in many instances has not been found. We cannot junk the street railway as obsolescent. For the welfare of the community it serves it must live. How best to keep it alive and giving adequate service is not only the problem of its owners and operators today, but it is the problem of the community. The higher-fare solution is not working out to the best advantage. The additional expense of four or six cents a day to the average patron seems to be a matter for serious consideration. Rather than pay it he will walk to his labor, or will move to a neighborhood where it will not be necessary to ride to work. The result will be a congestion in certain districts which will react on the health and morals of a community. The so-called zone basis of rates has a tendency to bring about a like result.

Two new street car rates have recently been ordered by the Wisconsin Commission, the results of which are being watched with a great deal of interest. One is at Racine, and should be designated as entirely experimental. This is an optional rate of \$1 per week to be paid by the holder of the ticket for unlimited riding. The ticket is transferable, and it is only necessary that the holder show it to the conductor as he boards the car. This has been in use less than two months and the company has been selling an average of about 1000 tickets each week. The results have not been as flattering as the company hoped, and it is doubtful as to whether they will care to continue it much longer. The other rate is in use at Oshkosh and Fond du Lac, and results reported are very satisfactory. It consists of a 7-cent cash fare, six tickets for 35 cents, and fifty tickets for \$2.50. The manager of this property feels that he has very definite evidence that the rate is actually producing new traffic.

So the problem has become a social and economic one of which, reluctant though it may be to do so, the community must take heed. On every hand we see evidences of the cities awakening to the gravity of it. Already municipalities have discontinued paving charges, franchise and other taxes, but there are many instances where even these reliefs fail to help. The result is that many city authorities see no way out but to purchase. On the other hand, some of the operators see no other salvation. Other cities have hesitated in taking over the systems but have tried some sort of contract whereby the company is guaranteed a return on its investment in return for continuance of low fares. This latter proposal, however, is often but a preliminary step to acquisition.

However, we may view the reasonableness or the wisdom of municipal acquisition of public utilities, we cannot but feel that the situation affects intimately every regulatory body here represented. We are all more or less familiar with the troubles of street car operation. It is our duty to use our best offices in helping solve them. Whether or not we believe in public ownership and operation it is important that we lend our aid in framing legislation which will give the communities that measure of service which is essential to their welfare.

#### REPORT OF COMMITTEE ON GRADE CROSSINGS AND TRESPASSING ON RAILROADS

Your committee has no recommendation other than this—that the members of this organization as individuals and as members of regulatory bodies keep awake to the tendency and see to it that whatever legislation is perfected to help solve the problem be the result of experience and study. We do not believe that when a plant is taken over by a municipality it should be freed from the supervision now given privately-owned plants. Rather, we believe that we

should pay greater attention to the newly acquired municipal utility than to one privately owned, that it may be able to render that degree of service which the people expect and to which they are entitled.

The recommendations of this committee in its 1916 report were seven in number. They were decided upon at a conference with a special committee of the American Railway Association which was held for the purpose of formulating some uniform method of protecting all crossings where railroads and public highways intersect. Because of their great importance and the desirability of carrying them into effect, the recommendations referred to are herewith reproduced, as follows:

1. That every grade crossing should be protected by an approach warning sign to be placed in the highway at a distance not less than 300 feet on each side of the railroad tracks, the sign to be a circular disc not less than 24 in. in diameter painted white with a black border and black cross lines with the letters "R. R." . . . Where deemed necessary this approach warning sign to be properly lighted at night.

2. That the railroad companies maintain, within the limits of their rights of way, proper cautionary signs such as are now in use or authorized by law, and where deemed necessary such sign shall be equipped with a red light at night.

3. That all lights displayed at night towards the highway at grade crossings shall be red.

4. That all crossing flagmen use during the day a uniform disc 16 inches in diameter painted white with a black border and the word "STOP" painted thereon in black letters about 5 in. high instead of the vari-colored flags which are now being used.

5. The uniform painting of all crossing gates with alternate diagonal stripes of black and white.

6. That the railroad companies, wherever practicable, be required to maintain their property at grade crossings free of all obstructions to vision; also that the highway approaches to crossings shall be so graded that the free passage of vehicles shall not be impeded.

7. That the National Association of Railway Commissioners, the American Railway Association and the American Automobile Association, consider the advisability of agreeing upon whatever legislation may be necessary in the several states to make thoroughly effective the protection of grade crossings; and that it is our opinion that a uniform law requiring vehicles approaching such a crossing to reduce speed to a safe limit at the warning approach sign is advisable.

Appropriate legislation has been enacted in several of the states putting into effect the uniform crossing protection regulations, but the majority of the states have taken no definite action in the matter.

In addition to the recommendations in 1916 which were endorsed by the association, this committee strongly urges the adoption of standard signs showing the hours on duty of crossing watchmen and stop signs which should be displayed when such crossings are left unprotected, similar to those approved by the Public Utilities Commission of Connecticut.

The automobile has revolutionized the travel on the public highways and by means of this instrumentality citizens travel from state to state and go into new surroundings where they have no knowledge of the presence of tracks and know nothing of the schedule of trains. Therefore, it is very essential that uniform warning signs be employed as a protection for grade crossings.

Within recent years considerable attention has been given to swinging or oscillating signals as a means of protecting crossings, which display a red banner or disk by day and a red light by night, thus conveying the universally danger signal. These automatic flagmen, as they are sometimes called, can be equipped with bell alarms which begin ringing when an approaching train starts the visual signal in motion and keep it up until the danger is past. A great many cities and towns have automatic devices of this kind as a protection of grade crossings and they have proved satisfactory in most instances.

It is contended by the advocates of the automatic flagmen that it is not only necessary to let people know they



are approaching a railroad crossing, but what is more important, to tell them when a train is coming. However, as long as grade crossings exist, there will be accidents at such places in spite of every precautionary measure on the part of the railroad management, the state commissions or the local authorities. Fool-hardy motorists and drivers of horse-drawn vehicles will go across the tracks even when an approaching train is plainly visible and as so often happens will miscalculate the speed of the train with disastrous results.

Force-stop humps in the road or a pile of rocks in the center of the highway calling attention to the proximity of a grade crossing undoubtedly do a good job of abruptly checking the speed of an automobile bowling along toward the crossing at a lively clip, but they are at best crude devices and temporary expedients. It is questionable whether they are more of a menace than an aid to safety. Although they may be life-savers, as they were intended to be, nevertheless they are not infrequently provocative of wrath and profanity, and when a man gets swearing mad he generally throws caution to the winds and becomes careless of consequences.

The carriers in the opinion of this committee should spare no pains in making their crossings safe and at crossings in cuts there should be dugouts or yards to provide an avenue of escape in the event of an impending collision. It might be well to have all crossings at right-angles where possible as a further means of safety to give a motorist or driver an opportunity of getting out of a tight place should such an emergency arise.

Some of the states already have laws providing for the prorating of expenses incurred in the elimination of grade crossings for the removal of the old crossing and the establishment of a new roadway. The commissions of most states probably can apportion the expense between the railroad companies and the public when grade crossings are ordered eliminated or separated.

Probably the most pretentious program for the separation of grade crossings this year is being carried out in the city of Indianapolis in connection with the construction of new terminal facilities. Every grade crossing in the city will be eliminated, including those of interurban railways. Elevated tracks will be used.

#### REPORT OF THE COMMITTEE ON PUBLIC UTILITY RATES

The financial condition and outlook for electric railways may be described as bad in most localities, and in others, very much worse. They are not prosperous anywhere. In many sections they are in the hands of receivers, and in some sections they are being discontinued.

Rates have been increased in a great variety of ways, flat rates from the historical 5 cent fare to 6, 7, 8, and 10 cents, but it has not yet been determined what fare will produce the largest revenue. Very likely it will differ in different localities. As a business proposition the street railways must cease to carry passengers 5, 10, 15 or 20 miles for a single fare, as is done in many instances. The cost of conducting the business has become so great that it is no longer possible to fix a fare on the old basis of fare limits, or lack of fare limits, that will produce sufficient revenue to continue the operation of many if not most of our street railways. The lower the fare the larger the number of riders, especially short-distance riders, and the higher the fare the smaller the number of riders, especially the short distance riders, and short-distance riders are a most important factor in the success of the street railway.

Within city limits public policy may require a uniform fare to encourage a wide distribution of residences, but it is an important question then whether the losses on the long-distance riders should be made up by the short dis-

tance riders or by the general public by way of assistance to the railway through relief from street expenses, taxes, or otherwise.

In general there must be a close connection between cost and value of the service and the fare charged. Increases in flat rates from 5 to 6 or more cents have been disappointing in the small increases in revenue.

Some increase has been secured by reducing the length of the fare sections to 2 to 2½ miles in length and using a 5- or 6-cent fare, but there is a considerable element of dissatisfaction in the case of patrons who live a half mile or so from the fare limit and have to pay two fares to ride a mile or two, when neighbors living at the fare limit ride an equal or greater distance for one fare. This inequality is very much lessened by dividing the fare section into two zones. The Massachusetts Northeastern Street Railway has arranged its interurban lines in fare sections of from 2 to 2½ miles in length with two zones to a section, and sells tickets good for three consecutive zones at section rates, *e. g.*, if the fare is 6 cents, five-ride tickets are sold for 25 cents. The use of tickets simplifies fare collections and establishes approximately a workable mileage system over which officials of the company are just now enthusiastic.

From the standpoint of the traveler the straight mileage system is most satisfactory, but from the standpoint of the railway the terminal charge should be considered in some way.

By order of the Public Utilities Commission of New Jersey, the Public Service Railway prepared a plan whereby the method of charging might be revised by an equitable zoning system, proper consideration being given to all of the elements to more properly relate the cost of service with the length of haul and value of service. The report covering the study made, filed on March 5, 1919, adds very much to the available data on the subject.

All urban electric railways must be continued for the welfare of the whole public, and the problem of securing sufficient revenue to continue service is likely to be solved in some cities by a single fare within city limits with such municipal assistance as may be necessary, and in others by a mile zone system with or without municipal assistance. When these methods fail, public ownership is inevitable, and it seems probable that in some cases that time is not far away.

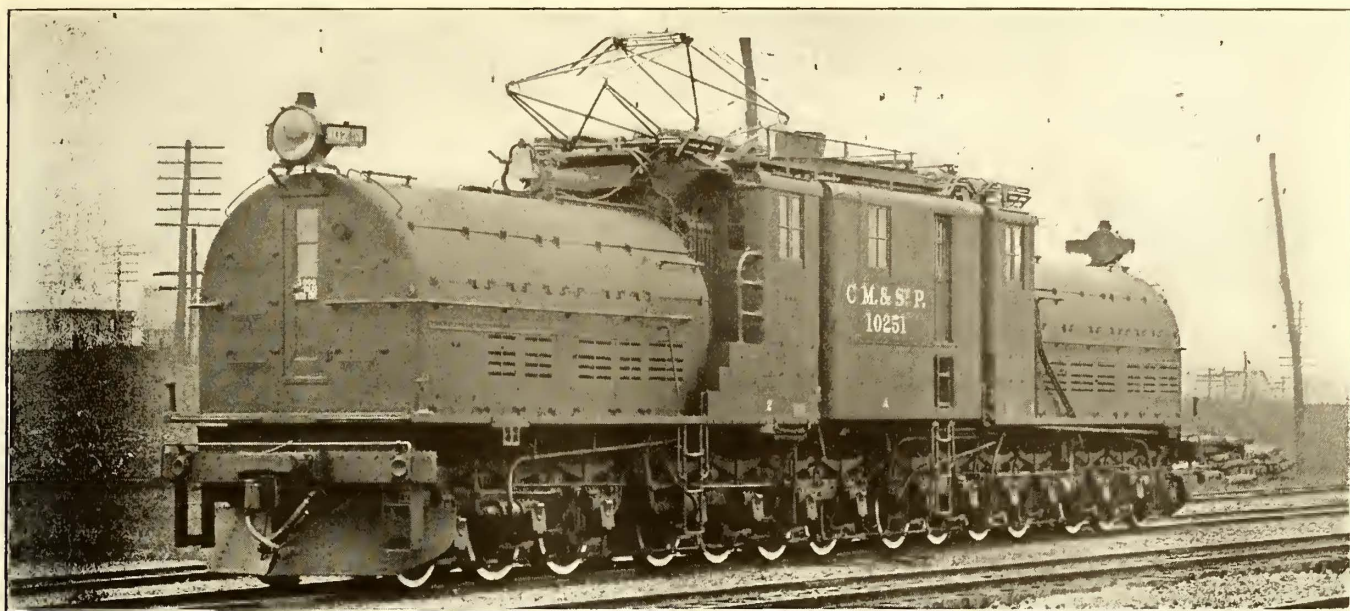
#### Welding Society Begins Season's Activities

The American Welding Society held its first fall meeting on Oct. 24, at the Engineering Societies' Building, New York City. President C. A. Adams delivered an address, after which papers were presented describing a theory of metallic arc welding by R. G. Hudson; on the repairing of a lighthouse, by J. H. Deppeler, and on gas welding during the war by H. S. Smith. The Metal & Thermit Corporation also showed a moving-picture film illustrating the repairing of the steamship *Northern Pacific*.

#### Norwegian Electrification Progressing

The Norwegian government has accepted bids for the electrification of the railway from Christiania to Drammen. For this eighteen standard-gage electric locomotives will be constructed in Christiania. This is the first definite step to be taken in the plan for the electrification of the entire Norwegian railway system. The power is to be obtained from the Hakavik power station, which is located not far from Kongsberg, Norway, where about 25,000 hp. can be produced.





NEW 3000-VOLT DIRECT-CURRENT GEARLESS PASSENGER LOCOMOTIVE, WEIGHING 265 TONS, FOR THE ST. PAUL CASCADE ELECTRIFICATION

## St. Paul Locomotive Tested at Erie

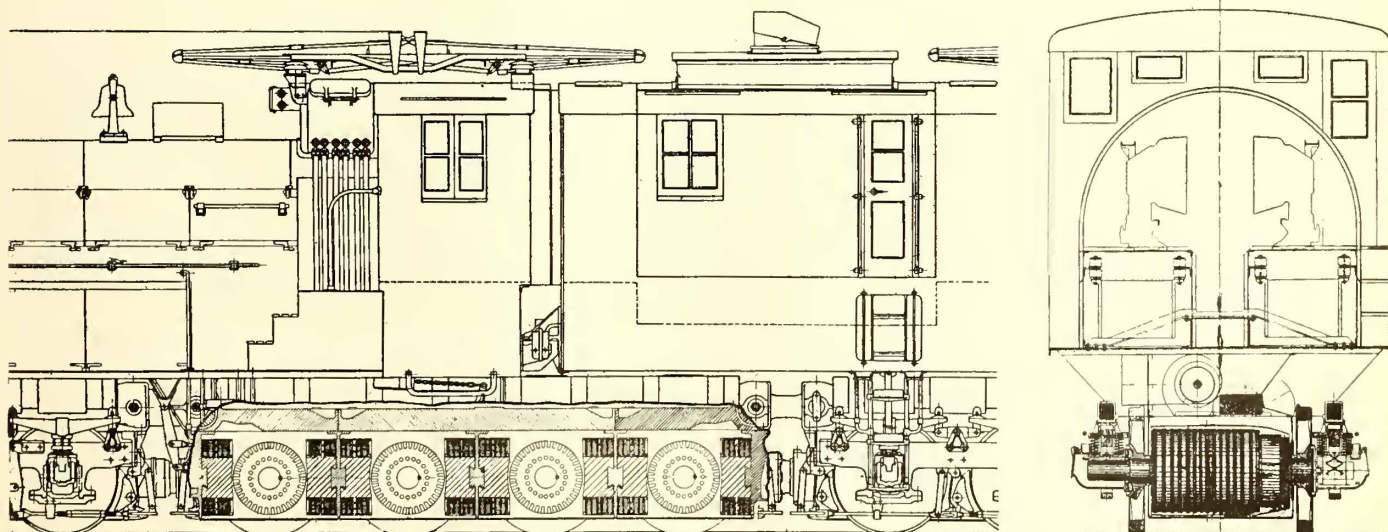
**New Type of Machine with Bi-polar Motor Demonstrates Capability of Handling High-Speed Passenger Trains on Othello-Seattle-Tacoma Electric Zone**

**I**N THE PRESENCE of railroad experts and others gathered at Erie, Pa., on Nov. 7 to witness the demonstration, the 3000-volt, direct-current locomotive built by the General Electric Company for the Chicago, Milwaukee & St. Paul Railway was given a series of operating tests. This machine is of the passenger type and is designed for use on the new Cascade electrification. It is equipped with bi-polar motors, gearless type, with motor armatures mounted directly upon the driving axles. In this fundamental feature the new locomotive follows the design of the gearless machines in use on the New York terminal of the New York Central Railroad. The five machines of this type ordered by the railway are now complete and will be delivered at the rate of about one a week, going into commission immediately.

The tests were carried out on a 3½-mile track owned

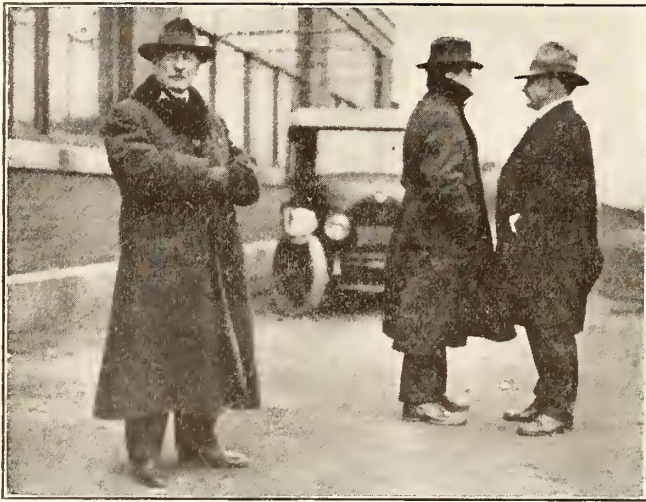
by the manufacturing company and used largely for this purpose. A considerable part of the locomotive work of the company is now done at the Erie plant, making the possession of test facilities quite necessary. The program comprised a number of speed runs up to about 60 m.p.h., the limit for the length of track, a series of regenerative runs, and a "tug-of-war" against two powerful New York Central locomotives.

In the speed runs a couple of light passenger coaches only were attached, the purpose being to demonstrate the accelerating qualities of the machine, as well as its riding qualities. In regenerating, the electric locomotive was driven by the steam locomotives already referred to, and the regenerated current was held at such a value as to maintain a speed of about 25 m.p.h. Under these conditions the ammeter in the substation, through which the



ARMATURE OF ST. PAUL LOCOMOTIVE MOUNTED BETWEEN WHEELS ON DRIVING AXLE





FRANK J. SPRAGUE, WHO HAS ALWAYS BEEN AN ARDENT ADVOCATE OF DIRECT-CURRENT TRACTION, IS AT THE LEFT. THE TWO AT THE RIGHT ARE OTTO G. HITCHCOCK AND J. B. COX

test track was supplied with power, showed a current of from 400 to 500 amp., at a voltage of 3000, indicating a return of 1200 kw. or more to the supply circuit.

In the backing or "tug-of-war" test the steam locomotives were first allowed to push the electric machine for a short distance, when the latter was notched up in "reverse," gradually bringing the steam locomotives to rest and ultimately backing them up.

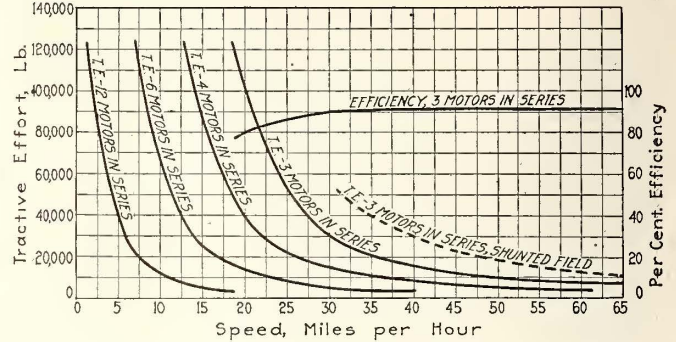
A preliminary account of the gearless locomotive for the St. Paul was given by A. H. Armstrong in a paper read before the New York Railroad Club last spring and printed in the issue of this paper for March 23, 1918, page 561. Additional details are now available. The locomotive weighs 265 tons, of which 229 tons are on the drivers. There are fourteen axles, twelve of which are driving axles and two guiding axles.

The gearless drive was adopted to give simplicity of mechanical design, eliminating gears, armature and suspension bearings, jackshafts, side rods, etc. The weight of the armature and wheels is the only dead weight on the track, amounting to approximately 9500 lb. per axle. This is about 25 per cent of the total weight per driving axle, which is 38,166 lb.

To show the position of the armature relative to the field

poles a cross-section of some of the motors is reproduced. The cross-section of the locomotive in the vertical plane of the armature axis gives further information as to the motor mounting. These views appear at the foot of page 827.

An important feature of the locomotive is the design of the leading and trailing trucks and the method of suspension of the cab weight upon them. The successive trucks are coupled together in such a way as to "dead-

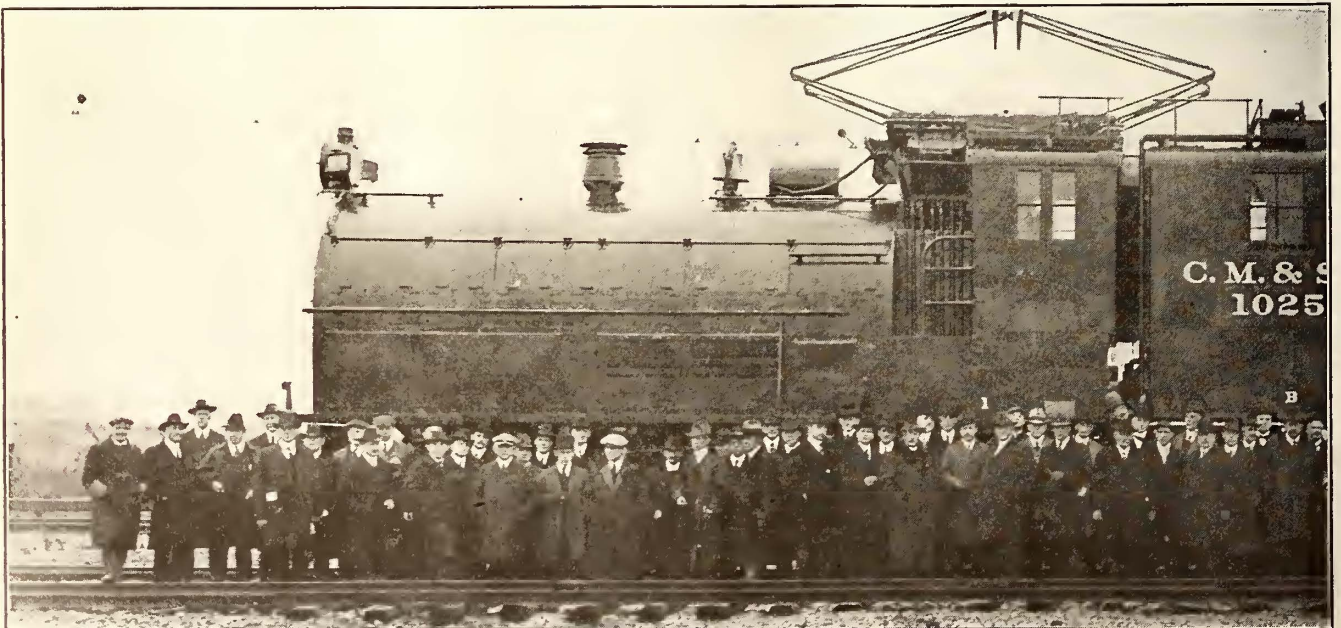


CHARACTERISTIC CURVES OF THE GEARLESS LOCOMOTIVE FOR THE ST. PAUL

beat" or break up any lateral oscillation which may be caused by inequalities of the track. The weight of the main cab is so supported on the front and rear trucks that any lateral thrust or kick of the leading or trailing wheels against the track is cushioned by the movement of the main cab, which increases the weight bearing down on the wheels at the point where the thrust occurs and automatically reacts to prevent any distortion of the track. This design is said to result in very satisfactory riding qualities at high speeds.

Exhaustive tests on the General Electric Company's test tracks at Erie, Pa., have demonstrated excellent riding qualities of the new locomotive at speed up to 65 m.p.h., the limit on the length of the test track available. The tests also indicate that the locomotive will operate at much higher speeds equally well.

The locomotive is designed for handling in normal service a twelve-car train weighing 960 tons trailing against a grade of 2 per cent at 25 m.p.h. To do so requires 56,500 lb. tractive effort, equivalent to a coefficient of adhesion of 12.3 per cent of the weight upon the driving



GROUP OF RAILROAD MEN GATHERED AT ERIE, PA., TO WITNESS DEMONSTRATION TESTS OF ELEC



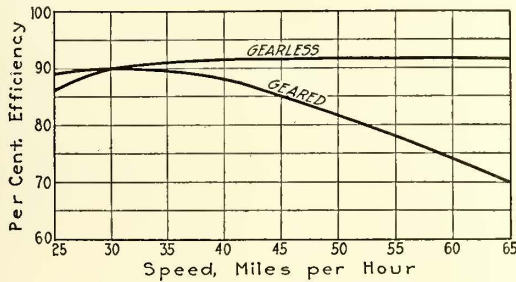
axles. This allows a margin between the operating tractive coefficient and the slipping point of the wheels sufficient to permit the locomotive to hold trains containing as many as fourteen cars in emergencies, and the motors have corresponding necessary extra capacity. For continuous operation the locomotive is designed to operate at 42,000 lb. tractive effort at a speed of 27 m.p.h.

The principal data for the new locomotive are given in the table on page 830.

PART OF THE MOTORS FURNISH EXCITATION DURING REGENERATION

In most respects the control equipment of the new locomotive is similar to that in use on the locomotives which have been operating on the St. Paul for nearly four years. An important difference, however, is in the means used for exciting the motors which are acting as generators during regeneration. Four of the main motors are utilized for this purpose, which is possible because eight motors are ample to supply all of the generator capacity required on down grades.

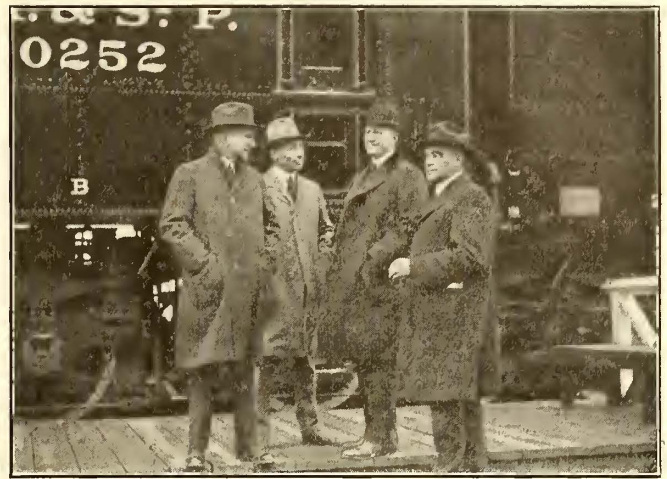
By thus utilizing some of the traction motors it has been possible greatly to reduce the size of the motor-



COMPARISON OF EFFICIENCY CURVES OF GEARED AND GEARLESS LOCOMOTIVES FOR THE ST. PAUL

generator sets used for control, accessories and train lighting. An appreciable reduction in the weight of the control equipment is obtained and at the same time provision is made for effective regenerative electric braking on down grade.

The motor-generator set furnishes control current for operating the contactors and for charging an 80-volt storage battery which supplies light as well as power for the accessory apparatus.

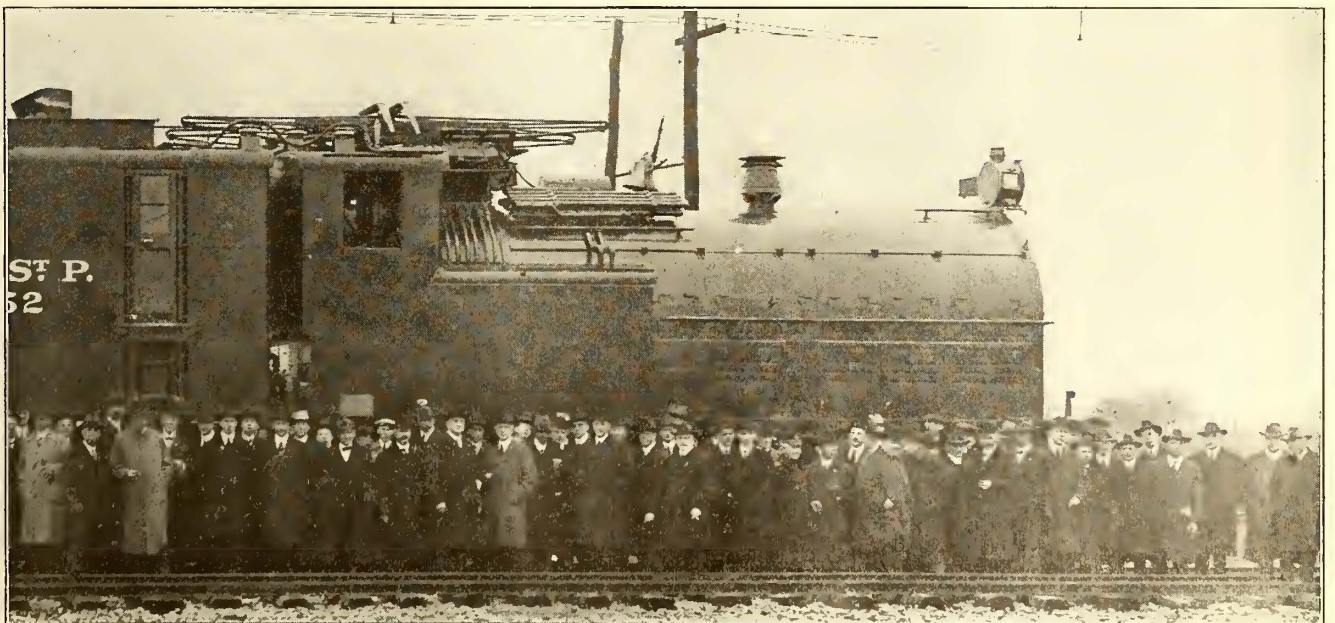


F. C. PRATT TALKING OVER THE FINE POINTS OF THE LOCOMOTIVES WITH H. F. F. ERBEN, J. M. SHERWIN AND M. GRISWOLD

The master controller is constructed in three sections, arranged for both motoring and regenerating, all of the cylinders being suitably interlocked to prevent incorrect manipulation. For full-speed operation the twelve motors are connected three in series with 1000 volts per commutator. Control connections are also provided for operating four, six, or twelve motors in series. Additional speed variation is obtained by tapping the motor fields in all combinations. Cooling air for each pair of motors is supplied by a small motor-driven blower, an arrangement which was adopted to avoid the heavy duct losses encountered when a single large blower is used.

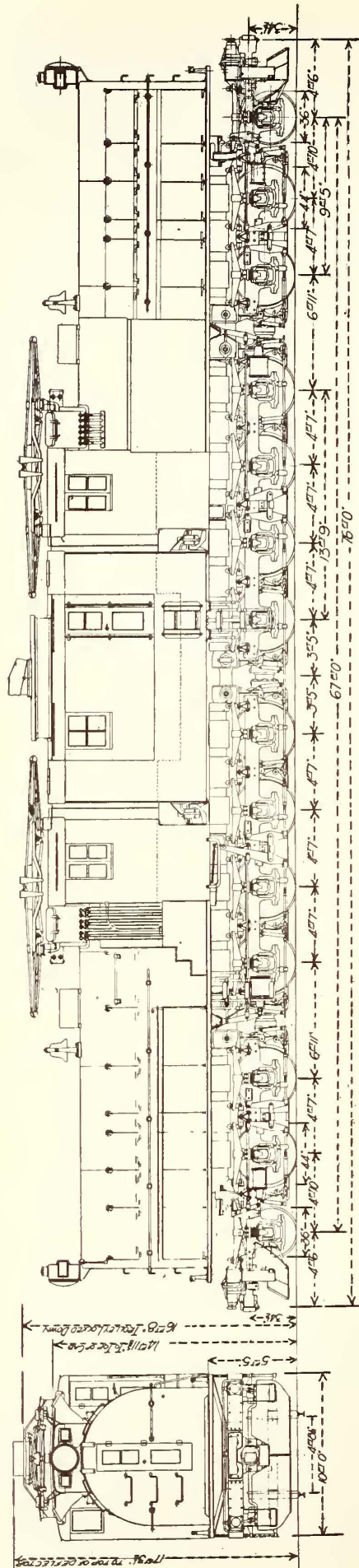
AUXILIARY APPARATUS IS WELL DISTRIBUTED

The 3000-volt contactors and resistors are mounted in the curved end cab at each end of the locomotive. In one of these cabs there is also the 3000-volt direct-current air compressor and storage battery. In the other is a small motor-generator set and the high-speed circuit breaker. The operating cabs contain the master controller, indicating instruments, and a small air compressor (in the No. 2 cab) operated from the battery circuit with sufficient capacity for raising the pantograph. Near the controller are the usual air-brake handles for standard braking equipment.

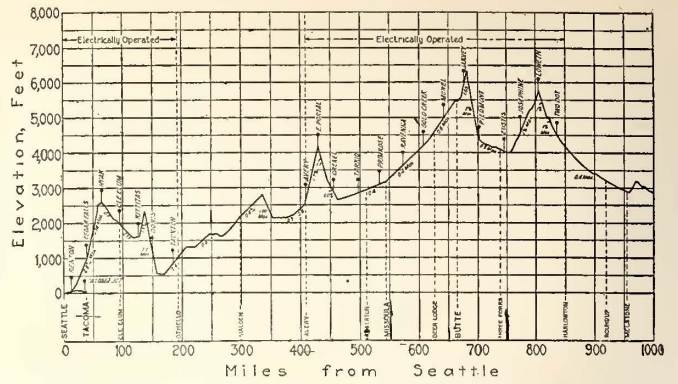


TRIC LOCOMOTIVES FOR THE CASCADE DIVISION OF THE CHICAGO, MILWAUKEE & ST. PAUL RAILWAY





END AND SIDE ELEVATIONS OF GEARLESS LOCOMOTIVE JUST COMPLETED FOR PASSENGER TRAFFIC ON THE CHICAGO, MILWAUKEE & ST. PAUL RAILWAY



PROFILE OF ST. PAUL RAILWAY OVER WHICH GEARLESS PASSENGER LOCOMOTIVES WILL OPERATE

The center cab is occupied by the oil-fired steam boiler for heating passenger trains, with accessories including tanks for oil and water, circulating pumps, and a motor-driven blower to furnish forced draft. A slider pantograph similar in construction to those now in use is mounted on each end of the operating cab. This pantograph has two sliding contacts, giving a total of four points per slider with the double contact wires. The pantograph and flexible twin contact-wire construction enable the locomotives to collect current as high as 2000 amp. up to 60 m.p.h. without noticeable arcing at the contact points. The second pantograph is held in reserve. Sand boxes with pipes leading to each pair of driving wheels are located directly beneath the pantograph outside the operating cab.

PRINCIPAL DATA OF GEARLESS LOCOMOTIVE FOR C. M. & ST. P. RY.

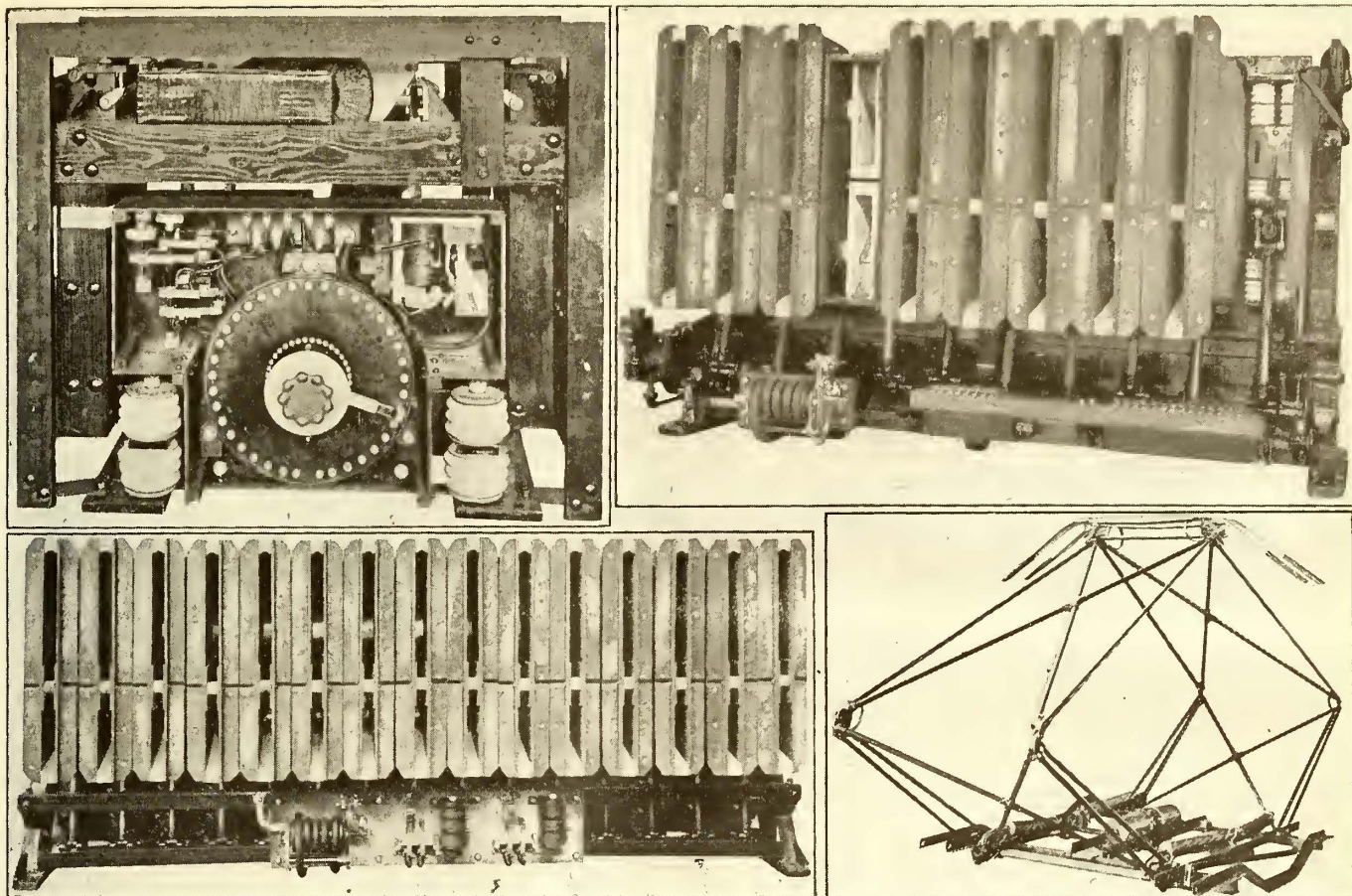
Length inside knuckles.....	76 ft. 0 in.
Length over cab.....	68 ft. 0 in.
Total wheelbase.....	67 ft. 0 in.
Rigid wheelbase.....	13 ft. 11 in.
Diameter driving wheels.....	44 in.
Diameter guiding wheels.....	36 in.
Weight electrical equipment.....	235,000 lb.
Weight mechanical equipment.....	295,000 lb.
Weight complete locomotive.....	530,000 lb.
Weight on drivers.....	458,000 lb.
Weight on guiding axle.....	36,000 lb.
Weight on each driving axle.....	38,166 lb.
Number of motors.....	12
One-hour rating.....	3240 h. p.
Continuous rating.....	2760 h. p.
Tractive effort—one-hour rating.....	46,000 lb.
Tractive effort—continuous rating.....	42,000 lb.
Tractive effort—2 per cent ruling grade with 960-ton trans.....	56,500 lb.
Coefficient of adhesion ruling grade.....	12.3 per cent
Starting tractive effort—25 per cent coefficient of adhesion.....	115,000 lb.
Rate of acceleration starting 2 per cent ruling grade.....	0.48 m. p. h. p. s.

The new locomotives will operate over the section between Othello, Seattle and Tacoma, including 17 miles of 2.2 per cent grade from the Columbia River west and 19 miles of 1.7 per cent grade between Cedar Falls and the summit of the Cascades. The traffic over this division consists of the heavy main-line transcontinental passenger trains "Olympian" and "Columbian," carrying from eight



TWO POWERFUL STEAM LOCOMOTIVES PUSHING ELECTRIC LOCOMOTIVES IN REGULATION TESTS





TOP, AT LEFT, HIGH-SPEED CIRCUIT BREAKER, SIDE VIEW, WITH COVERS AND ARC CHUTE REMOVED. TOP, AT RIGHT, CONTACTOR GROUP WITH ARC CHUTES IN PLACE. BOTTOM, AT LEFT, GROUP OF AIR-OPERATED CONTACTORS. BOTTOM AT RIGHT, AIR-OPERATED PANTOGRAPH

to twelve steel passenger coaches which will be handled over the maximum grades without helpers. Freight pushers are already in operation on a 2.2 per cent grade, using two of the locomotives from the original electrification. It is expected that electrical operation during the coming winter will assist in overcoming many of the delays which are commonly met with during winter operation in this district.

## Dr. Whitten on Zone Fares and City Planning

### Zone Fares Would Tend Toward More Economical City Development and Avoid Highly Congested Centers

AMONG the witnesses for the League of Municipalities in the Public Service Railway's zone fare case last summer was Dr. Robert H. Whitten, technical advisor to the City Plan Commission of the City of Cleveland and formerly with the New York Public Service Commission of the First District.

In discussing the comparative merits of the flat versus the zone fare from the city planning standpoint, Dr. Whitten said the flat fare was advantageous for wider spreading of the population and industry. A factory could locate anywhere and draw its labor supply from the entire city because the laborer could be carried for a single uniform fare from any place to any place. The physical development of the American city has been molded in very large measure by the flat fare system. Its development, compared with a European city, was distinctly scattered. The sprawling development of such American cities was, however, uneconomical from the city planning viewpoint. It called

for more miles of track, water pipe, gas pipe, electric wiring, sewers, pavements, etc., thus increasing the cost of supplying the city with the necessary utilities.

The application of the zone fare would tend toward more compact development and also to develop sub-centers for local retail trade, amusement and social purposes. These centers would draw from a 1- to 2-mile radius and would be benefited if the initial fare was 3 instead of 5 cents.

While the American city as a whole was less compactly developed than the British city, there was nevertheless in the largest American cities a compact or even congested central development that was sometimes even more pronounced than in British cities of like size. In spite of the effect of the transit lines in spreading out population, a large proportion of the people from choice or necessity lived close to the heart of the city. As far as the poorer class was concerned, this was largely due to a desire to live within working distance of the largest number of opportunities of employment. It was possible that this tendency toward congestion in the central area with its many light manufacturing plants has been accentuated by the flat fare. A zone fare plan with a low initial fare would probably tend to reduce congestion in the central areas as many families would be able to live a mile or two further out from the center than under a 5 or 7-cent flat rate.

The population spot maps shown by Dr. Whitten included New York, Philadelphia, Cleveland, Chicago, Newark, Boston, London, Manchester, Glasgow, Berlin and Paris. All were on a scale of 2 miles to the inch with one dot representing 1000 people. New York had a marked congestion on the lower east side of Manhattan Island. While central Philadelphia showed no such marked congestion as lower Manhattan, it was congested in comparison with central Paris or London.









A TYPICAL HIGH-GRADE SUBSTATION BUILDING—CEDAR AVENUE SUBSTATION, CLEVELAND (OHIO) RAILWAY

## Some Elements in a Satisfactory Substation Building

By C. F. LLOYD

Manager substation Section Power Department Westinghouse Electric & Manufacturing Company

**I**N DRAWING up plans for a substation building, there are a number of factors which should receive consideration in the design. Some of these are mentioned in the following paragraphs:

Arrangement of the apparatus should be made to economize space and reduce to a minimum the quantity of low-tension cable required. On the other hand, sufficient space must be allowed around the apparatus to prevent interchange of radiated heat, to provide for efficient cleaning and to permit the making of repairs.

Careful study of the ventilation problem should be made, and good ventilation can be had with but very slight in-

crease in the cost of building. This will materially prolong the life and increase the output of the apparatus. Good ventilation increases the efficiency of the transforming and converting apparatus, since copper losses are lower at lower temperatures. Often conditions are such also, that the load factor can be improved. Good ventilation also improves the efficiency and alertness of the operator.

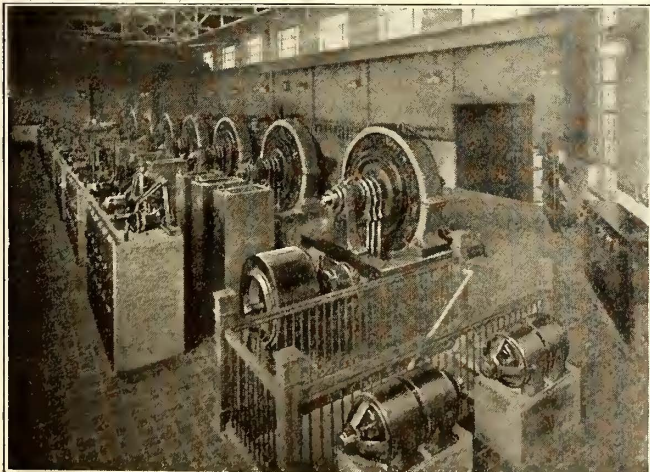
The ideal system of ventilation is to take the air in at the base of the machine or the transformer and allow it to pass out through the roof by means of monitor construction or metal ventilators. The height of the exit openings must provide for the circulation of air, although usually

TABLE I—SYNCHRONOUS CONVERTER SUBSTATIONS FOR SMALL UNITS \*

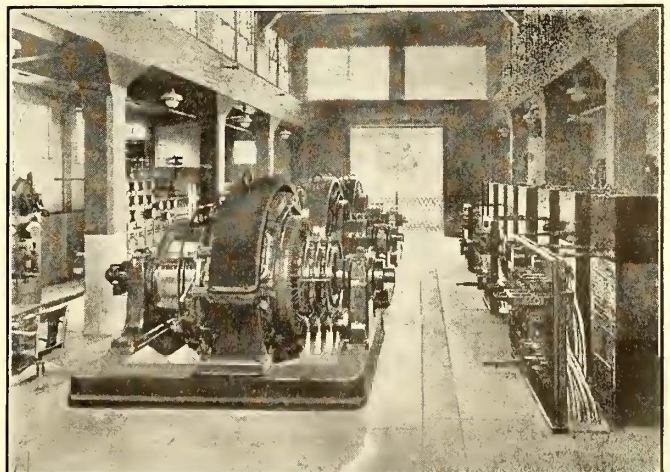
Table of Dimensions—600 Volts, D. C.—22000 Volts, 60 Cycle A. C.

Size, Kw.	A	B	C	D	E	F	G	H	L	M
300 .....	17 ft.-0 in.	13 ft.-3½ in.	24 ft.	9 ft.	7 ft.-6 in.	11 ft.-9 in.	31 ft.	25 ft.	19 ft.	18 ft.-6 in.
500 .....	18 ft.-3¼ in.	15 ft.-0 in.	24 ft.	9 ft.	7 ft.-6 in.	12 ft.-0 in.	34 ft.	27 ft.	21 ft.	20 ft.-6 in.
750 .....	22 ft.-0 in.	17 ft.-3¼ in.	27 ft.	9 ft.	9 ft.-0 in.	12 ft.-9 in.	40 ft.	27 ft.	21 ft.	20 ft.-6 in.
1000 .....	25 ft.-0 in.	20 ft.-3½ in.	33 ft.	12 ft.	9 ft.-0 in.	13 ft.-4 in.	46 ft.	28 ft.	22 ft.	21 ft.-6 in.

\* Letters refer to dimensions indicated in plan and elevation.



INTERIOR OF CEDAR AVENUE SUBSTATION, CLEVELAND (OHIO) RAILWAY



INTERIOR OF BELVEDERE SUBSTATION, UNITED RAILWAYS & ELECTRIC COMPANY, BALTIMORE, MD.



the required head room will place these openings sufficiently high to produce the circulation. Unlike the window method of ventilation, this plan will operate during all kinds of weather.

Noise from the machines, especially where substations are located in residence sections, is the next consideration. A noisy substation may become a nuisance, rendering it possible for neighbors to obtain injunctions causing shut-downs. The method of ventilation mentioned above is particularly recommended from the noise standpoint.

While the window area should not be excessive, the building should be well lighted by day to facilitate repairs and inspection. The use of ribbed glass is very desirable, as it eliminates glare and thus facilitates the reading of instruments, gages, etc. Artificial illumination should approach natural lighting, as repairs often have to be made at night. Arrangement of the lighting units should be made with particular reference to the easy reading of switch-board meters, transformer and machine-bearing oil gages, thermometers, etc.

The building should be constructed throughout on a fireproof basis. In some cases it may be desirable either to secure reduction in insurance rates or to provide a greater insurance against interruption, to increase the cost of the building by installing a fire wall to isolate the transformers and oil switches from the converters and switchboards.

Every provision should be made for possible extension of the substation, even though at the time the design is made it appears that no future extension will be necessary. This refers to symmetrical arrangement of apparatus on the unit system and to the proper construction of roof framing.

The building should be simple and substantial, with just sufficient paneling on the exterior to relieve the monotony of a plain wall. An attractive building can be erected at the same cost as an unattractive and poorly designed one if sufficient attention is given to this point.

## French Commission Returns

### One Member Comments on American Electrifications and Compares Conditions with Those Which Are to Be Found in Europe

THE visit of a commission of French railway engineers to this country last spring to study American electrification installations and methods was mentioned in this paper at that time. The party was thirteen in number, and a greater part of the mission left Paris on April 15 and returned on July 22. The *Journal Official* on Aug. 13 contains a report of the trip by A. Mauduit, one of the members. A copy of this report appears in *Le Génie Civil* for Aug. 30. While an unofficial communication, the report says that the conclusions expressed are in general representative of those of the other members. All of the heavy electric traction installations were visited, including those in the neighborhood of New York; the Norfolk & Western; the Pennsylvania; the Baltimore, Washington & Annapolis; the Chicago, Lake Shore & South Bend, and the Chicago, Milwaukee & St. Paul.

One principal object of the trip was to learn whether there was any system of electric traction for trunk lines so superior to the others that it could be used for all of the proposed electrifications in central and southern France.

The studies of the commission were devoted to the single-phase, three-phase, single-phase-three-phase ("monotri-phase") and high-voltage direct-current systems. The commission had examined the three-phase system in detail

in Italy before coming to America. In that country it is used largely, but not to an appreciable extent elsewhere. The single-phase system, also, had been examined on the Midi Railway in France and the Loetschberg line in Switzerland, and is in immediate prospect on the Swiss Federal Railways, which have adopted it for the progressive electrification of their entire system and have the Gothard line under actual construction. The other systems mentioned exist only in America, hence were the principal objects of investigation by the commission. At the same time the opportunity was taken to study the 25-cycle single-phase system for sake of completeness, the French lines being 16 cycle.

The result of this study was in favor of high-voltage direct current after seeing what the writer called the "remarkable results" obtained by the Chicago, Milwaukee & St. Paul Railway. In fact, he says that he does not hesitate to express himself formally in favor of the adoption of this system, which he believes to be actually the only one suitable for trunk-line operation. It is possible, he concluded, that the single-phase system which presents at first sight the advantage of being adopted to a large variety of combinations, will reach one day a satisfactory condition, but without doubt this point has not yet been reached.

Direct current presents the disadvantage of being a little more expensive at the start on account of the rotary substations, although it ought to be said that to gain any economy in this respect with the single-phase it would be necessary to generate the latter at the low frequency of 16 cycles.

As regards the expenses of operation, only a carefully prepared comparison would determine this question exactly, but the writer does not think the difference would be so great as to determine the choice of system. The complete absence of telephonic and telegraphic interference, however, is a very great advantage possessed by the direct-current system.

Commenting on the different installations, Mr. Mauduit compliments the skill with which the difficulties of the early years on the New Haven were overcome. These difficulties consisted largely of short-circuits on the trolley line or feeders, and inductive interference with neighboring telephone and telegraph lines. The cost of doing so, however, has been great, maintenance cost is still high and the motors are delicate. This electrification was interesting because, save for frequency, it is analogous to the French Midi system.

After reviewing the means employed by the New Haven to mitigate inductive interference Mr. Mauduit says that these are complicated and difficult to maintain although they solve the problem. The arrangement of thirty auto-transformer compensators insures low voltage drop, an advantage as compared with the "suction transformers" (*transformateurs-suciers*) used to confine return current to the rails on the Midi system.

The motors on the Pennsylvania Railroad are of a more modern type and of better commutation. Inductive interference has been overcome to a considerable extent though not entirely.

Taking the single-phase system as a whole Mr. Mauduit does not consider it as far advanced in America as in Europe, due to the higher frequency which must be employed here and to what he considers the less satisfactory development of the single-phase motor in this country. On the other hand, he praises the catenary contact wire suspension as used here and says that the struggle against inductive interference with telephone and telegraph lines has been pushed to a considerable degree. This last-named item would be considered very important in the selection of a system for France.

On the Norfolk & Western Railway the locomotives were



found to be flexible and powerful, but the mechanical design of the locomotives was criticised. The transmission of power from the motors to the axles, by jackshaft and connecting rods, occasions rapid wear of the bearings, disalignment of the trucks or fractures of the crank pins, because of the enormous power transmitted. From the electrical standpoint the principal points criticised were that the phase converter did not give equally balanced phases and the water rheostat did not equally divide the load between the motors, thus causing high maintenance cost. Moreover, the phase converter because of its magnetizing current reduced the power factor. To overcome these troubles, excepting the inequality of load distribution among the motors, the designers are proposing the use of a synchronous converter, although its actual value for this purpose remains to be determined.

Summing up the situation regarding the single-phase-three-phase system, while he feels that the system has been somewhat of a disappointment, the principle at first sight is very interesting. It permits the use of single-phase locomotives or motor cars for use direct with light or high-speed trains, and the single-phase-three-phase locomotives with heavy and slow trains, all fed from the same contact wire.

Some of the comments made on the Milwaukee installation by Mr. Mauduit have already been mentioned. In emphasizing the freedom of neighboring telephone and telegraph lines from inductive disturbance, he says that telephonic communication is good without protective devices, although the telephone wires parallel the railway line for the entire distance. He also mentioned a test made with a multiple telegraph printing circuit normally operating between Spokane and Helena, a distance of 170 miles. The metal side of this circuit was switched over so as to be carried on an unused wire on the railway pole line while the other side of the circuit remained, as usual, an earth connection. Nevertheless, the telegraph circuit worked perfectly for eight days in spite of the fact that three short-circuits were made intentionally between the railway trolley wire and the rail, in the immediate neighborhood of the telegraph wire.

Commenting on other operating points of the Milwaukee system, the author says that with a double contact wire and double shoe (four contacts) it has been possible to collect by pantograph without difficulty 1500 to 2000 amp. at speeds of from 50 to 60 m. p. h. and 4000 amp. at 16 m. p. h.; also that, although the traffic is light—only two passenger and three or four freight trains each way a day—the consumption of energy at the substation amounts to 39.2 watt-hours per ton-mile. This corresponds to an over-all efficiency, from the point at which energy is purchased to the point where it is used, *i. e.*, at the locomotive drawbar, of 50 per cent.

Mr. Mauduit concludes his *Génie Civil* article with this summary of economic considerations with regard to electric traction: "From the economic point of view the information which we have brought back from America is much less complete and exact than the technical data.

"On the other hand, it is necessary in applying American experience to the future of European electric traction to make considerable modifications in the data on account of the two constant principles which differentiate the developments in the two countries:

"First, in America the couplers employed have a rupturing strength of about 149 tons (of 2000 lb.) and it is permissible to use tractive efforts up to 44 tons. In Europe the couplers are of two types, with rupturing strengths respectively of 38½ and 61 tons, and the tractive efforts are limited to 11 tons, although under exceptional circumstances 13 to 16½ tons drawbar pull is permitted in Switzerland.

"Second, in America all passenger and freight cars are equipped with air brakes.

"The result of the above is that in America locomotives are employed that are two or three times more powerful than those in Europe, the freight trains are correspondingly long and heavy and the crews are relatively larger. Exact calculations made by the companies, and above all the results of the pioneer electrifications carried out and the consideration of the actual cost of coal, alone will permit us to determine under what conditions electric traction will be more economical than steam. It is known, however, that the economy will be greatest on the lines with steep grades and heavy traffic and it is probable that on many lines where these conditions do not exist electric traction would be more burdensome than steam.

"Above all the increasing necessity for economizing coal and the great advantage of electric traction which are well known render necessary the most rapid prosecution of the electrification now under way in France, in view of the progressive electrification of the Paris-Lyons-Mediterranean and the Midi railways."

## Association News

### Chicago Section Resumes Work

ONE HUNDRED members attended the opening meeting of the Elevated Railways company section in Chicago on Sept. 16. The following diversified program was given: Dr. H. E. Fisher, chief surgeon, spoke on first-aid work with the aid of lantern slides; J. H. Mallon, general superintendent of transportation, followed with a brief talk on the necessity for keeping fire apparatus in proper working condition; E. J. Blair, organization engineer, gave an illustrated story of his army experiences in France, and finally there were, as entertainment features, some amusing songs and stories. A nominating committee was appointed to make recommendations to be acted upon at the October meeting.

### Connecticut Company Section Considers New Zone System

THE program of the meeting of the Connecticut Company section, held on Oct. 21, was taken up practically entirely with a discussion of the details of the zone system of operation which is to be inaugurated on that property on Nov. 2. The speakers were L. S. Storrs, president of the company; J. K. Punderford, general manager; W. J. Flickenger, assistant to the president, and C. H. Chapman, chairman of the section. By means of diagrams the essential features of the new plan were explained. These will be covered in an article to be published in an early issue of this paper.

A personal feature of the meeting was the presentation of appropriate gifts to Harold Bates, assistant construction engineer, who is leaving the employ of the company to join the technical staff of the Winchester Repeating Arms Company. Charles R. Harte, construction engineer, described the fine work which Mr. Bates has done for the company during the more than ten years during which he has been connected with the engineering department.

As usual the meeting was preceded by a dinner, during the serving of which there was instrumental and vocal music. This meeting was held at New Haven.



# News of the Electric Railways

FINANCIAL AND CORPORATE . TRAFFIC AND TRANSPORTATION  
PERSONAL MENTION

## No Desire for Ownership

### Norristown Men Won't Take Railway, Meet Obligations of Company and then Pay Themselves

The trainmen on the Norristown division of the Reading Transit & Light Company, Reading, Pa., are satisfied with the idea of a "fair day's work for a fair day's pay." They do not want to accept the offer of the company to turn the division over to them for operation. The company had offered the division to the men in lieu of an increase in pay of 4 cents an hour or \$2.40 a week.

Before the war, the trainmen on the Norristown division, which takes in Chestnut Hill, Roxborough, Boyertown and Norristown, were getting a maximum wage of 26 cents an hour.

That was the wage paid the men who had been with the company for two and a half years or more. New men received 5 cents less per hour. Then the war came and wages went up to 46 cents for the two-and-a-half-year men and 41 cents for the beginners. Last August the men decided they wanted 4 cents an hour more, making the maximum wage 50 cents an hour.

In the meantime fares had been raised from 5 cents to 6 cents, and then to 7 cents and finally to 8 cents. And with each increase in fare, so company officials say, there was a falling off in the patronage, which was already no more than the economic law of existence calls for.

The company, through its president, E. L. West, told the men there could be no increase in wages. Mr. West told the men that the company then was holding on to the Norristown division with an annual loss, to the extent of \$25,000 or \$30,000.

"Boost the fares to ten cents and raise our wages!" cried the men.

"It can't be done!" retorted the company.

"Why not?" queried the men.

"The people will not pay it. They'll walk instead," came back the company.

But the men still persisted that they wanted that extra 4 cents an hour. So Mr. West wrote a letter to Joseph Piele, president of the union in Norristown, and offered the trainmen—not the 4 cents increase—but the whole railway included in the Norristown division. Mr. West told the men that because the company was losing money he would go to New York financiers for them and arrange that they be backed to the extent of \$25,000 for one year, at least.

The men would not even consider the proposition. The Philadelphia *Ledger* quotes Mr. Piele, speaking for the union, as follows:

We aren't in favor of fighting out things in the newspaper, but I'll tell you the men don't want the line. What would we do with it after we got it? I'm sure I don't know why they want to give it to us.

We had a few real radical fellows here that were for going into the thing right off the bat. If they'd had their way, they'd have taken the line over in a minute. We had a pretty bard time keeping them in check.

But we decided we wanted time to think it over, and we're still thinking.

No, we never even took it up at any of our meetings and we never will. We don't want the line,

and I think the company's just trying to get from under, and pass the buck to us. That's the way I look at it.

And Mr. Piele's views were backed up with talks by the men on the cars. One after the other they said they didn't want the line. In fact, they wanted to interview rather than be interviewed. As soon as they were asked what they thought of the proposition, they would come back with:

"What do you think of it?"

And there the matter stood. They all seemed to have a rather suspicious attitude.

"But the Socialists say the working-men should own everything and get full return from their efforts," was the proposition put to one of them.

"Yes, but we ain't Socialists," came back the ready reply. "We're just plain, common, ordinary conductors and motormen, and we don't want to be capitalists either—just now, at least."

W. T. Burns, of the company, in the absence of President West, made the following statement:

Of course, the men would have to take over all the company's obligations. You see, the Norristown division is made up of several underlying companies to which the Reading Company pays rentals, and these rentals would have to be met by the men just as we have to meet them.

## Second Link in Rapid Transit Line

The Rapid Transit Commission of Cincinnati, Ohio, on October 3 instructed City Auditor George P. Carrell to advertise a bond issue of \$600,000 to provide funds for the second link of the proposed rapid transit line. Bids for the work will be asked as soon as the funds are in the treasury. This section lies between Charles Street and Oliver Street and includes the station at Liberty Street.

Work on the first section will be begun as soon as a dam is built across the canal at Ludlow Avenue. The commission has ordered the canal diverted into Mill Creek on October 15. The John Reuble Construction Company was instructed to build the Ludlow Avenue dam immediately following the draining of the portion of the canal to be used.

City Engineer Frank S. Krug's estimate of the cost of the second section of the line is \$513,500. Earth from the excavations will be used to raise several low streets in Camp Washington and this will reduce the cost somewhat, since other disposition of the earth would have been added otherwise.

Claims of those who had leases on the water rights of the canal have been compromised by the commission as follows: Pierce-Atkins Company, \$22,500; Paul Fagin estate, \$15,383; Kilgour estate, \$22,000. Attorney John C. Rogers recently informed the commission that he would bring suits to enjoin payment of any amounts on these claims, as they were only for the surplus water and become void when the water is diverted. Frederick S. Spiegel, attorney for the commission, said the city's contract for the use of the canal bed provided that water leases must be taken care of by the city.

## Power Contract Upheld

### Agreement of St. Louis Company With Water Power Plant Decidedly Advantageous to Local Railway

The power contracts of the United Railways, St. Louis, Mo., which constitute one of the principle issues in the suit by the John W. Seaman, New York, a stockholder, which put the company in the hands of a receiver, are declared favorable to the United Railways in a report submitted to the receiver by the H. M. Byllesby & Company, Chicago.

The inquiry was started by Receiver Wells for the purpose of determining the wisdom and profit to the United Railways of contracts by which it receives hydroelectric energy from the Mississippi River Power Company (Keokuk Dam) through the Union Electric Light & Power Company. Byllesby & Company assigned W. B. Rittenhouse to pursue the investigation. In the opinion of the receiver he was a disinterested party.

Mr. Seaman alleged the contracts were made by an interlocking directorate for the benefit of the North American Company, which controls the United Railways through ownership of the common stock of the company. He asked that the receiver be instructed to inquire into the advisability of cancelling the present contract, and negotiating directly with the dam company.

Mr. Rittenhouse bases his conclusions on valuations of the properties in question, and, in summing up his report, enumerates three salient features of the contracts as follows:

The Keokuk dam is entitled to approximately \$430,850 more annually than it now receives for hydroelectric energy sent to St. Louis. This figure is \$180,850 in excess of the amount the Keokuk Company has indicated it is willing to accept in a tentative agreement with the Union Electric.

The Union Electric is entitled to \$138,597 more annually than it now receives from the United Railways for the portion of Keokuk power it furnishes the railway. This amount is \$40,153 less than the Union Electric now asks.

The net added return suggested for the Union Company is \$9,000 yearly. This amount is arrived at by subtracting the added cost to the Union Company of the power, which it furnishes the railways.

Finally, the possession of the water-power contracts by the railway effects a yearly savings to the system of \$436,918 over the cost of an equal amount of steam-generated power in the most improved plant that could be erected at this time.

With reference to the conclusion of the engineer that the railway pays \$40,153 less than the Union asks, it is explained the result of the investigation was to disallow the claim of the Union Company for its transformer at Lewis Street. On the other hand the lines that connect it with the Page Avenue station, where the power is received, should be included in the valuation of the properties needed to serve the railways. In summing up, the report says:

It is clear the Union Electric Light & Power Company has made a favorable contract the benefit of which will accrue to the United Railways, since the purchase price of the power constitutes by far the greatest item in the Union Company's charge to the United Railways.

Col. A. T. Perkins, manager for the receiver of the United Railways, believes the power contract one of the best assets of the United Railways, stating if the company was forced to furnish its own power, it would increase the operating costs 71 per cent.



## Toledo a Tractionless Metropolis

### Ohio City Which Baited Its Railway for Seven Years Hard Put by Withdrawal of Cars

After the withdrawal of electric railway service in Toledo, Ohio, by the Toledo Railways & Light Company, referred to in the *ELECTRIC RAILWAY JOURNAL* for Oct. 25, Henry L. Doherty, of H. L. Doherty & Company, operating managers for the company, left for Kansas City.

The cars and other equipment withdrawn were stored at Toledo Beach and points in Michigan and the current was turned off the trolley wires. As a result interurban cars cannot enter or leave the city. They are being turned at the city limits.

Mr. Doherty later wired from Kansas City to Toledo that he was willing to resume operation at any time the city requested it. He wanted assurances, however, that the city was willing to grant a fair franchise. Negotiations for the past seven years, he said, had come to nothing and the company could see no other step to take than comply with the decision of the voters which makes the ouster ordinance binding. The company had been ordered to remove its tracks from the street at once.

A statement by the company follows:

We have given careful consideration to the situation that now confronts us all with the official announcement made that the ouster ordinance has been adopted by a vote of the people.

We have concluded that to continue to operate in spite of this ordinance, which has been carefully considered and legally passed, is not a proper observance of law and order and subjects us to many grave dangers.

We have, therefore, decided to cease operations.

For seven long and trying years the present management has struggled with this problem and so far without success.

We have done everything it has been possible to do to secure a settlement of this matter. We cannot again attempt to operate our cars until a permanent settlement has been reached, or is assured.

We cannot believe this is a final verdict and therefore, have already started petitions to initiate the ordinance we submitted to the City Council last July.

If citizens want the cars operated, we suggest that they have the City Council rescind the ouster ordinance and pass the franchise we have already submitted to them.

If the ordinance submitted by us is not acceptable to the city, we suggest that they submit one which is acceptable and then provide for the earliest possible election.

If we must salvage our property, we desire to do so now while second-hand material can readily be sold and at good prices.

We regret that apparently we have not been able to satisfy even a majority of the voters of Toledo. We have done the best we could. We accept the verdict which has been rendered. If we cannot be winners, we want to be remembered as good losers.

Mayor Cornell Schreiber, at whose instance the ordinance was passed, made the following appeal to the citizens:

The company's midnight removal of its cars without even a moment's warning to either the city or the public will not appeal to any one, not even to the company's friends. It was an act typical of the hour selected for its performance.

My understanding with President Coates last Wednesday was that the cars should continue to operate until notification from the city that their operation should cease. The city has given no such notice. The action of the company is therefore a plain breach of faith.

It will, in due time, receive the reward it merits. I presume that the company's object is to attempt to compel the Council to repeal the ouster ordinance which the people approved at the recent election. The method which the company selected in this effort to bring about that result will not be graciously met in the public mind.

The company's breach of faith will receive the public condemnation which it deserves.

It is just such acts as this that have brought public service corporations into disfavor and caused the public to view with suspicion, whatever claims public utilities may advance.

The last card, however, has not yet been played. The public is not helpless, and the rights of the public will be fully protected.

In the meantime this is an appeal to all truck owners, jitney bus owners, auto owners, factory owners and every one to let a neighborly spirit pre-

vail. If all these will lend aid in carrying the public, the emergency will be met.

If the cars are still off the streets Monday morning the public will be surprised at the rapidity with which temporary arrangements have been advanced to meet the situation.

The Council meets Monday night and it may be that I shall convene that body at even an earlier hour. I trust the public will not at all be swept off its feet. Whatever is best will be done, always in the public interest.

E. H. Mallory, of the Highways Transportation Company, has been appointed commissioner of transportation to have charge of automobiles and trucks that may haul passengers. An attempt will be made to keep charges down as low as possible, but it is said that charges of from

10 to 50 cents are being made for one-way trips.

The extended contention between the city and the company over the renewal of the franchise is familiar to readers of the *ELECTRIC RAILWAY JOURNAL*. Toledo played with fire for seven long years. Apparently it had come to think itself immune from burns. The city is scotched now and scotched badly. It was only through the exceeding good graces of the management of the railway that the day of reckoning which has now come was delayed so long. The fate that has now befallen the city was delayed in its coming last August only by the concerted efforts of the business men of the city. The company had been ordered by the Council to cease operating on July 31, but a referendum petition, initiated by the business men, resulted in the matter being put before the voters at the election on Nov. 4.

## Citizen's Committee Acts in New York

### Retains Charles E. Hughes to Seek Solution of Problems Confronting Electric Railways in New York City

The Merchants' Association of New York announced on Nov. 12 that a committee formed at its instance had secured the services of Charles E. Hughes, to make a thorough inquiry into the traction situation in the city with the view of finding some solution of the financial problems which threaten to destroy the transportation systems. Mr. Hughes, it was said, would have a free hand in the selection of his own assistants and of conducting the inquiry until every important fact bearing upon the situation was disclosed.

It was explained that the idea of instituting such an investigation grew out of correspondence between the association and Federal Judge Mayer who appointed the receivers of the Brooklyn Rapid Transit Company, the New York Railways Company and the Interborough Consolidated Company.

A letter to Judge Mayer from the association on Oct. 16 called attention to a statement of the judge that every facility would be accorded to both public officials and civic organizations to satisfy themselves in respect to the actual financial and other conditions confronting the railroad companies. The association gathered from statements by the court that the situation was crucial. Judge Mayer's reply confirmed this thought and suggested that the association could render service of a high value and aid the public and the court if it could carry out the following program:

1. Examine and report upon:

(a) The estimated cost for the twelve months beginning Sept. 1, 1919, of operating each of the several transit systems now under the jurisdiction of the United States District Court, including in such cost, operating expenses and such other outlays as must necessarily be made to continue the operation of the several lines.

(b) The estimated revenues for each of such systems during the same period.

(c) The estimated net earnings or deficit from operation of each of such systems during the same period.

2. Through qualified engineers and accountants, check, test, verify, and report upon any valuations of the physical properties of the several traction systems which may be presented to the court, or affixed as a basis for equitably adjusting the future relations between transit corporations and the public.

3. Make a study of the transit field, with relation to existing franchise and contract rights; possible consolidation or consolidations of existing lines or systems; legal, financial, and operating conditions; and such other factors as may be germane, with a view to formulating a plan for the permanent, equitable, and beneficial readjustment of the relations between the public and the transit corporations which serve them.

Before proceeding further with the mat-

ter the Merchants' Association obtained the co-operation of other large commercial organizations in the city and a preliminary committee was formed consisting of the presidents of the Merchants' Association, Chamber of Commerce, New York Board of Trade and Transportation, Brooklyn Chamber of Commerce, Chamber of Commerce of Queens, and the Bronx Board of Trade. This committee sent an identical letter to more than 100 leading men in various walks, who were selected to form a citizens' transit committee. The letter set forth that the city was threatened with a condition of chaos in relation to its transit facilities; that railroads were not earning enough to pay proper operating costs, and that it was feared that some of the lines would have to cease operating. The letter from the committee said:

The committee will make an adequate, unbiased and wholly dispassionate investigation fully to develop all the pertinent facts, and to form constructive plans for the reorganization of the city's traffic facilities on a basis which shall be substantially equitable to all interests.

An executive committee was named which will have charge of all of the details of the investigation.

The announcement of the Merchants' Association contained no information as to when the inquiry is to begin, but the presumption is that no time will be lost. The committee will have no power of subpoena, so that witnesses may be called and compelled to testify. It is presumed that all of the information gathered by Judge Mayer will be placed at the committee's disposal and any vital information needed which the committee cannot command may be produced through the assistance of the court. Investigation of the various companies has been made by the Public Service Commission, which will also, it was said, assist the committee in every possible way.

## Winnipeg Award Announced

The so-called Mathers board of conciliation, which has been considering the matter of wages for the conductors and motormen in the employ of the Winnipeg (Man.) Electric Railway, has prescribed the following rates of pay: First six months, 46 cents an hour; second six months, 49 cents an hour; second year, 52 cents an hour; third year and thereafter, 55 cents an hour.



## Massachusetts Program Nearing Completion

### Forecast Made of Legislation in the Interest of Electric Railways Proposed by Special Committee of Legislature

The commission is reported to be fast completing its work which has been engaged during the past three months in an effort to agree upon legislation which will permit the transportation systems of Massachusetts to escape the financial difficulties against which they have been struggling for some time. It consists of fifteen members, of whom five were appointed by Governor Coolidge, five by Speaker Warner of the House, and three by President McKnight of the Senate. Former Congressman Charles G. Washburn, Worcester, is chairman of the commission.

#### WOULD PROHIBIT STRIKES

A sub-committee has prepared a report, upon which the full commission is to act, but inasmuch as the subject matter was fully discussed before the sub-committee began its work, it is believed that this report will be adopted by the commission.

A bill to prohibit strikes by employees of electric railways is the outstanding feature of the report which is being considered by the commission. The anti-strike bill makes it illegal for two or more persons engaged in electric railway service, by concerted action or agreement, to threaten or prevent the continuity of such service. It carefully safeguards the right of any employee to leave his employment if it is distasteful to him, but provides that he may not do so for the purpose of tying up service. Any person thus conspiring against continuity of service is to be held to have been discharged from his position, and his re-employment in any capacity in such service is to be prohibited for a period of one year, to be fixed by the Public Service Commission.

It provides that every electric railway shall enter into an agreement with each individual or group of its employees, stipulating that every dispute as to wages or compensation, hours of labor or working conditions, and every other dispute, shall be submitted to arbitration. In case of failure to agree upon a board of arbitration, the dispute is to be referred to the Public Service Commission for settlement.

The report recommends that every railway be permitted to initiate changes in fare without waiting for permission from the Public Service Commission. At present, whenever additional revenue becomes necessary, the Public Service Commission is required to approve an advance in fares.

#### EXTENSION OF CREDIT BY STATE

The report recommends that legislation be passed permitting the establishment of transportation areas in communities where existing companies find it unprofitable to operate. In such areas the Public Service Commission would control electric railway operation, through a local manager for each area. Fares would be fixed by the commission, and any deficit would be made up out of general taxation in the communities comprising the transportation area.

For the benefit of electric railway corporations whose credit has been exhausted, the commission recommends that the credit of the commonwealth or of its sub-divisions may be extended.

The commission advises that the present system of private ownership and control should be retained wherever adequate service can be maintained with a reasonable fare. For such companies as are unable to meet these requirements, it recommends private ownership and public control, as is now the policy with respect to the Boston Elevated Railway and the former Bay State systems; and only where this method proves ineffective does the commission favor public ownership. It urges, however, that if there is to be public ownership, it should be by the communities and not by the commonwealth.

Removal of all taxes upon electric railways, except the tax on real estate and machinery and the franchise tax, is recommended by the commission. Included in this recommendation are all charges for construction and repairs of streets and bridges.

#### CURB FOR JITNEYS

It is recommended that no jitneys be permitted to operate unless the Public Service Commission shall certify that their operation is a matter of public convenience and necessity.

With respect to the former Bay State Street Railway, the commission recommends that the excise tax, amounting in 1919 to about \$277,000, be abolished; that the temporary immunity given the company from the payment of paving, bridge and certain other construction expenses, be made permanent; that the public trustees be given the right of eminent domain, in order that they may eliminate some of the curves which add to the depreciation of equipment, increase the running time and inconvenience passengers. It is also recommended that the amount which any city or town may contribute to offset any operating deficit be increased to the equivalent of \$2 upon each \$1,000 of valuation. At present, a city is restricted to an appropriation of 50 cents on each \$1,000 of valuation, and each town to an appropriation of \$1 on each \$1,000 of valuation.

### Detroit Apparently Doing Better

The report on the audit of the Detroit United Railway's accounts for August, by the city's auditors has just been received by the city officials. It is not expected that the figures for the month of September, the final month of the trial period, will be in the hands of the board of arbitration before November.

The audit for August shows the net return of the railway for the month was approximately 400 per cent greater than for the month of July. Of this amount, the company claims an allowance of \$75,000 for depreciation. This, however, is not agreed to by the city.

The arbitration board will decide according to the results of the three months trial period, July to September inclusive, whether or not the company is receiving a fair return on the money invested, under the present system of fares. The company's contention for a charge of 1 cent for each transfer issued, which was advanced at the time of settling the strike in June, will probably be the first question to be taken up by the board of arbitration.

The City Council named Mayor James Couzens to represent the city on the board of arbitrators in place of William H. Maybury, who resigned because of other public duties. Mayor Couzens will act with John J. Stanley, Cleveland, the Detroit United Railway's representative, and Frank H. Goddard, who was chosen by the first two representatives appointed.

## No More Women

### New York Companies Forced to Replace Them With Men by Terms of Law Limiting Hours of Work

Women workers have disappeared from New York City's subway and elevated lines. The Interborough Rapid Transit Company and the Brooklyn Rapid Transit Company have completed the discharge of women formerly employed as ticket agents and guards and have filled their places with men. This change was made necessary by the passage by the New York Legislature of the Lockwood-Caulfield act, aimed to improve the conditions under which women were employed.

This act, signed on March 15, 1919, provides that no woman shall be employed for more than nine consecutive hours or after 10 p. m. An attempt was made to eliminate the "swing" system under which hours of work are spread out over a considerably longer period, by requiring that women be paid from the time of reporting for work, regardless of the time at which they went on duty.

The law does not bar the employment of women on rapid transit lines, but merely limits the length of time during which they may work. This restriction, however, was sufficient to make the discharge of all the women, except those employed in clerical positions, unavoidable. The nature of the work made it impossible so to arrange schedules that women should not be employed after 10 p. m. or for more than nine hours at a stretch.

The companies employing women as ticket choppers, guards, conductorettes and elevator operators, began discharging these workers soon after the Lockwood act was passed. No attempt was made to discharge them all at once. The Brooklyn Rapid Transit Company, which had been employing women as ticket agents for a number of years, found itself compelled to discharge employees, some of whom had been with the company for more than twenty years. At the time the law was passed there were approximately 800 women in the company's employ. Every effort was made to find other positions for them. By October 1 only thirty-two women remained in the service.

The Interborough was in a somewhat different position. Unlike the Brooklyn Rapid Transit Company, it had begun employing women only as a war measure. Even had the Lockwood act not been passed, the company would have had to discharge some of these women workers, since the men who returned to their former positions after the armistice secured their former seniority ratings, thus forcing the discharge of many substitutes.

The company applied to the State Labor Bureau for a ruling as to the length of time allowed in which to replace its women workers. On September 5 the bureau ordered the company to comply with the conditions of the law forthwith. By that time the number of women employees had been reduced from 1100 to 500. At the end of the following week only 200 remained. These have since been dismissed. The company had no difficulty in replacing them with men.



## Electrical Workers to Get More

The State Board of Conciliation of Oregon has handed down its decision in the case of the local electrical union workers versus the Portland Railway, Light & Power Company, in which a higher wage had been demanded by the union. The decision of the board will be binding and retroactive to Oct. 1.

Under the award the minimum wage for men engaged in electrical work for the company will be \$5, instead of \$3.60 as heretofore. The minimum asked by the union was \$5.90. The highest paid employees will henceforth receive \$9 a day instead of \$7.15. The union in its proposed wage scale demanded \$9.15 for these men.

The decision as rendered will mean an increase in daily wages paid by the company of about \$350. The original demands of the union would have called for an increase of \$440 a day.

In spite of the additional expense which the decision will place upon the company in the way of wages, the conciliation board held in its decision that no increase in rates will be justifiable on the part of the company, it being stated that investigation showed that the power and light branch of the business, in which these electrical workers are engaged, has been profitable.

The decision was reached after two weeks' consideration of the problem.

## Progress of Electrification in Brazil

Early in the year 1919 the Minister of Communications of Brazil approved plans for the electrification of certain portions of the Central do Brazil Railway, owned by the Government. The estimate for the electrification of the trunk line from Barra to Pirahy has been definitely fixed at \$4,675,000. The director of the Central do Brazil believes that this work can be completed in time for the centenary of Brazilian independence, in 1922. Plans are also being made to enlarge the railway shops, and estimates for this work will be included in the current year's appropriations.

## Increase for Spokane Men

An increase of pay for conductors and motormen of the city lines of the Spokane & Inland Empire Railroad, Spokane, Wash., was one of the first steps taken by the new owners of the property, the bondholders' committee, represented by George H. Taylor, of Chicago. Mr. Taylor said:

We have instructed Mr. Connor, the receiver, who will look after the property for us for the time being, to give the traction men the same increase given by the Washington Water Power Company to its men, 8 cents an hour. This increase is to date back to Nov. 1. We have also asked that improvements be made where needed and betterments in the service introduced at once. We mean to put the affairs of the Inland on a good footing, as I believe the outlook in Spokane justifies our efforts.

## Reconstruction of Guelph Radial Proposed

At a special meeting of the City Council of Guelph, Ont., on Nov. 3, a report was presented by the Hydro-electric Power Commission covering the question of putting the road into good physical condition and improving the service. Sir Adam Beck accompanied by F. A. Gaby, chief engineer, was present. Sir Adam addressed the Council.

The report stated that \$150,000 would be required to put the line into good running condition. Three different methods of operation were presented; in each case the net loss annually would be from \$5000 to \$7000.

Sir Adam told the Council that if the latter wanted the commission to operate the road on behalf of the city, the commission would be willing to do so, but the city would have to assume all financial obligations. Sir Adam stated that the line could be made to pay if it was operated in conjunction with the proposed system from Hamilton to Galt and Kitchener. He was assured by his engineers that such a line could be made to pay even if it had to parallel the tracks of the Grand Trunk Railway, which he did not think it would have to do.

The City Council ordered the report to be sent on to the railways and manufacturers' committee for consideration.

## Pay Increase on Pacific Electric

Increases in the pay of employees connected with the operation of the road were announced recently by the Pacific Electric Railway, Los Angeles, Cal., to go into effect on Nov. 1. The strike was declared ended.

The new schedule of wages includes 42 cents an hour for the first year for city service. This is an increase of 2 cents over the pay for the first three months of service. The pay for the nine following months of the year remains the same.

On interurban service the company makes no change, paying as before 2½ cents more than for city service. On certain single track lines an increase of 2½ cents is made over the present rate. All men in the employ of the freight service receive an increase of 3 cents an hour. The twelve-day vacation each year and the pass privilege after five years' service are granted as heretofore.

The statement announcing the increase was signed by H. B. Titcomb, vice-president of the company. He said that all service was normal and the places of the striking employees had been filled.

## Interurban Wages Adjusted

Danger of a strike on the Chicago, Ottawa & Peoria Railway, included in the Illinois Traction System, Peoria, Ill., has been averted. Ballots cast by the trainmen showed that they were in favor of accepting the company's offer of 55 cents an hour as a top wage instead of 58 cents as had been demanded.

The men had been paid 45 cents an hour and raised their demands to 75 cents an hour. The company agreed upon 55 cents an hour as a fair wage while the men scaled their demands down from 75 cents an hour to 58 cents. Australian ballots were used to determine how the men stood. The new wage scale will be as follows:

From Sept. 1, 1919, to Nov. 1, 1919, first-year men, 41 cents an hour; second-year men, 45 cents, and employees more than two years, 50 cents, with brakemen 37 cents. From Nov. 1, 1919 to Dec. 31, 1919, first-year men, 46 cents an hour; second-year men, 50 cents; more than two years, 55 cents, with brakemen, 42 cents. From Jan. 1, 1920, to Dec. 1, 1920, first-year men, 46 cents, more than one year, 55 cents, with brakemen 42 cents. Dispatchers will receive 58 cents an hour from Sept. 1, 1919. All employees will receive their back pay from Sept. 1 of this year.

## News Notes

**Suburban Line Increases Pay.**—The motormen and conductors in the employ of the New Jersey-Pennsylvania Traction Company, Trenton, N. J., have been granted an increase in pay. The new rate is 46, 48 and 50 cents an hour. When the one-man cars are placed in operation the operators will receive 55 cents an hour.

**Wage Increase in Yakima.**—The trainmen of the Yakima Valley Transportation Company, Yakima, Wash., on Oct. 28 were awarded a wage increase by which the minimum salary becomes 45 cents an hour, and the maximum, reached after being in service eighteen months, 50 cents. Formerly the minimum was 40 cents and the maximum 47, requiring three years service. The raise was granted by the company without any request from the men. The company is operating on 10-cent fares.

**New Company Paper in Norfolk, Va.**—Leake Carraway, director of publicity of the Norfolk-Portsmouth Division of the Virginia Railway & Power Company, has begun the publication of a new leaflet for distribution on the cars. The first issue appeared without a name and offering \$10 in gold to the person who suggested the most appropriate title. The 20,000 copies which were run disappeared in two days, and during the week about 250 suggestions regarding names were received. The first issue was an eight-page leaflet measuring about 2½ in. x 5 in., printed on fairly heavy paper. It was expected to issue semi-monthly, but the demand for the first number may lead to its publication every week.

**Opponents of Railway Elected.**—At the last election in Buffalo, N. Y., at which three aldermen of the city were elected, two of the men who have been fighting the International Railway's attempt to get a higher fare were elected by large majorities. One, a Socialist, was elected on the platform that he would appeal the fare case to the United States Supreme Court—and the other, Senator Ross Graves, has always opposed the railways at Albany. He is an advocate of municipal ownership. There is now a majority in the City Council opposed to the International Railway. The Mayor was elected on a platform of opposition to the company and he has opposed the International Railway for the last three years.

**Engineering Section of Safety Council.**—In accordance with the action of the annual meeting of the National Safety Council on Oct. 1, the executive committee of the Council has approved the organization of an engineering section whose purpose is to bring together the civil, mechanical, electrical, mining and chemical engineers in the council's membership, so that they may contribute more effectively towards the solution of the purely engineering problems so frequently encountered in safety work. The Engineering Section will help to meet the technical demands of the various industrial sections, perform technical services for the National Safety Council, and conduct meetings as part of the annual Safety Congress or otherwise.



# Financial and Corporate

## Montreal Short \$1,364,111

### Statement Made of Operations in Canadian City for Sixteen Months Under New City Contract

The directors of the Montreal (Que.) Tramways in submitting their eighth annual report, point out that for the first period of operations, under the new city contract, being from Feb. 10, 1918, to June 30, 1919, the revenue was insufficient to meet the requirements under the new contract, the shortage being \$1,364,111, of which amount \$692,694 is payable to the city of Montreal, when received.

#### EARNINGS UNDER NEW CONTRACT

The statement of operations of the company under the new contract for the period from Feb. 10, 1918, to June 30, 1919, is as follows:

Gross earnings .....	\$11,572,210
Operating expenses and taxes ..	\$6,640,715
Operating profit .....	45,927
Maintenance and renewals ..	2,098,120
<b>Total .....</b>	<b>8,784,763</b>
Balance .....	\$2,787,446
Allowances due company:	
6 per cent on capital value ..	\$3,018,224
6 per cent on working capital ..	40,645
7 per cent on additions to capital ..	32,919
Expenses of financing .....	251,353
<b>Total .....</b>	<b>3,343,142</b>
Balance .....	\$555,695
Payable when earned:	
City of Montreal rental ..	\$692,694
Contingent reserve .....	115,722
<b>Total .....</b>	<b>808,416</b>
Balance .....	\$1,364,111

The gross income accruing to the company from all sources for the year amounted to \$2,303,783, and the expenses to \$1,800,537, leaving a balance carried to the credit of the general surplus account of \$503,246. This added to the amount of \$536,571 at the credit of this account last year, after sundry deductions, makes a total of \$1,039,817.

Under the authority of a resolution of the shareholders of the company, adopted on Sept. 30, 1911, the directors during the year authorized an issue of \$4,000,000 of 5 per cent debenture stock of the company, to be disposed of from time to time as required. Of this amount, \$1,000,000 was sold during the year.

The board expresses regret that the increase in the rates of fares during the past year did not provide sufficient revenue to meet the whole of the company's interest allowance. In consequence the regular quarterly dividends on the common stock for the year were deferred.

Last January the employees of the company made a general demand for an increase in wages to start from Feb. 1, but in view of the conditions of the franchise, under which the necessary allowances for expenditures are provided for yearly, this could not be entertained. Upon the demand of the employees a board of conciliation, as providing under the Industrial Disputes Act, 1907, was authorized. The board, after consideration, authorized a general increase in wages to all employees, effective from July 1, 1919, of approximately \$1,100,000.

The Montreal Tramways Commission, after due consideration of the operations of the past year, and after taking into consideration the requirements for the forthcoming year, rendered its decision on Aug. 29, last, granting a further increase in the rates of fares, which decision has been appealed from to the Quebec Public Utilities Commission by the city of Montreal and some of the other municipalities, and this company.

## Interborough Earnings Show Increase

The Interborough Rapid Transit Company, New York, N. Y., reports earnings for September and for the three months ended September as follows:

	September 1919	1918
Gross operating revenue ..	\$3,842,198	\$3,176,577
Operating expenses .....	2,512,214	2,007,701
<b>Net operating revenue .....</b>	<b>\$1,329,984</b>	<b>\$1,168,876</b>
Total taxes .....	213,536	424,296
<b>Income from operation .....</b>	<b>\$1,116,447</b>	<b>\$744,579</b>
Non-operating income .....	42,985	43,399
<b>Gross income .....</b>	<b>\$1,159,433</b>	<b>\$787,979</b>
Interest, rentals, etc., including Manhattan guarantee ..	1,644,155	1,429,407
<b>Net corporate income excluding accruals .....</b>	<b>*\$484,722</b>	<b>*\$641,427</b>
Add accruals under contract No. 3 and related certificates .....	912,655	547,840
<b>Net corporate income including accruals .....</b>	<b>\$427,933</b>	<b>*\$93,587</b>
<b>* Deficit.</b>		
<b>Three months ended September</b>		
Gross operating revenue ..	\$10,964,269	\$9,435,624
Operating expenses .....	7,031,204	5,613,625
<b>Net operating revenue .....</b>	<b>\$3,933,065</b>	<b>\$3,821,998</b>
Total taxes .....	640,609	1,081,042
<b>Income from operation .....</b>	<b>\$3,292,455</b>	<b>\$2,740,956</b>
Non-operating income .....	134,946	124,620
<b>Gross income .....</b>	<b>\$3,427,401</b>	<b>\$2,865,576</b>
Interest, rentals, etc., including Manhattan guarantee ..	4,951,608	4,198,557
<b>Net corporate income excluding accruals .....</b>	<b>*\$1,524,207</b>	<b>*\$1,332,980</b>
Add accruals under contract No. 3 and related certificates .....	2,807,601	1,456,661
<b>Net corporate income including accruals .....</b>	<b>\$1,283,394</b>	<b>\$123,680</b>
<b>* Deficit.</b>		

The company explains that the comparative increase in earnings is due to abnormal conditions prevailing during this period last year, caused by the influenza epidemic and the peak of war activities.

## Receiver for "Hay" Company

On appeal of the Northampton Trust Company trustee for the holders of first mortgage bonds of the Northampton Traction Company, Chester Snyder, president of the First National Bank, Easton, has been appointed receiver for the Northampton Traction Company, Easton, Pa., controlled by the Hay interests. The company owns the lines between Easton and Nazareth and Easton and Rangor. It has \$400,000 of first mortgage bonds outstanding. The employees of the road have been on strike for a month.

## Inland Empire Foreclosed

### Property Purchased on Nov. 1 by the Representative of the Bondholders—Purchaser's Statement

George H. Taylor, Chicago, Ill., acting for bondholders, purchased the property of the Spokane & Inland Empire Railroad at receiver's sale in Spokane, Wash., on Nov. 1 for \$3,600,000. The property was also sought by the Great Northern Railroad, a Spokane & Inland Empire creditor. Bidding against Mr. Taylor for this company was Judge F. V. Brown. He announced as his final offer for the property, \$3,510,000.

During the early part of the bidding, Judge Brown made his first tender on the Coeur d'Alene and Palouse interurban lines, the Nine Mile power plant and the transmission lines. When he reached \$2,900,000, he announced that he was bidding on the property as a whole.

#### PURCHASER ISSUES STATEMENT

Mr. Taylor made the following statement:

The Inland sale was made as the result of proceedings to foreclose the first and refunding mortgage of the Spokane & Inland Empire Railroad, amounting to \$3,680,000, of which the bondholders' committee represented all save \$61,000. More than 1000 individual bondholders are represented by these holdings, located in all parts of the country and in Europe. To the amount of the mortgage has been added unpaid interest, bringing the total to around \$3,900,000.

There are \$699,000 of underlying or prior mortgages on the Coeur d'Alene line, the Terminal Company and the Spokane Traction Company, which were not involved in the suit and are assumed by the purchaser. These underlying bonds are apportioned: \$422,000 on the Coeur d'Alene line, \$176,000 on the terminal property and \$81,000 on the Traction lines.

F. E. Connor, the receiver, will continue in charge of the property for the time being. He has given satisfactory service, for under his management the condition of the property was greatly improved.

One traction system is enough in a city of this size. We realize that during the receivership the service on some of the city railway lines has not been all that people desired, but with the termination of the receivership we mean to improve conditions. While E. H. Rollins & Sons are not operators, but bond buyers, we propose to see that this property is put into first-class condition while we manage it.

#### EXTENT OF PROPERTY OUTLINED

Involved in the transaction on Nov. 1 were 212.5 miles of railroad, of which 182.3 is in Washington and 30.2 in Idaho. The main line trackage is 134.3, the remainder being distributed as follows: Second tracks 78.2 yard tracks, sidings and spurs, 48.1. The mileage in Washington is distributed as follows: Traction lines in city, 44 miles; terminal division, 1 mile; Coeur d'Alene division, 20 miles; Inland division, 115 miles. The mileage in Idaho is distributed in the following way: Coeur d'Alene division, 21 miles; Inland division, 9 miles.

In anticipation of the possible purchase of the property by the Great Northern Railroad the City Commissioners placed in the hands of Judge Brown, representing the Great Northern, a type-written schedule and a map of the city property of the Inland that the city would need in the event that the deal with the Great Northern was carried out. The properties listed by the city included the Nine-Mile power plant, the Bowl and Pitcher power site, the Spokane city lines, carhouses and other property.

Regardless of the outcome of the negotiations with the Great Northern, Mayor Fassett believed the proposed amendment authorizing the City Council to acquire a municipal lighting and power plant should be submitted to a vote on Nov. 4. The City Commissioners were practically agreed on this.



## East St. Louis Fare Case Valuation

### Testimony by Chicago Engineer Covers Appraisal Conclusions Based On Normal Price Trend and On Present Price Level

The East St. Louis (Ill.) Railway has asked the Illinois Public Utilities Commission for an increase in fares. The company wants a cash fare of 8 cents in order that it may be able to meet recent increases in wages and the higher cost of the materials. An extended hearing has been had in the matter in East St. Louis and further testimony will be taken before the case is ready for the commission's study and opinion.

#### MR. HAGENAH TESTIFIES

The testimony is being taken by H. M. Slater, transportation rate expert of the commission. Testimony covering the value of the railway property, its annual requirement for depreciation and the measure of a reasonable return was offered on behalf of the company by W. J. Hagenah, Hagenah & Erickson, public utility analysts and engineers of Chicago. Exhibits covering the earnings and operating expenses of the company, the effect of the increases in wages granted and the extent of increases in the prices of supplies were presented to the commission by G. W. Welsh an official of the company.

The East St. Louis Railway owns and operates an electric railway in the city of East St. Louis, serving an estimated population in excess of 75,000. The lines of the company consist of 35.8 miles of track, including track represented by curves and special work. The company does not own any power plants, carhouses or repair shops, such facilities being supplied by affiliated corporations. The company does, however, own a modern four-story office building. The rolling stock consists of ninety cars.

The inventory and appraisal of the property was made as of July 1, 1919. The inventory was made in detail from field measurements and inspection, supplemented by the records of the company, the items of property in each case being distributed and classified according to the classification of accounts prescribed by the Interstate Commerce Commission. In connection with the inventory of the property, an inspection was made of the various units and their component parts to determine the degree of maintenance or upkeep in service. An examination was also made to ascertain with respect to each item of property the extent of the wear and tear which had occurred and also the extent to which other factors existed which reduced the efficiency of the unit or affected its future usefulness in service.

#### WORKING CAPITAL AND GOING CONCERN

Two separate appraisal conclusions covering the physical property were presented to the commission, the first based on the so-called normal trend of prices, and the second based on the level of prices which has developed from conditions growing out of the war, modified to reflect the average level or prices as it is likely to be for some years in the future.

It developed at the hearing that the level of labor and material prices as adopted for the appraisal based on the normal trend of prices was less than the average of such prices for the last five year period and that the trend basis as used by the engineers did not reflect in any way the extreme prices of basic commodities occasioned by war conditions.

In addition to the appraisal of the physical property, Mr. Hagenah testified in regard to the working capital of the company and also its going concern value. Extended testimony was taken regarding the bases on which his estimates were founded and the data which had been compiled in the course of the investigations covering these two subjects.

The following table shows the reproduction cost of the property as testified to by Mr. Hagenah when the appraisal results are (1) based on the normal trend of prices, and (2) when based on the level of prices and wages in effect at the present time and as such prices and wages will probably be some years hereafter:

	Reproduction Cost on Normal Basis	Reproduction Cost on Present Level of Prices
<b>Way and Structures:</b>		
Engineering and superintendence .....	\$61,666	\$88,840
Other land used in electric railway operations .....	12,600	12,600
Grading .....	73,209	91,511
Ballast .....	306,129	446,082
Ties .....	71,866	79,806
Rails, rail fastenings and joints .....	251,499	485,915
Special work .....	109,134	196,441
Track and roadway labor .....	68,336	102,253
Paving .....	327,094	409,626
Roadway machinery and tools .....	6,969	9,050
Bridges, trestles and culverts .....	24,396	25,972
Crossings, fences and signs .....	94	272
Signals and interlocking apparatus .....	4,334	5,634
Poles and fixtures .....	30,235	39,278
Distribution system .....	97,909	115,988
General office building .....	129,198	190,898
Stations, miscellaneous buildings and structures .....	50	69
<b>Total .....</b>	<b>\$1,574,718</b>	<b>\$2,300,235</b>
<b>Equipment:</b>		
Passenger and combination cars .....	314,276	442,541
Service equipment .....	15,860	19,535
Electric equipment of cars .....	149,191	178,380
Miscellaneous equipment of cars .....	53,350	60,000
Furniture .....	30,495	41,337
Miscellaneous equipment .....	5,835	7,150
Surveying instruments .....	663	995
<b>Total .....</b>	<b>\$569,670</b>	<b>\$749,938</b>
<b>General and Miscellaneous:</b>		
Law expenditures .....	\$21,172	\$30,502
Interest during construction .....	133,510	192,344
Injuries and damages .....	31,758	45,753
Taxes .....	10,586	15,251
Miscellaneous .....	44,461	64,054
<b>Total .....</b>	<b>\$241,487</b>	<b>\$347,904</b>
Working capital .....	\$55,000	\$55,000
Going concern value .....	150,000	150,000
<b>Grand total .....</b>	<b>\$2,590,875</b>	<b>\$3,603,077</b>

### Pessimistic Forecast of Baltimore Outlook

In the financial review which appeared in the Baltimore *Sun* of Nov. 8 there appeared the following comment on the attitude of traders toward the stock of the United Railways & Electric Company, Baltimore:

Attention was attracted to the further sharp decline in the stock of the United Railways in the dealings at the Baltimore Stock Exchange. These shares fell to 12. This is the low record for many years. While 12 was bid at the close, there were additional offerings at 12½.

This stock has been steadily declining ever since the financial position of the company became known and even before the application was made to the Public Service Commission for an increase in fare. The company has not been benefited apparently by the increases allowed, because few believe that even the higher rate gives any promise of a return of the shares to a dividend basis in the near future. In fact, from the later statements of the company of its financial needs and the requirement of the commission

that it spend more in maintenance many have become convinced that a dividend may be some time off, unless the company is able to obtain still further relief.

The actual results of the 6½-cent and 7-cent fares have hardly had time to show what the increased revenue will actually be, but from the efforts of the company to have some modifications made in the order handed down it is taken for granted that they are not more than meeting requirements as laid down by the commission.

It is true the stock comes out sparingly, but the fact that even these small offerings can only find a buyer at marked concessions is a straw indicating the general feeling toward it as a dividend yielder. It is also thought that the banks may not now regard this stock as good collateral for loans. It is not known that any of it has been refused as collateral, but when accepted it has to be mixed with other securities to effect a loan. All these factors tend to timidity among the small holders and it seems to be this element which is seeking to sell. The fact that the big interests in the company are already carrying large blocks of the stocks may keep them out of the market as buyers. None of these interests is selling its shares, however, but they are sitting tight on the situation. It is difficult to interest the person of small means in a stock which is not paying dividends and most of the local traders and investors in and around Baltimore are already carrying some of it. It is believed to be more widely distributed than any of the other shares dealt in on the local board. This likewise tends to narrow the demand and makes it difficult to effect sales when forced, except at concessions, which some of the holders seem willing to grant.

## Financial News Notes

**Nominal Capital for Bay State.**—The Bay State Street Railway, Boston, Mass., the predecessor of the Eastern Massachusetts Street Railway, has asked the Public Service Commission for authority to make a 99 per cent reduction in its outstanding capital stocks. It was explained to the commission by Artemus C. Townsend, as counsel for the company, that the company has ceased to be an operating company and all its interests have been disposed of. The proposed reduction of stock, he said, is merely for the purpose of aiding in the final dissolution of the company.

**American Light & Traction Doing Better.**—The American Light & Traction Company, New York, N. Y., has made a statement of earnings to shareholders for the year ended Sept. 30 last. While the earnings show a decrease of \$832,579, as compared with the year ended Sept. 30, 1918, \$689,968 of the loss occurred in the quarter ended Dec. 31 last, leaving a decrease for the first nine months of 1919 of only \$142,611. In this latter period the increase in cost of materials, labor taxes and miscellaneous items, which were beyond the control of the management, amounted to \$1,163,473. The usual dividends in stock and cash were declared.

**Elevated Acts to Protect Stockholders.**—It was announced following the annual meeting of the Manhattan (Elevated) Railway, New York, N. Y., on Nov. 12 that a new committee had been appointed to protect the interests of the company and its stockholders, in view of the fact that there is the possibility of a default by the Interborough Rapid Transit Company on the payment of the Manhattan Company dividend due Jan. 1, 1920. The members of the committee are: Alfred Skitt, chairman; W. A. Day, Alvin W. Krech, J. H. McClement, S. J. Murphy, and Frederick Strauss. The committee decided that it was not necessary at this time to call for a deposit of stock. Mr. Strauss and E. L. Ballard were elected as new members of the board of directors.



# Traffic and Transportation

## Chicago Rate Unchanged

### Commission Refuses to Suspend Seven-Cent Fare Order Pending City's Appeal to Supreme Court

Supported in its conclusions by an opinion from the Attorney General of the State, the Illinois Public Utilities Commission on Nov. 10 refused to suspend its 7-cent fare order for the Chicago Surface Lines which has been in effect since Aug. 8. It also refused to heed the petition of the city authorities for reparation and impounding of excess fares. This action was based on the theory that the Illinois Supreme Court alone has authority to suspend the 7-cent fare owing to the pendency of the original case on appeal.

This decision of the commission came as a surprise to the city's lawyers because apparently authentic statements had been published to the effect that some reduction in the rate of fare would be made at once although hearings on the valuation and permanent rate have not been concluded. It was announced that the city would immediately file a bill in court to enjoin the collection of any fare above the 5-cent rate specified in the ordinance.

The commission in its decision held that the advance in rates allowed last August was necessary to meet the high wage scale following a strike and that the refusal of such assistance would have meant confiscation. It also held that the State through this commission had the right to cancel or modify the contract ordinance under which the Surface Lines operate. The city, according to this decision, had neglected its opportunity to ask the Supreme Court to suspend the 7-cent fare, and since the appeal was pending even the commission could not reinstate the old rate. It was, therefore announced that the taking of evidence would proceed.

### ATTORNEY GENERAL UPHOLDS POWER OF COMMISSION

Attorney General Brundage, who had been asked by the commission to give his opinion on the case, took the stand that the commission, while it could not suspend its order, was free to proceed with the taking of evidence with a view to fixing a permanent rate. He held, however, that the commission's order was temporary in its nature and that there was nothing to prevent the issuance of a permanent order based on a thorough valuation of the company's property. At the same time he ruled that the Illinois Supreme Court had unquestioned authority to suspend the present rate.

Mr. Brundage said in his opinion:

In the first question you ask whether the Supreme Court, during the pendency of the appeal, has authority to suspend the commission's order of Aug. 4, 1919, and thereby annul for the time being the schedules which authorize the collection of a 7-cent fare.

I am clearly of the opinion that with the entire proceeding now pending in the Supreme Court of Illinois, said court has full authority and jurisdiction to entertain a motion by the city of Chicago to suspend the order of your commission during the pendency of the appeal, as provided in section 71 of the public utilities commission law.

In your second question you desire my opinion as to whether, during the pendency of the appeal, the Supreme Court is the only tribunal which is authorized to suspend your commission's order.

For the same reasons your commission is itself without authority to suspend, modify, alter or rescind the order which your commission entered on Aug. 4,

1919. The subject matter of that order has passed from your control, and is now vested in the Supreme Court of Illinois, and that tribunal is, in my opinion, vested with the sole jurisdiction upon the existing state of the record, to suspend the operation of your order, or to take such action in respect to the same as shall seem proper in the discretion of the court.

It is not my intention, however, by the foregoing opinion to indicate that your commission is without power and authority to say what fares shall now be charged and collected by the Chicago Surface Lines. It is my understanding that subsequent to the entry of said order of Aug. 4, 1919, additional testimony has been received by your commission as to the valuation of the companies' property and the receipts and disbursements of operation under the 7-cent fare, and it is respectfully suggested that upon showing being made of the existence of a new and different state of facts, not contemplated when your former order was entered, your commission may then, in the light of the more complete information before you enter a new order granting such relief to the public as all of the facts and circumstances may warrant.

### CITY STILL WANTS TRANSPORTATION DISTRICT

On the same day that the commission refused to suspend the 7-cent fare, the City Council endorsed Mayor Thompson's traction plan. Although the Council will have no authority until next January to vote the required appropriation of \$250,000, the Mayor announced that he would assume responsibility for employing engineers and others who are to make preliminary studies for carrying out his plan.

This plan, mentioned in previous issues of the ELECTRIC RAILWAY JOURNAL, contemplates the forming of the Chicago Transportation District and the election of five trustees to take charge of all electric railway matters. The question of payment for the properties and the securing of new enabling laws are expected to take considerable time.

The city authorities appeared to be embarrassed by the decision of the United States Supreme Court on the same day dismissing the city's appeal in the service case affecting the Chicago Surface Lines. This ruling appeared to sustain the State Supreme Court in holding that the contract ordinances are subject to modification by the Public Utilities Commission. This is the main point against which the city's lawyers have been arguing in the pending fare case.

### Brooklyn Needs Eight Cents

The final report of Stone & Webster, the experts employed by direction of Federal Judge Mayer to investigate the financial condition of the various railroad properties in New York in the hands of receivers, has been completed so far as it relates to the surface lines of the Brooklyn Rapid Transit System. According to the figures compiled by the experts, nothing less than an 8-cent fare will suffice to restore the lines financially, and perhaps the fare would even have to be increased to 10 cents. Tables of figures in the report disclose the various additional earning power of a 6-, 7- and 8-cent fare.

An 8-cent fare, beginning Jan. 1, 1920, the report states, would leave the company with a deficit for its surface lines on June 30, 1922, at the rate of \$1,262,000 a year. The deficit at a 7-cent rate would be \$1,974,000. But if the fare remains at 5-cents the loss for the year ending June

30, 1922, is estimated at \$5,326,000. At a 6-cent rate the estimated loss for the same period is fixed at \$3,296,000. The report says:

Neither 6-, 7-, nor 8-cent fare, will be sufficient in view of the recent 25 per cent wage increase, to pay expenses, taxes, and the fixed charges, including rentals on leased property, even with the transfer charge in effect and such additional economies as appear feasible.

Concerning the transfer situation the report says that the expected additional revenue coming from the elimination of the 15,000,000 transfers between surface and rapid transit lines will amount to about \$27,000, and that if all transfers between surface lines were eliminated, including those for which a charge of 2 cents is made, the estimated increase in revenue would be from \$875,000 to \$1,050,000. The introduction to the report explains that while the figures differ slightly from those in the preliminary report submitted to Judge Mayer in September the changes "do not alter but rather emphasize the conclusions of the earlier report."

Reference is also made for the need for the same rate of fare on the rapid transit lines as that obtained by the surface lines in Brooklyn.

### Safety Car Problems Solved

#### Richmond Has No Difficulty With Segregation of Passengers—Little Cars Push 57,000-lb. Cars

The negro problem in relation to the installation of one-man cars has caused some concern to C. B. Buchanan, general manager of the Virginia Railway & Power Company, Richmond. The cars thus far installed in Norfolk and Richmond have been operated on lines on which the negro travel was light. Mr. Buchanan says that as long as the negroes constitute not more than 30 to 35 per cent of the total population, the ordinary method of segregation works out satisfactorily with the safety cars. On lines where the negro percentage is higher than this, he was of the opinion that it might be necessary to make every third car a "Jim Crow" car, or to resort to some plan of segregation.

In Petersburg, where the lines are also operated by the Virginia Railway & Power Company, twenty safety cars are giving practically 100 per cent of the service, only two trippers being operated morning and night for one trip each with double-truck cars. This town has a large negro population, but the distances are short and the negroes do not ride very much.

In Richmond, the eighteen safety cars in operation at present make up the complete equipment on two lines. For a distance of 1½ miles through the center of the city, these two lines run over the same tracks as five other lines on which the cars are all of the double-truck type, and there is also a very heavy grade. These conditions have presented no difficulties and the safety cars have not in any way delayed the double-truck cars.

In connection with this mixed service, Mr. Buchanan had some misgivings as to what might happen if one of the big cars (some of them weighing 57,000 lb.) should stall and a little safety car should be the next car to come along. This apprehension was completely dispelled by tests made at the shops and carhouses. It was found that one of the big cars stalled in the middle of a sharp curve could be coupled and moved with apparent ease by one of the safety cars. It is expected that by Dec. 1, there will be sixty safety cars in operation in Richmond.



## Public Service Accepts New Zone Rates

### Commission Again Rejects Railway's Appeal for a Return to the Flat Rate Fare

On Oct. 30, the Board of Public Utility Commissioners of New Jersey again rejected the Public Service Railway's second application for a return to the 7-cent flat fare. The board instead demanded the acceptance of its recommendation for a fare of 5 cents for the first two zones with a 1-cent charge for a transfer and a 1-cent charge per zone after the second. The reasons given by the board for dismissing the application for the 7-cent fare were that no new facts had been brought out by the company since its first application had been passed upon and that the second application was not made in good faith because there could only result further applications for increases in flat fare.

#### OTHER FARE METHOD NEEDED

From the facts brought before the board, as to value, it is apparent that with the continued existence of the high costs of operation some other method than that of the flat rate must be considered. The board reiterates its conclusions contained in its former reports, that it is highly desirable that the zone plan be permitted to have a fair trial; that a fair trial would be more likely to be had under the schedule of rates recommended by the board than under any other rates proposed, and that said schedule of rates would yield to the company as much revenue as the 7-cent rate with 1 cent for a transfer would yield under existing conditions.

Continuing, the board said that in proposing various schedules of rates, the president of the railway stated at the hearing of Oct. 21, that the company was willing to try out any reasonable method that the board might suggest, but the day of experimentation with the railway is pretty nearly at an end. The rates now recommended by the board, in its opinion, will produce approximately as much revenue as the alternate flat rate last suggested by the company and will probably do much toward restoring normal traffic.

Commissioner Gaul filed a dissenting opinion, in which he said that "for the reasons heretofore expressed, I am of the opinion that the zone fare should be abrogated, and the 7-cent fare with 1-cent for a transfer should be put into effect."

On Nov. 11 the railway filed with the commissioners a temporary acceptance of the rates suggested by them.

The new zone fare rate—5 cents for the first two zone miles, 1 cent for each zone mile thereafter and 1 cent for a transfer—was to go into effect on Nov. 16 on all Public Service Railway lines.

#### COMPANY ACCEPTS PLAN

The company's acceptance of the order of the Board of Public Utility Commissioners is as follows:

The Board of Public Utility Commissioners has expressed the opinion that the zone system of fares now in force on Public Service Railway has not had a fair trial, and has recommended a further trial of the system with a modification of the schedule of rates.

The company filed a statement, showing the results of the operation of this plan, and expressed the opinion, based on these facts, that the zone system was a failure as applied to this property. This conclusion was stated with great reluctance because all concerned had hoped that the plan would furnish the basis of settlement of the street railway problem.

The company, however, has no pride of opinion in the matter, and is willing, out of deference to the expressed opinion and recommendation of the board as set forth in its last two reports on the sub-

ject to continue the trial of the present zone plan for a limited time with the modified rates of fare recommended by the board. The company takes this position in the hope that the board, the public, and its employees will all co-operate with it in this further trial of the zone plan, so that there may be no difference of opinion about its success or failure.

The company, therefore, states that on Sunday next, Nov. 16, 1919, the present zone rates charged will be modified as recommended by the board, so that on and after that date the rates will be 5 cents for the first 2 zone miles or fraction thereof traveled on one car, and 1 cent for each additional zone mile or fraction thereof traveled, with an additional charge

of 1 cent for a transfer to be used only in connection with a continuous trip, upon the payment of the rate of 1 cent for each zone mile or fraction thereof traveled; school tickets to remain as at present; children under seven years of age when accompanied by an adult paying fare, to be carried free; super-imposed service and continuation tickets to be continued in operation wherever now effective.

The company agrees to this plan and these rates in accordance with its understanding of the board's intention, only as a trial for a limited period, and accepts the conditions set forth in the report of the board dated July 30, 1919. The result of this further trial under the new rates will be carefully noted by the company and placed before the board, and every facility and opportunity to study and check up this trial will be furnished by the company to the board and its representatives.

The company, in accepting this recommendation of the board, and the conditions as stated above, reserves to itself all and every one of its legal rights, including the right to apply for further or other relief.

## Fare Decision in Abeyance

### Wisconsin Commission Withholds Racine Increase Pending Trial of Safety Cars—City's Attitude Undetermined

In September, 1918, the Railroad Commission of Wisconsin rendered a decision on a petition of the Milwaukee Light, Heat & Traction Company, a subsidiary of the Milwaukee Electric Railway & Light Company, for an increase in fares in Racine. It granted a cash fare of 6 cents, children's fares of 3 cents, with five tickets for 30 cents good for transportation in all hours and with ten tickets for 55 cents good for transportation between the hours of 6 a. m. and 8 a. m. and 5 p. m. and 7 p. m. On a subsequent application of the company the commission authorized the issuance of dollar tickets permitting unlimited riding within the period of one week. The latter aspect of the situation was referred to in the *ELECTRIC RAILWAY JOURNAL* for Sept. 6, page 502.

Since that time a dispute has arisen in the transportation department of the company in regard to wages. This dispute was decided by the Board of Conciliation which filed its report with the commission. According to the laws of the state it remains with the commission to approve or reject the decision of the board and issue an order accordingly.

The fare situation in the city of Racine is not satisfactory. The present fares are unsatisfactory to the city, while the company insists that the revenues are insufficient to pay a reasonable return. The company has taken the position that it will insist upon compliance with the provisions of Chapter 530 of the laws of the state, and will not grant the wage increases found reasonable by the Board of Conciliation unless granted an order giving relief provided by said chapter.

The hope of cheaper service rested upon the possibility of using one-man cars, and a committee appointed by the Common Council of Racine has made a study of this question, but does not feel ready to pass upon it at the present time. The city has asked for an extension of time for consideration of the use of the safety car, its position being that the rates when adjusted should be such as would insure the company a reasonable return; that, in the meantime, in view of the negotiations, and the strong probability that the city would co-operate with the company along the lines desired, it was reasonable to request the company to put in effect the wage scale fixed by the Board of Conciliation and to hold the matter of fares open for a short period, pending final settlement and adjustment. The company contends that it has been losing money and not getting a reasonable return, and will be still farther from a reasonable return when the wage scale goes into effect, and

that it is unreasonable to request it to continue the present fares pending such negotiations.

In judging of the necessity of providing increased revenues to enable the company to pay the wages established by the Board of Conciliation, the commission said:

In some cases which we have studied there appear to have been cycles in maintenance work which makes the use of the maintenance expenses as of any particular period decidedly unfair. There are periods when maintenance is unusually low. It would be unfair to the utility to base rates for the future upon such low maintenance costs, and there are times when maintenance is unusually high, and it would be equally unfair to the public.

#### REDUCES MAINTENANCE ALLOWANCE

From studies which it has made in the Milwaukee system of the same company the commission has deemed a fair allowance for maintenance expenses for equipment and way and structures to be 5.15 cents per car mile. Figures submitted by the company for the eight months ending Aug. 31 show this amount to have been 9.6 cents per car mile. The commission has therefore considered itself justified in reducing the company's figures by \$37,204.

In the recent Milwaukee case the commission also made an allowance of 2.78 cents per car mile for general and undistributed expenses. The figures submitted by the company for the first eight months of 1919 showed this figure to be 4.17 cents per car mile. The commission therefore considered itself justified in reducing the company's figure by \$11,647.70.

The commission said:

It does not appear to us that it is unreasonable to the company to base the allowances for the Racine city system on the allowances made in the recent Milwaukee case. The allowances made for the Racine city system are even higher in proportion to the indicated value of the property than the allowances made for the Milwaukee system. They are the same allowances per car mile as those made for the Milwaukee system, and the number of car miles per year per dollar of property value is higher in Racine than for the Milwaukee city system.

With the adjustments made accordingly the return on the total utility capital as reported by the company would be 6.1 per cent for eight months or at the rate of a little more than 9 per cent a year.

#### APPROVES ONE-MAN CARS

The commission stated that just what the saving from the operation of one-man cars will amount to cannot be foretold, but that there seems to be no question that the saving will be very material and in the opinion of the commission will be at least sufficient to offset the increased wages resulting from the award of the Board of Conciliation. The commission



states that were it in a position to make a definite order in regard to the use of one-man cars in the city of Racine, it is certain that no modification of the present rates of fare in the nature of an increase would be warranted.

Continuing, the commission said:

In this order, however, we shall in the first instance act on the assumption that when the city has made this investigation it will deem it to be wise public policy to agree to the use of one-man cars in the city of Racine with supplementary service to take care of the heavy traffic during rush hours. On the assumption that this will be the final decision of the city of Racine we find at this time no reason to provide for increased rates of fares in the city of Racine. That the time intervening before the one-man cars may be installed may be made as brief as possible, a final decision on this question should be reached within about two weeks from the date hereof. If it shall be the judgment of the city that it does not desire the use of one-man cars in the city of Racine the city will notify this commission to that effect on or before Nov. 17. In that case the commission will establish a revised schedule of fares if such shall be found necessary.

The commission confirmed the report of the Board of Conciliation fixing the fair, equitable and just wages in the transportation department of the Racine city railway system, and the company was ordered to make such wages, hours of labor and working conditions effective.

### Relief in Sight For San Antonio

Judge Duval West of the United States District Court on Nov. 3 issued an injunction restraining the city of San Antonio, Tex., from interfering with the collection by the San Antonio Public Service Corporation of fares in excess of 5 cents. Judge West held that the revenue derived from the present 5-cent rate is insufficient to provide a fair return upon the company's investment. City Attorney R. J. McMillan has announced that he will appeal from the court's decision if the company installs a 7-cent fare.

The injunction came as the climax to a long-drawn-out legal battle between the city authorities and the company. The latter more than a year ago applied to the City Commission for permission to charge a 6-cent fare. The request was refused, as was a second appeal to the commission. The company then brought suit to have the city restrained from enforcing ordinances which provided that the fare should not be raised above the 5-cent rate stipulated in the franchise agreement of 1899. The case was heard before Frank H. Booth, master in chancery, who recommended that it be dismissed for lack of jurisdiction.

Judge West held that under articles 5 and 14 of the Federal Constitution the court had jurisdiction. He therefore overruled Mr. Booth's finding as to jurisdiction, and accepting the master's estimate of revenue derived by the company under the 5-cent fare, ruled that the fare was insufficient and that the company was entitled to relief.

### First Mortality Among Buses

G. A. Whalen, Commissioner of Plant and Structures of New York, has explained that the bus line known as the Bay Ridge-Fort Hamilton line, had gone out of business because of lack of patronage. It was the first failure of one of Mayor Hylan's lines, and the commissioner said the line had been started at the request of the people of the Bay Ridge section. He said if individual owners of buses could not earn enough to support themselves and their conveyances they would have to quit. Other bus lines being operated by the city, he said, had been financially successful.

## Transportation News Notes

**Six-Cent Fare Continued.**—The State Public Utilities Commission has authorized the Kankakee (Ill.) Electric Railway to continue in effect until Jan. 7, 1920, the present 6-cent fare in that city. Nineteen tickets will continue to be sold for \$1.

**Reserves Decision on Fare Increase.**—The Public Service Commission for the Second District has reserved decision on the application of the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., for an increased fare and cancellation of the transfer privilege with the International Railway. The application for increased fare is based on a physical valuation of \$1,143,553.

**Fare Case Carried to I. C. C.**—Leroy Browning, Corporation Counsel, of East St. Louis, Ill., following the rejection of a petition to reopen a hearing on an injunction granted by Federal Judge George W. English of the Eastern Illinois District permitting the East St. Louis & Suburban Railway, East St. Louis, Ill., to increase its fares, proceeded at once to Washington to present a protest against the increased rates before the Interstate Commerce Commission.

**Cites New York Decision in St. Louis.**—The Civic League of St. Louis, Mo., which has declared that the Public Service Commission exceeded its authority in increasing fares in St. Louis while the city has a contract for 5-cent service, has called the attention of City Counsellor Daves to the order issued by Justice Finch of the New York Supreme Court restraining Public Service Commissioner Nixon from giving New York surface lines relief in higher fares on a similar theory.

**Seven Cents in Wilmington.**—The Wilmington & Philadelphia Traction Company, Wilmington, Del., has installed 7-cent cash fares on its Wilmington local lines under authority granted by the Wilmington Board of Public Utility Commissioners. The company had asked for an 8-cent fare. Under the commission's ruling metal tokens are sold at the rate of four for 25 cents, and free transfers are given. The higher fare was made necessary by a wage advance of 10 cents an hour made to trainmen some time ago.

**Jitneys and Higher Fares.**—Addressing the Board of Trade of Abington, Mass., recently, P. F. Sheehan of the Brockton division of the Eastern Massachusetts Street Railway, stated that jitney competition was taking \$4,600 a week from the company's earnings in Brockton, \$1,600 at Whitman and several hundred dollars in other communities. Mr. Sheehan said that lower fares could be put into effect if jitney competition were eliminated, probably 6-cent or 7-cent fares in place of the present 10-cent rate.

**Fare Increases in Bay State.**—The East Taunton (Mass.) Street Railway has adopted a 7-cent fare on its lines under authority recently granted by the State Public Service Commission. The company had asked for an 8-cent fare. The new rate will remain in effect for three months. The commission has also approved the petition of the Milford & Uxbridge Street

Railway for authority to charge 8-cent fares. The Eastern Massachusetts Street Railway has filed with the commission a supplementary rate between Stone Bridge and the state line under which it proposes to issue five tickets for 35 cents.

**Bloomsburg Seven-Cent Fare Stands.**—The Public Service Commission of Pennsylvania has dismissed a complaint against charging of a 7-cent fare by the North Branch Transit Company, Bloomsburg. The company, which operates lines between Danville, Berwick, Bloomsburg and Catawissa, some time ago increased fares from 5 cents to 7 cents. Even under the higher rates there was a deficit for the first six months of 1919 of \$3,817. The company has paid no dividend, on its capital stock of \$525,000 and has defaulted on interest on its \$532,000 bond issue since Jan. 1, 1915. It is now in the hands of a receiver.

**Traveling Agent Will Investigate Service.**—The Monongahela Valley Traction Company, Fairmont, W. Va., has created the position of traveling passenger and express agent and has appointed C. H. Hardesty to the post. His duties will be to travel over the entire system with a view to ascertaining the character of the service. He is to investigate complaints of insufficient or poor service and to recommend improvements. He will also arrange for transportation in connection with conventions and will investigate the company's express service. The traveling agent will have access to all operating records. He will report directly to the general manager.

**New Transfer System for Seattle.**—The Seattle (Wash.) Municipal Street Railway will put in effect a new system of transfers, which it is believed will save the city about \$500 daily. The new transfers will be about the size of a theater ticket, of a different color for each day of the week, and will be stamped with the hour. To support his claim that the passengers on the municipal lines have been riding too far for a nickel, Thomas F. Murphine, superintendent, recently sent a man out with instructions to see how far he could ride on one fare. Starting at 9 a. m., he was still riding at 4 p. m., without having stopped for lunch. It is said that he could have continued longer.

**A Profit to all Merchants Handling Tokens.**—Letters announcing the additional delivery of fare tokens before Nov. 1 were received by every merchant in St. Louis, Mo. The merchants were asked whether they would handle the tokens and sell them to the public. As an inducement to the merchants the United Railways promised to supply tokens in lots of fifty at 7 cents each, and not to require any payment until the tokens had been disposed of by the dealer. Consequently any dealer who sells two tokens at the rate set by the Public Service Commission, two for 15 cents or seven for 50 cents, will clear a profit. It is thought by railway officials that this inducement will widen the distribution of the tokens among the merchants.

**Another Increase Asked.**—The Washington-Virginia Railway, Washington, D. C., which was recently allowed to increase fares on its interurban lines by the Interstate Commerce Commission, has petitioned that body for a still further increase in rates. The commission on Oct. 15 authorized an advance in fares amounting to approximately 10 per cent. The company, which operates lines in the



District of Columbia and Virginia, now asks that the cash fare between Washington and Alexandria, Va., be increased from 15 cents to 20 cents and that rates between other points be increased proportionately. To eliminate delays caused by the payment of cash fares, the company has suggested to the commission that a penalty of 5 cents be imposed on such fares.

**Cars Unheated, Coal Saved.**—The East St. Louis (Ill.) Railway is sending out all of its cars without heat until the present coal crisis is over. An average of six carloads of coal is consumed at the plant daily and it is hoped to reduce this consumption to four carloads daily by economy. Much of the power used by the company is supplied by the Keokuk Power Company, but it is impossible to secure all that is needed from this source and some must be supplied by the local plants.

**Service Soon Over St. Louis Bridge.**—The Municipal Bridge Commission of St. Louis, Mo., has decided to place in immediate operation the city-owned cars over the Free Bridge. Director of Public Utilities Hooke has been directed to establish the system. He said it would be in complete operation inside of twenty days. The operation of the line will follow a delay of nearly eighteen months, while the city has been waging a legal fight in the Illinois courts to prevent the city of East St. Louis from collecting an \$18,000 tax on the part of the bridge extending over East St. Louis property. Under the schedule prepared by Chief Engineer Butts of the Bridge Commission it is planned to establish car service over the bridge between 6 a. m. and midnight. There will be no "owl service." The fare will be 5 cents each way for adults and 2 cents for children under twelve years.

**Jitney Service Attacked.**—James W. Synan, of the Massachusetts Highway Commission, recently addressed an extended letter to the North Adams *Transcript*, pointing out the value of the service recently resumed by the Berkshire Street Railway and stating that no jitney service could be compared with it, figured on any basis of eighteen hours a day and 365 days a year, and usually at a thirty-minute or at most an hour's service between communities. Commissioner Synan declared that by no possibility can jitney and electric railway service be maintained in competition in the Berkshire district, and urged the public to eliminate at once jitney competition with the company in Berkshire County. He stated that if it became necessary to again shut down the Berkshire Street Railway, the county would be set back thirty years in its development.

**Ten Cents Asked in Augusta.**—The Augusta-Aiken Railway & Electric Corporation of South Carolina, Augusta, Ga., has filed with the Railroad Commission of Georgia a petition for an increase on car fares from 6 cents to 10 cents on its Augusta city lines. The company proposes to sell ten tickets for 75 cents. An increase in power and light rates is also asked. The petition was the answer of the company to the recent complaint of the city of Augusta, filed before the commission, in which the city declared that the rates for light, power and fare in Augusta were varied and haphazard and were not fixed on scientific calculation. In its answer the company admits that in some measure the city's complaint is true, but declares that the present high costs of operation require an increase in fares. A hearing has been set by the commission for Nov. 25.

## Personal Mention

**W. L. McCloy, Jr.**, formerly general superintendent of the Philadelphia Company, Pittsburgh, Pa., has been promoted to the position of general manager of the company. Mr. McCloy succeeds Carroll Miller, resigned. He has been connected with the company for many years.

**R. L. Warner**, formerly vice-president of the United Railways, St. Louis, Mo., has been elected vice-president and treasurer of The North American Company, New York City. Mr. Warner has for twenty years been actively identified with the development and financing of public utility properties and railroads, more particularly in New England and the South.

**F. S. Chamberlain**, who for the last six years has been district engineer of electric operation for Henry L. Doherty & Company, has been appointed general manager of the Mansfield Public Service & Utility Company, Mansfield, Ohio. Before joining Henry L. Doherty & Company, Mr. Chamberlain was connected with the American Gas & Electric Company.

**J. Sigfried Edstrom**, president of the General Electric Company of Sweden, is in this country to attend the International Labor Conference as a delegate of his government. Mr. Edstrom was at one time connected with the General Electric and Westinghouse Companies in this country. He also took an active part in the construction of the tramway systems in Zurich and Gotenburg.

**James G. Nellis** has resigned as manager of the Quincy division of the Eastern Massachusetts Street Railway, Boston, Mass., and will engage in other business. Mr. Nellis joined the company at the time of its recent reorganization. Previous to his appointment as manager of the Quincy division, he was for ten years superintendent of the Amsterdam division of the Fonda, Johnstown & Gloversville Railway, Fonda, N. Y.

**Maurice E. McCormick**, who resigned last July as assistant general manager of the New Brunswick Power Company, St. John, N. B., has been appointed manager of the Quincy division of the Eastern Massachusetts Street Railway, Boston, Mass. Mr. McCormick succeeds James G. Nellis, whose resignation is noted elsewhere in this column. He was formerly assistant general manager of the Bangor Railway & Electric Company, Bangor, Me. He entered the employ of that company in 1896 as an apprentice.

**L. H. Bean**, who has been general manager of the Tacoma Railway & Power Company, Tacoma, Wash., for the last nine years, has resigned. Mr. Bean has joined the staff of Dwight P. Robinson & Company, New York City, as a construction engineer. Before becoming connected with the Tacoma Railway & Power Company, a Stone & Webster property, he had represented the latter organization at Baltimore, Seattle and Bellingham, Wash. He has been acting as the chairman of the board of trustees of the Tacoma Employees' Association.

**H. Brobeck**, who has been appointed superintendent for the Eastern district of the San Francisco-Oakland Terminal Railways, joined the company in 1902, when it was known as the Oakland Traction Company. In 1905 he was transferred to the

Key division as motorman, and in 1906 was appointed inspector on all lines of the Oakland Traction Company. In 1908 he was appointed assistant superintendent of the Key division, which position he filled until 1915, at which time he was appointed chief clerk to George H. Harris, general superintendent.

**F. H. Dewey** has resigned as president of the New England Investment & Security Company, Worcester, Mass., and its subsidiaries. The electric railway system of which Mr. Dewey was formerly the head includes the Worcester Consolidated Street Railway, the Milford, Attleboro & Woonsocket Street Railroad, the Interstate Consolidated Street Railway, and the Attleboro Branch Railroad. He will retain an interest in the corporations. Mr. Dewey was elected president of the Worcester Consolidated Street Railway in 1898, and of the New England Investment & Security Company in 1915.

**Clark V. Wood**, president of the Springfield (Mass.) Street Railway and of the New England Investment & Security Company, Worcester, Mass., has been elected president of the Worcester Consolidated Street Railway, a subsidiary of the latter corporation. Mr. Wood has also been chosen president of the Milford, Attleboro & Woonsocket Street Railroad, the Interstate Consolidated Street Railway, and the Attleboro Branch Railroad, all subsidiaries of the New England Investment & Security Company. He succeeds F. H. Dewey, Worcester, who has resigned. Mr. Wood became head of the New England Investment & Security Company last July, following Mr. Dewey's resignation from that office.

**Elbert G. Allen**, who has been appointed advisory engineer of the Stone & Webster organization, was educated at the Massachusetts Institute of Technology. He received the degree of B. S. in mechanical engineering in 1900 and E. E. in 1901. From 1901 to 1907 he was employed by Stone & Webster on various kinds of engineering work. He was superintendent of construction for Stone & Webster at Dallas, Tex., in 1907 and then returned to the Boston office, where he has since had charge of much of the important steam and electrical work done by the company. In 1918 he was made assistant engineering manager. His new appointment as advisory engineer will leave him free from routine matter so that he can devote himself to consultation and special problems.

## Obituary

**A. M. Moore**, superintendent of equipment of the Georgia Railway & Power Company, Atlanta, Ga., died at his home in Atlanta on Sept. 28 after an illness of several weeks. Mr. Moore, who was fifty years of age at the time of his death, had been connected with the company for many years. He was formerly its master mechanic, and was appointed superintendent of equipment in 1916.



# Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER  
SALESMAN AND PURCHASING AGENT  
ROLLING STOCK PURCHASES BUSINESS ANNOUNCEMENTS

## Varnished Insulations Show Advance in Price

**Increased Costs Send Cotton and Silk Products Up from 10 to 20 Per Cent Under Good Buying**

Several kinds of insulation materials increased in price about Nov. 7. The rise of 2 cents a pound on friction tape was individual rather than general, but the expression was not individual that a further rise might be expected before the end of the year. Jobbing houses of electrical supplies are as a rule well supplied with tape, and many will not be in the market for new stocks until the end of the first quarter of the new year.

Varnished cambric in sheet and tape form has advanced in the neighborhood of 10 per cent, with about a 2 point higher rate on the tape because of the additional labor necessary to get it into that form. Cotton in the raw state has advanced to around 40 cents a pound, and this increase plus the added cost of labor to get it woven has been given as the cause for the advance in the finished insulation. White cotton tapes, on the other hand, have not advanced, as far as could be learned.

Silk insulation has taken a much higher jump; in fact, the supply for this purpose is so limited that more often than not it is necessary to get a price according to the amount of stock which can be secured to fill a definite order. The most recent advance on silk tape is that of about 20 per cent on Nov. 7. The silk cloth, varnished, is somewhat lower. Prices are extremely uncertain, however, and likely to increase at any time.

## Good Sales Recorded in Portable Track Grinders

**Production Is Gradually Catching Up to Normal—Deliveries Are Made in One to Two Weeks**

The amount of business being transacted in portable track grinders is good and has been improving right along for several months past. Grinder stocks are in good shape, and are sufficient to meet normal demands for a period of four weeks. Production has fallen behind from a number of different causes, but is gradually catching up and will be sufficient to take care of all demands unless some unforeseen obstacle arises. Recent sales show considerable improvement and the prospects are promising for an increase in sales for the next three months. Sales for the past six months are double those for the corresponding period of last year. The buying appears to be regular, and no advance in prices has been made recently. Furthermore, no advances are looked for this year.

Present stocks are in such shape that deliveries on track grinders can be made in ten days of receipt of order. One company advises that one to three machines are available for immediate delivery. Although large individual orders are scarce, a manufacturer has recently sold six to one company. Manufacturing con-

ditions are good at the present time and no troubles from labor sources are looked for at the present time. With one or two exceptions, railways are meeting their bills a little more promptly than has been the custom in the past year.

## Steel Rail Prices May Advance

**First Quarter Quotations are Withdrawn by a Large Producer—The Pig Iron Situation Is Unsettled**

On the strength of a possible increase in the price of pig iron, at least one large producer is holding back quotations on first and second quarter delivery of standard rail sections.

At the present writing there is no information available to the effect that the steel interests will advance prices, although several large sales of pig and foundry iron have been made at increases of from \$2 to \$3 a ton over the old prices. T-rails and girder rails are holding firm. No present manufacturing conditions are satisfactory and a production close to normal is assured. Good quotations for delivery can be made on certain types of special work, although all orders are subject to mill conditions.

The general trend in rails is upward, and it is believed that on account of heavy steel requirements of the first and later, a congestion will result such as was experienced during the early part of 1918, when unfilled orders ran up as high as 9,500,000 tons. The production of rails, which in 1918 amounted to more than 2,500,000 tons, is expected to show a great increase in 1919. This is on account of the small amount of rails purchased in the past five years. Present indications are that higher prices and longer deliveries than at present may be the rule next year, and that those companies which are able to place their requirements should make every effort to do so now in order to be assured of deliveries later.

## Pole-Handling Tool and Supply Prices Higher

**Heavy Buying of Peavys, Pikes, Climbers, Pliers, Etc., Reduce Local Stocks—Shipments Good**

Advances have just been reported in the price of representative lines of pole-handling equipment and tools used in connection with pole construction. The advance amounted to 20 to 25 per cent and was applied to such equipment as peavys, cant hooks, pikes, etc., and climbers, pliers and kindred tools. Orders have been heavy this fall for construction equipment, and local stocks are low. Nevertheless, manufacturers can make almost immediate shipment from factory stocks.

Pole hardware buying has been particularly heavy, and in some quarters stocks are virtually gone. Shipments which are in transit from manufacturers should soon relieve the local shortage. Factories are shipping in from two to three weeks. Prices show no change but there is an apparent tendency upward before the year closes.

## Thirty Days Best Delivery on Snow Plows

**Two Months Quoted on Certain Types—Some Fair Sales Made—Old Equipment Being Repaired**

The volume of business in snow sweepers and plows has failed so far to come up to the mark set by last year's business or of the previous year. While there have been orders from different companies in Northern and Northeastern states, the majority of railways are not purchasing the additional snow-clearing equipment which they need. A number of large companies have placed inquiries on fairly heavy requirements, and it is expected that some of these will materialize within the next few weeks.

For a limited number of equipments in one of several types, such as a combination nose plow and sweeper or with nose plows or sweeper on both ends, deliveries can be made by the first of the year or shortly thereafter. If prospective purchasers order certain equipment now in stock, delivery in as quick time as thirty days can be made. These are the best delivery dates available, although some manufacturers are quoting delivery of two to three months, and longer. Another large manufacturing company advises that owing to a large amount of work going through the shops, it will be unable to build the sweepers and plows for this year's delivery.

Orders for repair parts on snow sweepers have been light so far this season. Old equipments are being put into shape, but the repairing is of the home-made variety. Some orders for long brooms and for broom materials have been placed, but in small volume.

## Davis Steel Wheel Sales Show Improvement

**No Price Increases Recently—Sales for First Half Show Slight Decrease—Deliveries Good**

Sales of Davis steel wheels for August, September and October show considerable improvement over previous months, although the buying is still of an irregular nature. Sales for the first half of this year, according to reports, are less than for the corresponding period of last year. This period of slackness was naturally expected, however, coming as it did after the heavy war orders were filled.

Prices have not advanced in the past three months, but there is no telling what may be expected during the first quarter on account of advanced quotations on pig iron for future delivery and the present situation in the steel industry. Present reports indicate that the situation is gradually becoming better, and that the end of the trouble may come within the present month.

There is no decline in the raw material market. Manufacturing conditions are good and have not held up deliveries as might be expected. Deliveries at the present time are being made in from six to eight weeks.



## Rolling Stock

**Sacramento (Cal.) Northern Railroad,** has ordered two 60-ton electric locomotives.

**Capital Traction Company, Washington, D. C.,** expects to purchase forty new double-truck cars to cost \$500,000, and to reconstruct and repair its tracks and provide additional power-house equipment, totaling in all an expenditure of approximately \$1,100,000.

## Recent Incorporations

**San Francisco & Sacramento Railroad, Oakland, Cal.**—The San Francisco & Sacramento Railroad has been incorporated as the successor to the Oakland, Antioch & Eastern, the Oakland & Eastern and the San Ramon Valley Railroads. The new company is capitalized at \$5,500,000.

**Spotsylvania Railroad, Richmond, Va.**—The Spotsylvania Railroad has been chartered to build an electric line three miles long in Spotsylvania County, Va. The officers of the company are: C. B. Lathrop, president; J. D. Patton, Jr., secretary; Joseph Baker, Edward McAuley, Clarence Stutz, E. I. Dunkman, M. Davis and Lewis Durham are directors.

## Franchises

**Pacific Electric Railway, Los Angeles, Cal.**—The City Council of Los Angeles, Cal., has passed an ordinance permitting the Pacific Electric Railway to construct a single-open track upon and across Central Avenue.

**Pacific Electric Railway, Los Angeles, Cal.**—The City Council of Long Beach, Cal., has passed a franchise ordinance empowering the Pacific Electric Railway to construct double and single tracks adjacent to the Los Angeles County flood-control district in the city of Long Beach.

**Stephenville, Tex.**—Construction of a railway line from Stephenville to Desdemona, a distance of about 30 miles in the west Texas oil fields, is proposed by a company now being organized by business men of the two towns. The line will be electrified as soon as a power plant and transmission line can be built, but in the meantime the road will be operated as a steam line. Engineers are now in the field making surveys for the line.

## Track and Roadway

**Pacific Electric Railway, Los Angeles, Cal.**—The Pacific Electric Railway has applied to the Railroad Commission of California for authority to construct a second track at grade at three points across the Wilmington-San Pedro Road and across Harbor Boulevard, San Pedro.

**Sacramento Northern Railroad, Sacramento, Cal.**—The Sacramento Northern Railroad plans to extend its tracks from Sacramento for a distance of five miles down the Sacramento River.

**San Francisco, Cal.**—The Board of Supervisors of San Francisco has granted John A. Fears a spur track permit to switch electric cars across Mission Street at Twelfth Street.

**Connecticut Company, New Haven, Conn.**—The Connecticut Company has re-laid its tracks from North Main Street, Southington, to Buckland Street, Plainville.

**Connecticut Company, New Haven, Conn.**—The Connecticut Company has begun laying the rails for its new track across the Plaza, Bridgeport, Conn.

**Carolina Beach Electric Railway, Wilmington, Del.**—Ground will be broken about Dec. 1 for the construction of the Carolina Beach Electric Railway from Wilmington to Carolina Beach, a distance of 13 miles. The road will be ready for operation before the next summer season. The authorized capital of the company is \$650,000.

**Greenview Electric Light & Power Company, Sweetwater, Ill.**—The construction of an electric railway in Sweetwater, is contemplated by the Greenview Electric Light & Power Company.

**Binghamton (N. Y.) Railway.**—The Public Service Commission for the Second District, has issued an order approving construction by William G. Phelps, receiver for the Binghamton Railway, of an extension of the company's Port Dickinson line to the plant of the Hire's Condensed Milk Company in the town of Fenton.

**Brooklyn (N. Y.) Rapid Transit Company.**—An order has been issued by Transit Construction Commissioner John H. Delaney, directing the receiver of the Brooklyn Rapid Transit Company to proceed with the construction of the last section of the Culver Line, involving the right-of-way from Sheepshead Bay to the Coney Island terminal.

**Eastern Massachusetts Street Railway, Boston, Mass.**—The Eastern Massachusetts Street Railway is laying new rails on its Maltapan line in Randolph, Mass.

**Eastern Massachusetts Street Railway, Boston, Mass.**—The Eastern Massachusetts Street Railway plans to relay its tracks in Market Street, Boston.

**Eastern Massachusetts Street Railway, Boston, Mass.**—The Eastern Massachusetts Street Railway has reconstructed the tracks in Winter Street, Lynn, Mass., at a cost of \$15,000.

**Detroit (Mich.) United Railway.**—The Detroit United Railway is rerouting its Hamilton line cars preparatory to abandoning its tracks in Ledyard Street and Cass Avenue.

**Detroit (Mich.) United Railway.**—A delegation of one hundred persons, representing the section of Detroit east of the present Warren Avenue terminus, recently requested the Detroit City Council to make an agreement with the Detroit United Railway whereby the car line proposed for their section of the city could be built without delay.

**Northern Ohio Traction Company, Akron, Ohio.**—The Northern Ohio Traction & Light Company has accepted a twenty-five-year franchise on the Canton-Massillon road. It must now be approved by the Stark County commissioners and by the property owners along the line.

**Cincinnati (Ohio) Traction Company.**—Street Railway Director Calkins of Cincinnati, Ohio, has addressed a communication to the City Council asking for an investigation of the engineering and financial feasibility of replacing the pres-

ent double trolley system with the standard single system in connection with the possible adoption of single-truck, one-man cars on certain lines.

**Cincinnati (Ohio) Traction Company.**—It was decided at a meeting of the Cincinnati Rapid Transit Commission on Oct. 3 that work on the construction of the rapid transit loop should commence on Oct. 15, by turning off the canal waters.

**Lake Shore Electric Railway, Cleveland, Ohio.**—During the present year the Lake Shore Electric Railway has spent approximately \$225,000 on repairs and extensions to its Lorain city line. Tracks have been extended to the Cromwell steel plant and the main line has been improved. Work on the elimination of the loop at Erie Avenue and Broadway has been completed.

**Harrisburg (Pa.) Railways.**—The Harrisburg Railways has finished the relaying of its tracks in Second Street between North and Reilly Streets at a cost of \$44,904.

## Power Houses, Shops and Buildings

**Chicago, North Shore & Milwaukee Railroad, Highwood, Ill.**—The Chicago, North Shore & Milwaukee Railroad has leased the two-story building at 209 South Wabash Avenue, Chicago, for use as a passenger waiting room.

**Toledo Railways & Light Company, Toledo, Ohio.**—The Toledo Railways & Light Company has put off opening its new building at Superior Street and Jefferson Avenue. The structure, which contains nearly two acres of floor space, will be used for offices.

## Trade Notes

**Joseph H. Towle** formerly with the Railway Improvement Company, New York City, severed his connection with this company on Sept. 1. He was formerly with the People's Railway, Dayton, Ohio, and the Springfield (Ohio) Railway. Mr. Towle has now formed a new company with T. A. Calhoun known as Towle & Calhoun, which will be located at Grand Rapids, Mich., and will act as the distributor of the Willys farm light throughout western Michigan.

**Belgian Purchasing Agencies.**—Co-operative purchasing bureaus have been established in Belgium under the auspices of the Belgian Ministry of Reconstruction. For supplying iron, steel or metal-working equipment, manufacturers should address the Société Co-operative, Association des Vicinaux de Belgique, 32 rue Eloy, Bruxelles, for interviews; Société Co-operative, Federation des Centrales d'Electricité de Belgique, 158 rue Royale, Bruxelles, for power plants, and Société Co-operative, Association des Tramways Electriques des Belgique, 15 Avenue de la Toison d'or, Bruxelles.

**Western Electric Company, New York, N. Y.,** announces that Frank Gill, who started in the telephone business in 1882 and has performed important work in many different countries, has been appointed chief engineer in Europe for the company, J. P. McQuaide, after about twenty years of continuous service at



Philadelphia, has been transferred to Cincinnati as stores manager. F. H. Van Gorder, a power apparatus specialist, has been appointed manager of the Newark store. A. H. Ashford is in charge of company's branch at Jacksonville, Fla.

**E. L. Sullivan** has been appointed to represent the Green Engineering Company in the Pittsburgh district, including western Pennsylvania, eastern Ohio and western West Virginia. Mr. Sullivan has been a special representative for the McDonough Regulator Company for the past ten years in Chicago and Pittsburgh. He has devoted all of his time to special investigations pertaining to the securing of more efficient boiler and furnace operation. Mr. Sullivan will maintain the company's present offices at 2545 Oliver Building, Pittsburgh, where he will serve in all matters pertaining to the sale of Green chain-grate stokers, sealflex arches, steam-jet ash conveyors, cast-iron ash tanks and replacements for the same.

**S. A. Redding**, mechanical and electrical engineer, who has been with the Georgia Railway & Power Company, Atlanta, Ga., for fifteen and a half years, has established a special technical service in South American countries and will make commercial, industrial and financial reports. As general superintendent of the Georgia Railway & Power Company, he had general supervision over the steam and water power production, transmission lines, and all operating and maintenance in the electrical department as well as all engineering and construction. He will represent the following companies: Ohio Brass Company, Delta-Star Electric Company, Crouse-Hinds Company, Cheatham Electric Switching Device Company, Nachod Signal Company, G & W Electric Specialty Company and the Columbia Machine & Malleable Iron Company.

**E. M. Cutting**, formerly Western manager of the Edison Storage Battery Company, has been appointed manager of the railway department with headquarters at the factory, Orange, N. J. In 1888 he commenced working for the Southern Pacific Company in its signal department and in 1897 was promoted to be supervisor of the Western division of the road. In 1905 he received charge of the electric lighting of the passenger-train cars of the system, still retaining the position of Signal Supervisor. Three years later he was appointed engineer of train lighting, heating and ventilation of the entire system. He resigned from the Southern Pacific Company Dec. 31, 1912, to become manager of the newly created Western branch of the Edison Storage Battery Company.

**Economy Electric Devices Company, Chicago, Ill.**, announces the recent sale of Economy power-saving watt-hour meters to an electric railway company in Arequipa, Peru, South America, to the Eastern Texas Electric Company, Beaumont, Tex.; to the Eastern Massachusetts Street Railway, Boston, Mass., and to the Chicago, North Shore & Milwaukee Railroad, Highwood, Ill. The twenty-eight meters furnished the Eastern Massachusetts Street Railway included special features designed to serve in measuring energy transmitted between the various parts of the d. c. distribution system. The power department similarly with other departments of the company has been divided into twelve units and these are tied together through the Economy meters.

**John Kelly**, who for a number of years was New York district manager of the Edison Storage Battery Company, has been appointed general sales manager of the Edison Storage Battery Company, with headquarters at Orange, N. J. This promotion for Mr. Kelly follows closely upon his previous promotion, on July 1 of this year, to the position of assistant general sales manager. Mr. Kelly brings to his new position the experience of a long and varied career in the storage-battery, electric vehicle and accessory business. For nine and one-half years he was district manager of the New York office of the Edison Company. Before that he had been a salesman for the Westinghouse Storage Battery Company, for the Swineheart Tire & Rubber Company, for the Firestone Tire & Rubber Company and for the New York Edison Company.

**Electrolytic Oxy-Hydrogen Laboratories, Inc., New York City**, announce the formation of a sales and manufacturing company under the name of the Electro-labs Company. This will give them an opportunity to increase their organization to meet the increasing demand of their business. Electrolytic Oxy-Hydrogen Laboratories, Inc., will continue in charge of the laboratories and maintain a technical supervision over the work of the new company. The general offices and works of both companies have been moved from Dayton, Ohio, into larger quarters at 2635 Penn Avenue, Pittsburgh, Pa. The facilities for production of the new plant will be many times greater than the old plant and will make possible even better deliveries than in the past. The general sales offices are being continued at 15 William Street, New York City, and branch sales offices have been opened in Morris Building, Philadelphia, and the Merchants' Exchange Building, San Francisco. I. H. Levin continues in charge of technical and research work and D. J. Tonkonogy in general charge of sales.

### New Advertising Literature

**R. V. Hubbell, Bridgeport, Conn.**: Circular No. 184 on its reflectors.

**W. N. Matthews & Brothers, St. Louis, Mo.**: A mailing folder on its Holdfast lamp guard.

**Dictograph Products Corporation, New York, N. Y.**: An illustrated folder on office telephones.

**Vaile-Kimes Company, Dayton, Ohio**: Catalog F on electrically operated water supply systems.

**Blaw-Knox Company, Pittsburgh, Pa.**: A folder about its single-line clam shell automatic buckets.

**Brenkert Light Projection Company, Detroit, Mich.**: Folder on its "Crescent B" spot floodlamp.

**Allis-Chalmers Manufacturing Company, Milwaukee, Wis.**: Bulletin No. 1104 on "Steam Turbine Blading."

**M. W. Duntun Company, Providence, R. I.**: Fourth edition of "Soldering Kinks," a 116-page booklet.

**Cutler-Hammer Manufacturing Company, Milwaukee, Wis.**: Booklet "J" describing its rectangular magnets.

**Cutler-Hammer Manufacturing Company, Milwaukee, Wis.**: Booklet on "Electrical Operation of Gate Valves."

**Bailey Meter Company, Cleveland, Ohio**: Bulletin No. 30 on "Fluid Meters for Low Pressure Gas and Air."

**National Carbon Company, Inc., Cleveland, Ohio**: Brush Bulletins 11 and 12 dealing with carbon brush setting and friction.

**Thompson Electric Company, Cleveland, O.**: Pamphlet "How to Make Reflectors Reflect" on safety disconnecting hangers.

**United Smelting & Aluminum Company, New Haven, Conn.**: A 150-page book on "Side Lights on Aluminum and Non-Ferrous Metals."

**Jeffrey Manufacturing Company, Columbus, Ohio**: Bulletin No. 273 supplementing catalog No. 244 and covering Jeffrey standard bucket elevators.

**Toledo Pipe Threading Machine Company, Toledo, Ohio**: An illustrated circular about its portable motor for operating pipe threading and cutting tools.

**Trumbull Electric Manufacturing Company, Plainville, Conn.**: Circular No. 46 on its "Circle T" externally operated engine switches and meter protective trim.

**Herman H. Sticht & Company, New York, N. Y.**: A leaflet on "Standco" hand tachoscopes and "Standco" hand tachometers.

**J. H. Williams & Company, Brooklyn, N. Y.**: Seventeenth edition catalog, on its Vulcan, Agrippa and Falcon brands of drop forgings and drop forged tools.

**British Aluminum Company, W. Toronto, Can.**: A 12-page pamphlet on the use of aluminum sheet, describing its manufacture, finishing and applications.

**Bennage Company, Cleveland, Ohio**: A bulletin describing the Sepco system made by the Steam Electric Products Company of generating steam for heating devices, by electricity.

**Stow Manufacturing Company, Binghamton, N. Y.**: Bulletins 103 on motor-driven tools of every type and description. Bulletin 104, portable tools, drills and flexible shaft grinders.

**Condit Electrical Manufacturing Company, South Boston, Mass.**: Bulletin No. 414-2 on type E-4 oil switches and circuit breakers whose maximum ampere capacity has recently been increased to 800.

**Under-Feed Stoker Company of America, Detroit, Mich.**: A thirty-one page booklet containing much interesting information regarding coal from various geographical sections of the country.

**Belden Manufacturing Company, Chicago, Ill.**: Bulletin No. 1208 on "Belden-mold," descriptive of material, terms and conditions covering quotations, orders and production of synthetic molded insulation.

**Allis-Chalmers Manufacturing Company, Milwaukee, Wis.**: Bulletin No. 1091 on its "Type OB-4 Governor" for automatic regulation of pressure for air brake equipment and stationary or portable air compressors.

**General Electric Company, Schenectady, N. Y.**: The Geco resistor for incandescent headlights for 500 to 600 volt circuits, giving lamp data, weight, dimensions, description of mounting, and diagram of connections.

**Metal & Thermit Corporation, New York, N. Y.**: A folder entitled "How Thermit Cured My Diseased Neck," illustrating a repair on the 16-in. diameter neck of a large roughing-mill pinion used by the Universal Rolling Mill Company, Bridgeville, Pa.