

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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Promptness at Meetings Urged on Convention Delegates

ONE of the greatest aids toward securing a maximum of results from the sessions at Atlantic City will be the promptness with which the delegates reach the meeting halls. The time which it is practicable for any one association to devote to business sessions is limited, being not more than three hours a day for three or at the most four days. If the cost of these meetings in the way of traveling expenses, etc., of the delegates should be divided by the number of minutes devoted to sessions the cost of each session-minute for each association would probably be found to be a very large sum, running probably into the hundreds of dollars. Of course, such a computation would not be entirely fair as to the cost of the time, because the benefits from meetings of this kind are not confined to the work done actually during the session. Nevertheless, while it would be hard to evaluate that time in actual dollars, it is admittedly great. Railroad men who know the necessity of maintaining schedules on their properties should be equally ready to do the same with their association meetings, and we hope that delegates will make a special point this year of being prompt at the meetings so they can be begun at the appointed times.

Quibbling About Pennies While Lavishing Dollars

"PENNY wise and pound foolish" is about the true characterization of the action of the people of some localities (or their so-called champions in public office). While they strenuously oppose an increase of 1 cent in the rate of fare on the street car, they lavish money on luxuries, insist on the best cuts of meat, wear silk stockings and silk shirts to work and think nothing of paying twice or three times as much for these items as they did before the war—if indeed they bought them at all before the war.

To look at this situation more concretely, consider for instance the building laborer of Chicago. In 1914, when the fare on the elevated lines was 5 cents, he could buy eight rides for an hour's wages. With the fare existing today, or 10 cents, this same building laborer can buy eleven rides for an hour's wages and have more than the price of a newspaper left over. His transportation today is relatively cheaper than it was six years ago. What has been said of the building laborer is pretty nearly true of workers in general.

Or looking at the problem in another way, it was pointed out to the citizens of Springfield, Ill., the other day that if their general household costs had increased no more than their electric light rates their grocery bill would still be the same as in 1910; if their coal bill had increased no more than their gas rate they would be paying only \$2.75 a ton instead of \$4.16; if their municipal taxes had increased no more than their car fare their city tax bills would be only 40 per cent instead of 128 per cent higher than ten years ago.

To think about these things seriously, and to take into consideration the fact that the times are in general prosperous and that every one, seemingly, has plenty of money, particularly the "poor, down-trodden laboring man," whose interests are always the subject of wordy protection on the part of politicians, practically forces upon one the conclusion that the opposition to increased fares is a thing of small concern to the average man and is almost wholly a misguided or pernicious activity of politicians in behalf of the non-interested public. It seems to us that the politicians would attract much greater public support and applause if they would utilize the energy and talk so liberally spent in fighting a penny or two increase in a 5- or 6-cent fare in a sincere effort to reduce the price of \$18 shoes, \$75 suits, 20-cent milk, \$14 coal, exorbitant house rents, etc., any one of which items offers opportunity to produce a saving large enough to pay the family car fare for a year.

Special Fares Logical for Special Services

IN OUR larger cities, where two and even three forms of transportation are becoming available, namely, the surface car, the rapid transit train and the motor bus, the question arises as to whether these different forms of transportation with different speeds should charge the same rate of fare, at least when under one management. There seems to be no logical reason for such uniformity if we are to take an example from steam railroading. People who value their time are willing to pay more to ride on a fast train, although the accommodations offered are otherwise exactly the same.

An instance similar to city conditions is that of travel between the city and adjacent suburbs. We have in mind one case where the average commutation rate of fare is 20 cents and the running time thirty minutes, as compared with a combined trolley and rapid transit run which costs 10 cents and takes fifty minutes. Yet the majority of regular riders pick the double-fare service, apparently for two reasons; one, the greater speed, and the other, the assurance of a seat. A still more pertinent example of the natural tendency of the public to select the faster, costlier service was noted in the article on the Cleveland Interurban Railway in the July 31 issue of this paper. Many Cleveland workmen were stated to be paying 10 cents for a fourteen-minute ride in preference to paying 5 cents for a twenty-five-minute ride.

Why should the same fare obtain for a ride of given distance which is negotiable in sixty, forty-five or thirty minutes, as the vehicle selected varies from a street car averaging eight to ten stops per mile to a rapid transit line stopping but once or twice per mile? In most cases the distances given for the unit fare on our rapid transit lines are so long that even the passengers comment upon the ingenuity of the railway in meeting expenses, yet in the same city the same public

feels that the surface railway fares ought to be decreased, if anything, to deserve their patronage for short-haul traffic.

Still another instance of special service for which patrons cheerfully pay is seen in the case of special accommodations furnished. Again referring to steam railroad practice, we see the Pullman parlor car and sleeping car as accepted and even welcomed because they supply special accommodations, for which special charge is paid without complaint, even though there is no gain in speed. And, further, in the case of the Fifth Avenue Coach Company and some other special forms of *de luxe* transportation, patrons gladly pay extra fares for the accommodations—such as open-air riding and the assurance of a seat, even though the speed is much slower. Compare, for example, a Fifth Avenue bus from 135th Street to Fourteenth Street with a subway express.

What we would point out is that special services deserve and will be accorded special fares. The determination of that fare is affected by both speed and accommodation, to say the least, and the answer may not always be simple. However, only force of habit or a public policy opposed to it can keep American operators from developing this desirable and proper differentiation in charge.

Transportation— Knowledge Versus Ignorance

WE SOMETIMES think a little knowledge is dangerous and we are inclined to believe that lack of full knowledge in conception of the other fellow's work is the chief cause of the present street railway-motor bus controversy. This ignorance, if the term may be applied without malice, appears in three places—the motor bus companies, the street railway companies and the political arena. Each of the three agencies makes statements, quotes figures and argues from its respective standpoint and with its respective interests in view. We question the knowledge of each party regarding the transportation business and vehicle as developed by the other when considering the street railway and the motor bus companies and have little doubt of the ignorance of most politicians concerning either system.

Transportation knowledge is the essential key to the controversy and not expert knowledge of the mechanism of the street car, the motor bus or the body politic. Only through an intensive study of transportation can the place, type and function of the various agencies be determined, and there is little to stand on for either the motor bus company, the street railway company or the politician who attacks the problem from a selfish or narrow standpoint. We are frank to admit that the world moves and that transportation methods, vehicles, etc., are subject to change; we do not venture to predict the ultimate future type of surface transportation, but we are firm in our conviction that whatever the type, it will be used because it is the economic social and æsthetic solution to the transportation problem. The solution may involve the use of street cars, motor buses and other transportation types as yet unknown, but we maintain that the proper people to solve the problem are those who know transportation and attack the problem from that standpoint. The street railway companies are the big dealers in transportation, with fifty years' experience in transportation back of them. By all logic they should solve the transportation problems of the

present and the future, whatever may be the agencies used in the traffic. Open-minded, intelligent effort along developmental lines should be the present policy of street railway companies, and right now there should be a well-directed effort to find the place of the motor bus in transportation and to use it in its logical place in connection with the existing systems.

Short-sighted conservatism and extravagant propaganda are alike out of place in dealing with public utility developments. Progress based on knowledge is the logical method for development to avoid disaster, and the street railways have the strategic position to obtain the facts and direct the development.

The Industry's Thinking as Reflected in the Convention Programs

WE LOOK to the program of the American Electric Railway Association and its affiliated organizations to point out the high spots in the business by their selection of topics for the annual and other meetings. The interest which attaches to these topics is a measure of the virility and activeness of the industry, a sort of barometer, so to speak. Judged from this standpoint, the programs made up for the Atlantic City convention this year are excellent.

Taking up first the program of the parent association, we note a great diversity of subjects, although there is a certain unity about it. It covers mainly the motor bus, freight and express traffic, labor, fuel and rate of return. Looked at another way, the subjects group themselves roughly as relating to conducting present activities more effectively and the attempt to find new transportation fields.

Of particular interest at this time is the motor vehicle, truck or bus, and its relation to rail transportation. The vital question is that suggested in the title of the address to be presented by G. M. Graham, vice-president Pierce-Arrow Motor Car Company, namely, "The Motor Vehicle—Competitor or Ally?" The answer will be outlined by other speakers as well as him. Of course, the answer will be "Ally," but then we shall want to know how it is to become such. It has been much more successful as a competitor. This topic has and deserves a fine place on the program.

The association is fortunate in having captured Governor Allen to talk on labor matters. A more harmonious and consistent relation between men and management must be fostered. The Governor is bound to "say something" along this line.

Referring now to the programs of the affiliated associations, it is plain that these organizations are broadening out, although, of course, doing so along the lines of their specialties. To illustrate: The claims men will talk mainly about accident prevention and welfare work rather than the settling of claims; the engineers will discuss railroad electrification and the "super-power" plan, in addition to their committee reports; the accountants will take up the problems of general finance and the accounting profession as well as accounting details, and the transportation experts will consider merchandising as well as producing what they have to sell—rides.

Another fine thing about the convention program is the plan for fostering co-operation among the several departments of the electric railway organization. Viewed narrowly, inter-departmental interests oftentimes seem to conflict. Thus, the mechanical department wants

the cars sturdy, to keep them out of the shop, whereas the power department wants them light, to conserve energy, and the transportation people, who operate the cars, sometimes have ideas of their own. But over and above their own petty interests these fellows are concerned with giving good service at a reasonable profit, and the more keenly they realize the fact the better. Such joint sessions as are provided at Atlantic City will foster real co-operation.

Coal Tests Aid the Purchasing Agent

IN THE present struggle to secure coal enough to keep the rolling stock and shop equipment moving, fuel testing and inspection look like needless refinements to many purchasing agents. Recent inquiries regarding the relation between coal tests and practical operating results brought the information that in certain companies very little interest is displayed in this matter at present. Not a few purchasing agents seem to think that if they succeed in landing carloads of coal beside the power house their duty is done, and even the executive circle is inclined to throw up its hands and trust to improved conditions in the future rather than attempt to have fuel analyzed and prices readjusted accordingly.

Under such conditions as now prevail it may not be feasible to purchase coal upon a B.t.u. basis or to settle bills therefor upon a standard of heating value only. Analyses and calorific tests, however, point the way toward fair settlements, and even if the purchasing agent cannot obtain fuel of the specified quality in many cases it is highly desirable that he should know what quality he is getting. In case more clearly normal conditions prevail later in the market the knowledge of variations sustained in these trying days will be very helpful and should be on record. If abnormal conditions prevail for years, blind buying without check-up tests will lose money to an unknown degree for the operating man. It is not unknown for a carload of poor quality coal to pass through four or five selling hands between the mine and the ultimate consumer, and at present costs, and with priorities accorded public utilities, the rejection of poor quality coal should be prompt and decisive, if based upon the specific information which the fuel expert can supply.

Finally, a study of the relation of plant efficiency to fuel market conditions emphasizes the importance of analyses as a means of ascertaining station efficiency. With the variations in quality now experienced in many localities, the pounds of coal burned per kilowatt-hour delivered at the station bus is not as good a measure of efficiency as the B.t.u. per kilowatt-hour. Without definite knowledge of the quality of fuel burned, obtained at short intervals, station performance becomes more a matter of guesswork than is well. Close "tabs" on fuel quality are needed all along the line. A movement toward more centralized fuel buying appears to be taking shape in the East, and the purchasing agent who tries to "go it alone" will do well to consider how his purchasing practice can be improved through expert aid and co-ordinated ordering.

What Will the Engineers Discuss at Atlantic City?

AMERE glance at the program arranged for the Engineering Association convention this year indicates the large amount of work that it is planned to accomplish. The other associations have blocked out a lot of work too, but by the very nature of their work a vast amount of detail falls to the engineers. Due to the suspension of activity of the various committees during the war period, a large amount of work was left over. This has been fairly well "cleaned up" by the present committees.

The subject of standardization, which is always an important one, sticks out all over the program. This is now of greater value than ever, because the manufacturer members are represented on each committee. One thing that is sure to come up for discussion in this connection is the effect that standardization has upon the cost of operation and maintenance of equipment. All engineers should come to Atlantic City prepared to discuss this topic, as there seems to be a diversity of opinion in regard to the effect of standardization in reducing cost. The far-reaching effect of standardization will be further emphasized in the papers and discussion on stores and purchases.

At the end of last winter, when certain localities were hard hit by blizzards and other evidences of winter, the study of the effect of severe winter conditions on equipment was assigned to the committee on equipment for investigation and report. Much valuable information has been collected, and this special report should again open up the subject at a time when the railways are ready to make improvements to meet the problems of the coming winter. In this connection the developments which have been made during the past year in perfecting insulation and making it impervious to moisture should form a subject of vital interest to the industry. Again, the lack of equipment for removing ice from between and along railway tracks was most forcibly brought to the attention of Eastern roads by the several severe ice and sleet storms during the latter part of last winter. A discussion of the remedies employed and equipment found useful in keeping cars in operation in spite of ice and snow would be helpful.

If operating engineers have any criticisms to offer in connection with the service obtained from equipment, these engineering sessions will afford an excellent place in which to bring points to the attention of the manufacturers. Many benefits can be derived from frank criticism and discussion, and the engineers of all manufacturing concerns are eager to assist in any way possible that will help to prevent and remedy troubles which are pointed out to them.

But equipment is not the only subject of engineering interest, although at the moment it is a salient one. The effects of the advances in the welding art upon track construction, the progress made in heavy traction and the problems of the power engineer are all entitled to full and conscientious consideration. The whole convention is going to be a worth-while affair, and the engineers are going to hold up their end.

The issue of Oct. 16 will contain full reports of the Atlantic City meetings of the American, Accountants', Engineering and Transportation & Traffic Associations

Kansas City Operation Analyzed

City Member of the Board of Control Makes His Sixth Annual Report on the Kansas City Railways—Discussion of the Traffic, Financial and Engineering Features of the Year's Operation

ROBERT P. WOODS, city member Board of Control, Kansas City Railways, has made his sixth annual report to the Mayor and the city's directors in the Kansas City Railways. Mr. Woods resigned Aug. 1, to accept a position as vice-president and general manager of the Kansas City, Clay County & St. Joseph Railroad, and was succeeded by Col. E. M. Stayton as city member Board of Control. On July 7, 1920, six years of operation under the new franchise had been completed, and during this time the personnel of the five city directors had been unchanged and Mr. Woods had served continuously as city member of the Board of Control. The present report, which is abstracted below, depicts conditions as of May 31, 1920.

During the first three years after the passage of the new franchise the company paid out \$400,000 in dividends and had a surplus of more than \$1,000,000 left in its property, but during the two years and eleven months following, although the gross income increased over that of the former period, the operating expenses increased so greatly that, considered as a whole, the company has created a deficit of more than \$4,000,000. The operating ratio was about 70 per cent for the first three years after the passage of the franchise, but during the past two years and eleven months the ratio of operating expenses to gross earnings has been 95.9 per cent. There have been two increases in wages within the past fiscal year and, compared to conditions in 1916, the following table gives the percentage of wage increases:

Trainmen, first six months.....	127.28
Trainmen, second six months.....	116.27
Trainmen, second year.....	103.85
Trainmen, third year.....	83.33
Firemen.....	156.41
Oilers.....	156.41
Painters.....	55.56
Machinists.....	40.63
Track laborers.....	123.53
Linemen.....	89.66

Fare increases have been granted throughout the period of the franchise operation and at the present time there is a cash fare of 8 cents, a paper ticket rate of 7 cents when purchased in lots of five and a metal token which sells for 7½ cents.

The report shows a very interesting graphic tabulation of the proportion of cash fares to tickets during March, April and May, 1920, taking Wednesday, a normal day, as typical of average conditions. The tabulation shows that for each month 65 per cent of the receipts were in the form of metal tokens, 25 per cent were in the form of the paper tickets and only about 10 per cent were cash fares.

For the month of June, 1920, the average number of cars operated daily was 661.6, as compared to a daily average of only 579.2 for June, 1919. This increase was due to new equipment purchased and placed in operation where it was most needed and to a redistribution of the old equipment, which has in addition been put in better condition, thereby decreasing the number of cars in the shops for repair. John A. Beeler,

traffic expert of New York City, has co-operated with the Board of Control in bringing about needed changes and betterment in service. There has been continuous and serious difficulty throughout the year with fuel, as to quantity and quality, and some trouble in the power house operation. Two new substations were placed in operation and automatic control equipment was placed in two other substations.

The gross income from the property for the last two years and eleven months was \$25,595,566.97. The operating expenses were \$24,500,070.11, leaving an operating income of only \$1,095,496.86. Neither the 6 per cent on the capital value in Missouri nor that in Kansas was earned and the fixed charges for this period amounted to more than \$5,000,000, thus making a deficit to fixed charges alone for the period of \$4,228,936.40*

TRANSPORTATION AND CONSTRUCTION

The company did a considerable amount of reconstruction work during the period and the following estimate gives the cost for the complete reconstruction in 1920 of about 2 miles of single track on paved streets in congested districts, including the cost of dismantling, maintaining and constructing temporary diverting tracks:

Total cost \$142,313.40, divided between material, \$82,202.77, and labor, \$59,815.63.

These figures show the extremely high cost of approximately \$70,000 per mile for the reconstruction of track under heavy city traffic conditions with existing labor and material prices. The company spent more than \$81,000 in making additions, betterments and renewals during the year, and of this sum \$49,000 was spent for material and \$32,000 for labor. The present total mileage of single track is 315.73, of which 249.149 is in Missouri and 66.581 in Kansas.

In discussing transportation the report brings out the fact that the situation in general looks much brighter than it has for three years. In the opinion of Mr. Woods the service is better now than it has ever been, especially when, in addition to many improvements made in regard to the tracks and additions to equipment, the following conditions are considered:

1. That more cars are in service now than there have been in the past, and this notwithstanding the fact that there are from 35,000 to 45,000 fewer passengers being hauled each day than there were three years ago.
2. That the service is better adjusted to the present needs.
3. That the speed of the cars has been increased, especially in the downtown districts.
4. That the intercity viaduct has been opened for street car traffic.

For the eleven months ended May 31, 1920, the company carried 111,263,827 revenue passengers with a car-mileage of 22,442,466 and a total passenger revenue of \$7,842,696, as compared with the year ended June 30, 1919, which had 21,174,642 passenger car-miles, 109,-

*The company was placed in the hands of a receiver on Sept. 9, 1920.—EDITORS.

273,320 revenue passengers and a total passenger revenue of \$6,351,168. The great increase in operating expenses has been felt by the company, so that during the past eleven months it has been operating at a deficit.

INCREASED USE OF SAFETY CARS

During the past year the company has purchased and received sixty-five safety cars, making a total of ninety-five now on the system. While the appearance of the last sixty-five is very similar to the first thirty, there really is considerable difference in some of the details, such as the seating arrangement, entrance way, rear door mechanism, trucks and other things of less importance.

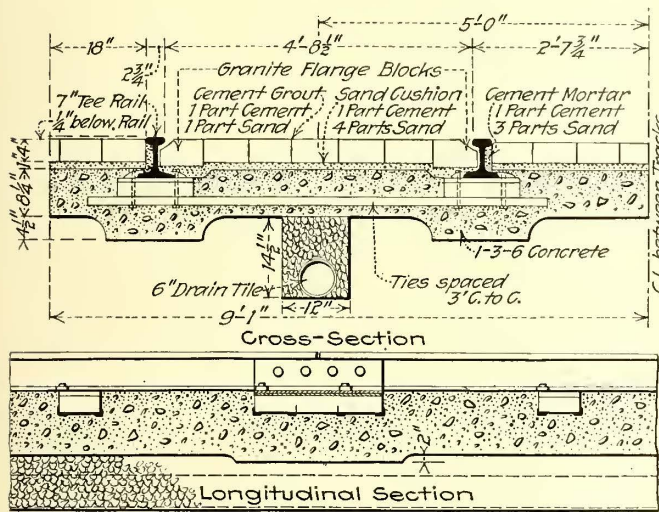
With the exception of two lines all of these cars have been placed in service on lines that do not enter the

number of privately owned automobiles and the freedom with which they are allowed to park, and finally the routing of too many street cars on certain congested streets.

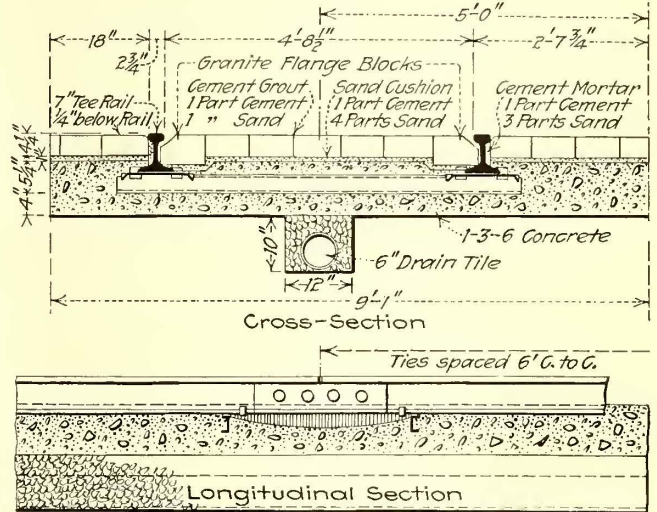
However, an ordinance has been passed which eliminates jitneys from congested districts and also an ordinance has been passed regulating the parking of vehicles, so that after certain cars have been rerouted it is expected that this congestion will be relieved greatly.

EQUIPMENT AND SHOP CHANGES

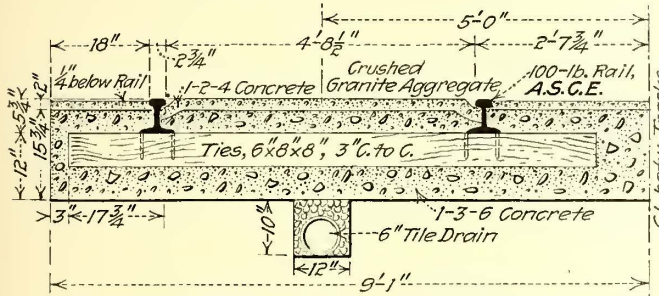
As a direct result of the strikes starting in December, 1919, there was a precipitous rise in the number of car pull-ins from approximately 670 in November, 1919, to about 2,500 in June, 1920. The utmost energy was expended during the year to overcome the handicap to



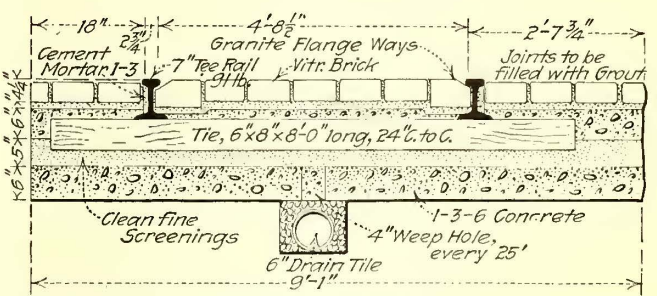
TRACK ON CONCRETE USING DAYTON MECHANICAL TIE, 7" TEE RAIL 91 LB., AND BRICK PAVING



TRACK ON CONCRETE USING INTERNATIONAL STEEL TWIN TIE, 7" TEE RAIL 91 LB., AND BRICK PAVING



JACKSON AVE. 9TH TO 12TH STS. CROSS-SECTION OF TRACK USING 100-LB. RAIL A.S.C.E.



8TH ST. MCGEE TO TROOST & 10TH ST. MCGEE TO TROOST PROPOSED TRACK CONSTRUCTION

SPECIAL TYPES OF TRACK CONSTRUCTION USED BY KANSAS CITY RAILWAYS IN RECONSTRUCTION WORK

business districts. The cars on the two lines that do enter the congested business district were placed in service without the approval of the Board of Control. It has always contended that these cars are too small for the handling of large crowds. This is principally on account of the time consumed by passengers boarding and alighting from the cars, there being only one door, so that passengers desiring to board have to wait until passengers desiring to alight are out; when this has to be done through a crowd in a narrow roadway it certainly slows up traffic.

Traffic congestion has increased during the past year. The principal causes for this have been the narrow streets, the increased number of jitneys, the increase in the loading and unloading of vans, the increased

service due to the large number of cars in bad condition. A vigorous and comprehensive overhaul program was undertaken under the direction of the railway company's equipment engineer. A steady decline in the number of pull-ins was the direct result, the number decreasing from approximately 2,300 in July, 1919, to about 800 for June, 1920.

In this rehabilitation program the effect was concentrated upon mechanical and electrical details, such as the overhaul of trucks, controllers and motors. Calculation showed that it was physically impossible to keep up with the desired painting program without handicap to service on the street, and it was therefore decided to do only such painting as would not delay the placing of overhauled cars promptly in service.

In systematizing the overhaul program all passenger cars were classified in three groups, as follows:

Group 1—Wrecked and burned cars waiting decision as to disposal.

Group 2—Old cars unfit for passenger service, including cars still in service and cars out of service.

Group 3—All other passenger cars.

Group 3 was subdivided into three divisions, bad condition, fair condition and good condition.

As a result of the program a rather interesting cost record is available. Twenty-nine cars, group 1, were subjected to a complete overhauling and painting, from trolley to rail, and remodeling, at a cost of \$1,000 per car. Twenty cars, group 2, were subjected to the overhauling and painting and remodeling at a total cost of \$406.50 per car. Forty-six cars, group 3-A, were subjected to light overhaul and painting of body and complete overhaul of trucks, motors and control at a cost of \$220 per car. Two hundred and sixty-one cars, group 3-B, were subjected to light overhaul of body and complete overhaul of trucks, motors and control without painting at a cost of \$170 per car. Two hundred and twenty-two cars, group 3-C, were subjected to complete overhaul of trucks and motors only at a cost per car of \$100. The time taken for the overhaul of the various classes was thirty days for the group 1 overhaul, fifteen days for the group 2, ten days for the group 3-A, five days for group 3-B and one day for group 3-C.

CHANGES IN SAFETY CARS

The experience with the first twenty-five safety cars purchased and placed in operation during the spring of 1919 showed that certain mechanical and structural changes as well as a general rearrangement were highly desirable, so that considerable time was spent by the engineers in an analysis of these cars and the preparation and recommendation of changes therein. Decision was early reached that more safety cars were desirable, and as the car makers were indifferent, if not antagonistic, to making any changes, it was necessary that the proposed changes be such as could be obtained from the car companies without too great distortion of existing standards and shop methods.

The principal changes made in the safety car are outlined as follows:

Structural strength of underframe materially increased.

Seating and platform arrangement extensively revised to facilitate loading and passenger movement.

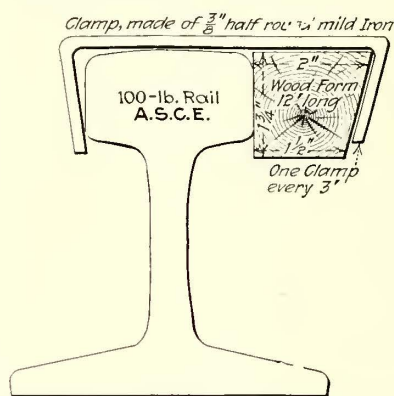
Twenty-four-in. cast wheels replaced by twenty-six-in. steel wheels, and specially designed rubber cushions installed in the truck suspension bolts to reduce noise.

A high-grade, full-rattan-covered, spring-upholstered seat replaced the slat seats. Maximum step height was reduced 2 in. Interior ceiling or head lining was added to improve appearance and warmth in winter. Thirteen heaters were installed instead of eight. Aluminum grab rail and stanchions were used instead of painted iron. Special design of projecting fender was installed instead of lifeguards, which have given unsatisfactory service. Heavier and better riding trucks were added. Low-voltage push buttons without exposed metal parts replaced high-voltage push buttons with exposed metal parts.

The above changes involved an increase in weight of approximately 1,200 lb. per car and an increase in cost above the cost of the standard safety car of approximately \$200 per car. The revised weight was 15,000 lb.

During July, 1919, some experimental work was done under the direction of the board's engineer subsequent to his suggestion that it was apparently feasible to provide fan ventilation on Westinghouse 306 motors used on cars of the 800 and 900 series, thereby increasing the motor capacity sufficiently to haul double-truck trailers, seating about forty-seven passengers each. An experimental fan was built and the test results confirmed the estimate that between 20 and 25 per cent additional continuous capacity could be obtained, which would be sufficient to handle the largest trailer. At the same time an investigation was made of existing schedules to determine the possibility of using numerous motor car and trail trains. This resulted unfavorably, it being found that periods of minimum headway, that is under two minutes, were exceedingly short, so that the trail trains could not be used for any long period of time without making long headways, approximately four minutes, because of the large capacity of trains.

An investigation of the existing grades indicated that the apparent saving with trailers would have to be discounted somewhat because of the fact that the trains would be sandwiched in between single motor cars and also because slower acceleration would somewhat delay the motor cars, thus increasing the running time. The



WOODEN FORMS USED TO FORM FLANGEWAYS IN CONCRETE

company replaced the register fare boxes with Woods lock fare boxes during September of 1919. The price of the new box with brackets was \$45 per box.

POWER CONDITIONS DURING THE YEAR

The power situation has been critical throughout the year. The shifting personnel at the plant made it difficult to carry on the construction program, as well as very adversely affecting the power plant economy and upkeep. Combined with these factors was the serious difficulty of obtaining a good fuel supply, and it was only by the most vigorous methods that a sufficient quantity was obtained. The coal delivered was consistently about the poorest ever burned in the station.

The new Northeast power station was started during the year, and other principal construction jobs were the continuance of underfeed stoker installations, a new fan house and duct, a trial installation of extension of chain grates, with new type of arch, as well as starting construction of revised ash-handling facilities.

About the first of the year a Westinghouse development, in the nature of side wall tuyeres or air boxes, was installed in boiler No. 5, for the purpose of reducing the adhesion of clinkers to the side walls of the furnace. This trial installation was a wonderful success and an order was immediately placed for side wall tuyeres for the remaining eleven underfeed stokers. In spite of the extremely poor coal, some of it averaging less than 7,800 B.t.u. per pound, the underfeed stoker installation promises to fulfill the specifications as regards efficiency and capacity. The irregularity of the fuel and its poor quality has shown the decided

advantage of the underfeed stoker in regard to maintaining fires. At times from four to six fires have gone out on the chain grates at the Missouri River Power Station, requiring their entire rekindling. This trouble was not entirely confined to the Missouri River Power Station, as it is understood that the new Northeast Power Station found difficulty in maintaining a capacity between 18,000 and 20,000 kw. with boilers intended for approximately 40,000-kw. output.

USE BOILERS AS EVAPORATORS

While considerable improvement has been made in the boiler feed water temperatures, the average is probably under 170 deg. F. Steps are being taken to install a bleeder connection between the third and fourth stages on the 15,000-kw. turbine and the auxiliary exhaust which passes close by the turbine. It is estimated that these connections will cost approximately \$250. Check valves will be installed so that when the turbines are shut down or operated under light loads no steam will flow from the auxiliary exhaust to the turbine. When the turbines are operated at load, steam will be bled from the turbines into the auxiliary exhaust, enabling the water to come from the underfeed heaters at approximately 210 deg. instead of 170 deg. Besides the heat gained by this arrangement, it is hoped to deposit approximately two-thirds of the scale-forming compound in the heaters instead of in the boiler tubes. This will be accomplished by raising the feed water temperature in the heaters. Most of the carbonate scale will be deposited if the temperature is kept at about 180 deg., and it is estimated that at least two-thirds of the scale-forming compounds are carbonates.

The presence of scale and the large amount of boiler cleaning necessary have resulted in the loss of a considerable number of boiler tubes. In combination with the above bleeding scheme, the board's engineer recommended, and the suggestion is being placed in effect, that six boilers be used for purely evaporator service. Under this scheme all raw water will be sent to a certain group of boilers which will always be operated at relatively low ratings on account of the bad water conditions in them; all other boilers in the plant will then be fed from pure, condensed water.

No scale whatever would therefore exist in a great majority of the boilers in the plant, resulting in a

higher efficiency of heat transfer, and making it unnecessary to waste heat for blowing down or causing delay for replacing any tubes. It is proposed to feed all raw makeup water to one of the small heaters on the north side of the boiler room.

POWER STATISTICS AND COST

The company generated 210,427,964 kw.-hr. in 1920, as compared to 202,264,946 kw.-hr. in 1919. The switchboard cost in 1920 was 1.2336 cents per kilowatt-hour; in 1919 this cost was 1.3264 cents per kilowatt-hour. The average price of coal per net ton in 1920 was \$3.64, as compared with \$3.74 in 1919. The average price of oil in 1920 was \$1.68 per barrel, as compared with \$2.56 in 1919. The fuel cost per kilowatt-hour in 1920 was 8.86 mills, while the labor cost was 1.33 mills. The company used 387,143 tons of coal during the year and 175,955 bbl. of oil. The company averaged 3.926 kilowatt-hour per car-mile in 1920, as compared with 4.250 kw.-hr. per car-mile in 1919.

BEELER'S REPORT

Mr. Woods publishes the report of John A. Beeler, traffic expert, who was retained by the Board of Control to study Kansas City conditions and to make recommendations for relief.* The report speaks of Mr. Beeler's work in a complimentary manner and states that conditions have been greatly relieved through the adoption of his recommendations.

Since the Wood report was issued, the Kansas City Railways has been placed in the hands of a receiver, as has been noted in these columns. An account of the receivership and the causes leading up thereto is given in the Financial and Corporate Section of the ELECTRIC RAILWAY JOURNAL this week.

The South African Railway Administration is going ahead with the electrification of the Cape Town-Simons-town line and the Durban-Pietermaritzburg line, involving an expenditure under present price conditions of nearly four and one-half million pounds sterling. This is part of the general electrification plan mentioned in the issue of this paper for Jan. 10, 1920, page 102.

*Five sections of this report have been reviewed in ELECTRIC RAILWAY JOURNAL, issues of Feb. 14, April 3 and Aug. 14.

Reproductions of recent issues of the "Subway Sun" and "Elevated Express," which tell their own story

The Elevated Express
HIGHER TAXES - HIGHER RENTS
The City's Investment, thus far, along with the Interboroughs, to provide rapid transit is
IN THE ORIGINAL SUBWAY, 153,853,325.00
IN THE NEW LINES, 184,598,696.03
The City is forced to meet the interest on the latter sum by increased taxation
Nothing except an increase in fare can avoid this necessity and make the investment self-supporting

The Subway Sun
WHY?
HEARST'S MAGAZINE . . . 15 Cents 36 Cents
SUNDAY AMERICAN . . . 5 " 10 "
N. Y. EVENING JOURNAL . . . 1 " 3 "
REASONS: "The great increase in cost of materials and machinery, with the increased pay for labor, etc."—N. Y. Evening Journal, April 27, 1920
Exactly why a five-cent fare is not sufficient!

The Subway Sun
World's Safest Railroad
PUBLISHED NOW AND THEN BY THE INTERBOROUGH RAPID TRANSIT COMPANY
AUGUST, 1920 NUMBER 32
From The New York World, August 2, 1920
68 KILLED, 632 INJURED, BY AUTOS IN CITY LAST MONTH
List Compiled by Medical Examiner Shows Thirty-Nine of the Dead Were Children Under Age of Thirteen—Fatalities in June Numbered Ninety-Two.
Sixty-eight persons were killed and 632 others were injured by vehicles in New York month. In June, ninety were killed.
Included in the July thirty-nine children over the age of the June forty-three mentioned were The death Charles N. per.
DEATH TOLL OF AUTOS IN THIS CITY AND STATE
Death list in city for first seven months this year. . . 374
Included in the seven months' list were children under thirteen years . . . 186
The June death record in this city . . . 92
Killed last month . . . 68
Killed in State in last five years . . . 4,585
Killed in this city in same period . . . 2,525
More Street Traffic - More Danger / More Subways - Streets Safer / THINK IT OVER! Interborough Rapid Transit Company.

The Subway Sun
10¢ = ON ANOTHER SUBWAY = 6¢
By authority of the U.S. Interstate Commerce Commission, fares on the Hudson Tubes to Jersey City are now 10¢ (Uptown Lines) and 6¢ (Downtown Lines)
The Commission held that because of higher wages and higher prices, the Tubes could not earn enough at the old 7¢ and 5¢ rates
Interborough Rapid Transit Co.

The Subway Sun
What will the congestion be in a few years more, unless we build new subways?
Where can capital be found to build them when, under present conditions, a 5 cent fare will not make them self-supporting?
Interborough Rapid Transit Company

Utility Situation Reviewed

Committee of Investment Bankers' Association Reports Utility Situation Encouraging—Status of Public Utilities Considered

AT THE annual meeting of the Investment Bankers' Association, held this week in Boston, O. B. Willcox, vice-president Bonbright & Company and chairman of the committee on public service securities of the Investment Bankers' Association of America, presented an extended and able review of the public utility financial situation in this country. According to Mr. Willcox:

The public utility situation is distinctly encouraging. The functions of public service are better understood, their financial problems are recognized and are being solved. The critical observer cannot escape the just conclusion that the public in limiting the rate of return on utility investments has become responsible for a fair return. The events of the year have confirmed the conclusion of those operators and regulators who have pointed out that the most efficient utility is the prosperous utility. The demand for the great expansion of all public utility service comes not from the owners and operators but from the public. It is not too much to say that public regulation of utilities in the United States has reached a point where its principal function is recognized to be the provision of adequate public service through just rates sufficient to attract the capital needed for their expansion.

According to Mr. Willcox, utilities have taken their places in the public mind as no longer either merely conveniences or luxuries or merely private enterprises interesting only to their owners, but as great and essential tools of industry, no less important in their fields than the railroads, the banks and the post office. They are not mysterious or impressive aggregations of predatory wealth, but they are human accomplishments composed of materials and money and men, subject to the immutable economic laws that govern all human industrial endeavor.

The public has also come to realize that these systems must expand or they are no longer efficient public servants, and that new money can be drawn only from the investment funds of the country, accumulated out of the savings of the industrious and thrifty, and that, in their requirements for capital, these utilities compete with all the attractive and profitable opportunities offered to capital anywhere in the world.

Continuing, Mr. Willcox pointed out that under regulation, which now prevails throughout the country, the amount of capital invested in the utilities is limited to a fair and reasonable return, so that the money of speculators will not flow into this channel. Only those seeking investments with a limited return will provide the capital required, but they in turn must be assured of the certainty of their principal as well as of the promised income. The public, therefore, in regulating its utilities has at the same time assumed responsibility for both protecting the capital invested in public service and assuring its reward in the form of interest and dividends.

The recent water power bill is considered by Mr. Willcox to be an example of practicable legislation, and many hundreds of thousands of electrical horsepower will be speedily developed under its terms, if the newly created water power commission administers the act so that powers developed on the public lands and navigable streams "will not be so handicapped by vexatious restrictions and administrative expenses that they cannot successfully compete for their capital requirements and for the sale of their output with power generated by fuels or on streams not under Federal jurisdiction."

Some fifty applications for permits have already been filed with the commission, contemplating the development of several hundred thousand electrical horsepower.

The speaker also referred to the study now being conducted by the United States Geological Survey of the power resources of the Atlantic seaboard between Boston and Washington.

Mr. Willcox quotes extensively from the report of the Federal Electric Railways Commission, a report with which, he says, it is important that bankers throughout the country should be familiar. Continuing, he says:

As in all industrial enterprises, the fundamental requirement for efficient street railways is credit, and the handling of credits in the large volume required is the peculiar function of investment bankers; they can do great public service in lending their advice and aid in the rehabilitation of street railways by counseling those readjustments that will most speedily re-establish street railway credit, and they will thereby serve their own interests in promoting the prosperity of their several committees and in creating large volumes of sound securities which they can handle at fair profit.

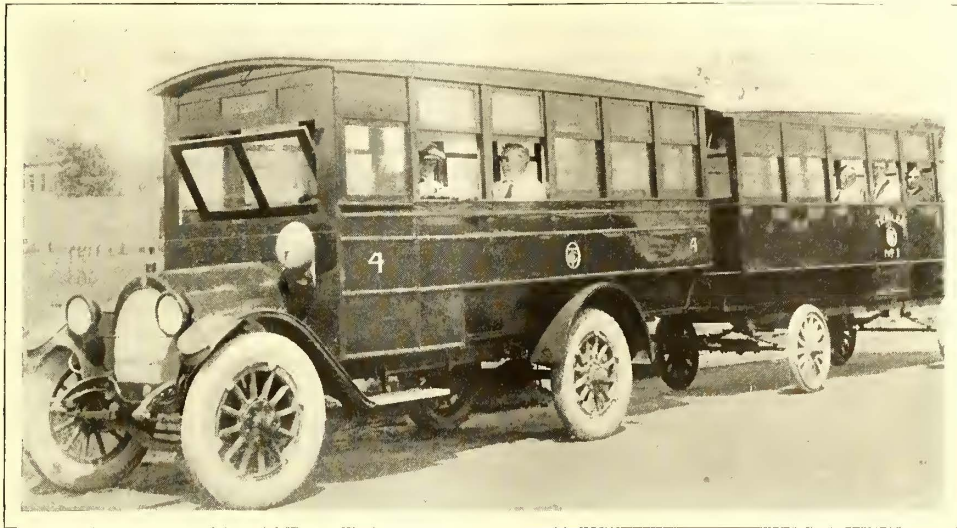
Even before the filing of the commission's report there was an obvious endeavor on the part of the regulating officials throughout the country, with very few exceptions (of which New York City is the most conspicuous), to make the rates of fare flexible so as to meet the requirements of each separate situation. The increases in rates granted have gone a long way toward establishing a basis for the rehabilitation of the credit of the street railway systems of the country.

A section of the report is devoted to the practice during the last few years of many companies to secure a local distribution of their securities by selling them to their customers and patrons. It is estimated that upward of \$100,000,000 of utility securities have so been sold since the outbreak of the war. Such a plan should be encouraged for many reasons.

Discussing another phase of financing utilities, the report points out that the corporate and financial structure of many utility enterprises has proved to be disappointing (1) in not providing adequately for continuing financing to make money provision for constant growth and expansion, and (2) in relying too largely on fixed obligations and not providing sufficient equity represented by shares of stock. The rapid growth of utilities could not perhaps have been foreseen, it was said, but now that continued growth and expansion are recognized as inevitable incidents and functions of efficient and successful utilities the bankers advising and directing the development and growth must guard against the consequences of inflexible financing, which has both hampered the proper expansion of utility service and sometimes brought disappointment and loss to bankers and investors. The banker called on to market utility bonds has perhaps been too much governed by the old precedent of limited issues of sinking fund mortgage bonds. While these constituted a proper part of the financial structure of fixed, static and non-expanding enterprises, they have proved altogether inadequate to modern utility financing and will be more disappointing in the great utility expansion which is clearly in sight. Bankers must adopt the form of mortgage which while affording adequate security will permit and promote, not obstruct or hamper, the growth which is inseparable from successful and sound utility enterprises. The report then calls attention to the need of adequate stock issues and says that the principles of the non-par value stock are now better understood than formerly and their use in public utility capitalization is to be encouraged, as it would simplify some of the problems and encourage investment in utility enterprise, which is so necessary.

Motor Buses as Railway Auxiliaries

The Aggregate Number of Electric Railway Companies Which Are Now Operating Bus Lines Is Not Large—Some Statistics and General Conclusions Are Given



MOTOR BUS WITH TRAILER IN AUXILIARY AND SUPPLEMENTARY SERVICE OF THE OKMULGEE (OKLA.) TRACTION COMPANY

AN EFFORT was made recently by this paper to tabulate the electric railway companies which are operating bus lines. The result is shown in the accompanying list. Cases of buses owned by the same interests as the trolley lines but operated as entirely independent enterprises, of which there are a few, are not included. Notes are appended in regard to some of these properties.

MILWAUKEE ELECTRIC RAILWAY & LIGHT COMPANY

This company operates a bus line about 1½ miles in length which connects two radiating street railway lines and intersects a third railway line about midway in its route. The company has never felt that the business warranted the necessary capital expenditure for a railway line and installed the bus line as a compromise measure. The service furnished is comparable with street railway service in headway, average speed, rates of fare and transfer privileges. The present buses are Nash 2-ton truck chassis, carrying a special body built by the company with a total weight unloaded of 6,700 lb. They will seat twenty-four passengers and permit sixteen additional passengers to stand, and are one-man operated.

The results of operation have been very satisfactory and, on the basis of July business, the line will handle 500,000 revenue and 300,000 transfer passengers during the year. In spite of the high transfer ratio the earnings average 35 cents per bus-mile.

The company's experience up to this time indicates the desirability of motor buses to furnish service in outlying districts, on crosstown routes or on extensions to existing car lines where traffic is more or less uniform during the entire day on account of their low initial investment. In view of its limited carrying capacity, however, this advantage of a bus largely disappears on lines having heavy peak load conditions.

The buses in Milwaukee were installed in April, 1920, and make approximately 85,000 bus-miles per year with two buses in constant service.

CONNECTICUT VALLEY STREET RAILWAY

This company installed a motor bus route in November, 1919, as a supplement to its street railway system. Two buses are needed to maintain the schedule and the third is held as a reserve. The bodies are mounted on lengthened Cadillac chassis and have a seating capacity of nineteen with an unloaded weight of 5,500 lb. The buses operate about 240 miles per day. The fares are collected by the Rooke register. A minimum fare of 10 cents is charged, with 5 cents for each additional zone. Further particulars of this line will be found in the *ELECTRIC RAILWAY JOURNAL* for April 24, 1920. In a recent letter the company says: "So far our judgment, as it is formed by our limited experience, is that there are some sections of territory which need transportation and that the use of the motor bus provides transportation at a minimum capital outgo. The public apparently likes to ride in the buses, and we believe the buses are the proper things to use for our situation. They have disadvantages in that they are expensive of maintenance, and we had weather conditions last winter that made it impossible to operate them when street cars operated very well in the same territory. They cannot handle peak loads and the use of many buses would badly congest highways as against other users. If normal costs were in vogue today we think we would try the motor bus experiment a little further in one or two other sections."

BALTIMORE TRANSIT COMPANY

The system of this company, which is associated with the United Railways & Electric Company of Baltimore, was described at length in an article on page 13 of the

issue of this paper for Jan. 3, 1920, so a brief statement only will be given. Twenty single-deck buses are used, each with a seating capacity of sixteen and a weight of 7,000 lb. The present buses were installed in August, 1917, but the original service was instituted in 1915.

No transfers are issued to the trolley lines, and for 1919 the buses carried 1,958,915 passengers with a bus-mileage of 367,131. The installation in Baltimore has proved the value of the motor bus there to give a supplemental and also auxiliary service. The chief disadvantages found have been high operating costs and small carrying capacity.

MUNICIPAL RAILWAY OF SAN FRANCISCO

This railway system installed rented buses in 1917 and owned buses in January, 1918, as feeders to its street car lines. Five buses are operated, each seating nineteen passengers and with a capacity of thirty. The bus weighs 7,800 lb., including the 1½-ton chassis. During the year ended June 30, 1920, the bus-mileage was 236,797 and the buses carried 784,295 passengers. A financial statement for the last fiscal year is given in detail in Table I.

Transfers are free at all connecting points. A statement accompanying this report says: "In a new district where the travel will not justify the initial cost of railway construction and the people have no other means of transportation, buses may be used to advantage, although they are expensive to operate and are small units." The lines operate at a loss of about 13 cents per bus-mile, with receipts of 13 cents per bus-mile and expenses 26 cents per bus-mile. The fare is 5 cents, with 2½-cent school tickets and local transfers for the same price as the school tickets.

FRESNO TRACTION COMPANY

This company has been operating a motor bus route since July, 1916. It uses two buses, which make a bus-mileage per year of about 27,000 and carry 50,000 passengers. The bus is a single-deck affair with a seating capacity of fifteen and a weight of 5,000 lb., including the Moreland chassis and built-up top.

The routes serve as feeders to the railway. The company does not see any advantages in the use of the motor bus and says that "the cost of operation per car-mile in regular street car work is about 9 to 1 in favor of the cars." It hopes to discontinue the buses as soon as possible.

TWIN CITY RAPID TRANSIT COMPANY

In 1918 the Twin City Rapid Transit Company purchased thirty-eight jitney buses then in competition with its cars and started to give a bus service at a 5-cent fare with free transfers to the trolley cars. The experiment, however, was not very successful, as never more than half of the buses were able to operate at

TABLE I—MUNICIPAL RAILWAY OF SAN FRANCISCO—
STATEMENT OF BUS LINE OPERATIONS FOR FISCAL
YEAR ENDED JUNE 30, 1920

Receipts:			
Route No. 1, Tenth Avenue and Fulton to Twenty-fifth Avenue and Irving Street.....	\$14,982.60		
Route No. 2, Great Highway, Cabrillo to Sloat Boulevard....	7,693.70		
Total receipts.....		\$22,676.30	
Operating expenses:			
Account Number 39 A, repairs to motor buses.....	\$15,479.29		
Account Number 78 C, con- ductors, chauffeurs, buses....	15,995.50		
Account Number 78 D, garage expenses, buses.....	12,205.96		
Account Number 39 A, tire expense.....	13,023.96		
Total operating expense....		\$56,704.71	
Operating loss.....			\$34,028.41
Reserves:			
Depreciation (18 per cent of receipts).....	\$4,081.72		
Compensation insurance.....	663.46		
Total reserves.....			\$4,745.18
Gross excess of expenses over receipts:			
69 Q.M. tickets at 5 cents.....	\$3.45		
6,708 school tickets at 2½ cents.	167.70		
322,520 local transfers, at 2½ cents.....	8,063.00		
			8,234.15
Total revenue credits:			
Net loss.....			\$30,539.44
Average net loss per day			83.44
Bus-Mileage—236,797			
Receipts per bus-mile (revenue credits not included).....	0.095		
Receipts per bus-mile (revenue credits included).....	.13		
Total expenses per bus-mile.....	.259		
Net loss per bus-mile.....	.129		

one time, the others undergoing repairs. During the last year of operation it was rarely possible for the company to keep even thirteen buses in regular service. The buses consisted of a seven-passenger chassis with bus body, and with a seating capacity of fourteen passengers each. These buses were discontinued on April 30, 1920, and a trolley line is being built over the former bus route. The company writes: "We have proved to our own satisfaction that we cannot operate motor buses on a 5-cent fare and break even, and it would seem that a 10-cent fare at least would be required for profitable operation."

WINNIPEG ELECTRIC RAILWAY

The Winnipeg Electric Railway owns twelve one-man buses. The latest type was described on page 505 of the issue of this paper for Sept. 11, 1920. Five of these have been in operation since May 10, 1918. Of these three were used on schedules and two in reserve. These buses weigh 3,700 lb. without load and seat sixteen passengers. A bus mileage of 111,920 was made during

TABLE II—STATISTICS FROM TEN ELECTRIC RAILWAYS USING MOTOR BUSES IN AUXILIARY SERVICE

Name of Company	Location	Use of Motor Bus	Number of Buses		Date Installed
			Operated		
Milwaukee Electric Railway & Light Company.....	Milwaukee, Wis.....	Supplementary	2		April 17, 1920
Connecticut Valley Street Railway.....	Greenfield, Mass.....	Supplementary	3		Nov., 1919
Baltimore Transit Company.....	Baltimore, Md.....	Supplementary	20		Aug. 1, 1917
Municipal Railway of San Francisco.....	San Francisco, Cal.....	Feeders	7		Sept. 1, 1917
Fresno Traction Company.....	Fresno, Cal.....	Supplementary	2		July, 1916
Pacific Electric Company.....	San Bernardino, Cal.....	Supplementary	4		1917
Peninsular Railway.....	San Jose, Cal.....	Feeders	2		1919
Dubuque Electric Company.....	Dubuque, Iowa.....	Supplementary	3		1919
Winnipeg Electric Railway.....	Winnipeg, Canada.....	Supplementary	12		May 10, 1918
Okmulgee Traction Company.....	Okmulgee, Okla.....	Supplementary	6		1920

the twelve months ended June 30, 1919. The maximum mileage made by a bus during a single month was 3,800. Transfer regulations are carried out the same as for electric cars. In a recent letter the company says: "One of the chief advantages of the motor bus is that service can be extended into new territory which demands transportation with a minimum of immediate capital expenditure. The chief disadvantages of motor buses as compared with street cars are more frequent breakdowns and interruptions to service and the necessity for side trips off the line for gasoline, etc. The future policy of our company in regard to the use of the motor bus will be the same that has governed our past procedure in this respect. We do not think that the motor bus will ever take the place of a street car, except possibly on small shuttle lines and where breaking into new territory. We regard the bus merely as a temporary expedient until traffic conditions warrant the extension of our track and investment in rolling stock."

Since the early part of this year the company has had two Sterling buses in operation in addition to those previously mentioned. These are used on the Stock Yards route to replace a stub-line car.

PENINSULAR RAILWAY COMPANY.

The company states that "at the present time we are operating but one motor bus regularly, it being in service on Hobson Street, San José, in lieu of a remote car line which we obtained permission to abandon if we would substitute the bus service. The bus is operated at a great loss in view of the fact that the revenue taken in on the bus, which is in operation about eighteen hours a day, amounts to about \$2.50. So, therefore, we are unable to give satisfactory figures pertaining to bus operation under conditions of this kind. We also operate a bus line to Oak Hill Cemetery on Sundays and holidays only. This was also done to secure abandonment of a remote narrow-gage line, and conditions surrounding this operation are similar to those on Hobson Street."

VIEWS OF ONE OPERATOR

One operator of extended experience who has made a study of the bus situation has reached the following conclusions:

Efficient, adequate and cheap means of urban transportation are indispensable to the welfare of cities.

Electric railways have and are supplying this. They are a part of the social, economic and industrial life of cities. They are permanent institutions which, in their proper sphere, nothing as yet devised can supplant.

Communities where electric railways operate have a vital interest in their prosperity, because upon this depend the quality and quantity of service rendered.

In the field of urban transportation, and particularly where mass transport is involved, the motor bus as at present constituted is not an adequate substitute for the electric railway, for the following reasons:

1. If all factors involved are taken into consideration, such as the length of ride, equitable taxation, allowance for depreciation, etc., it is found that the bus is not as economical as the electric car operated over steel rails.

2. The physical limitations of highways make the motor bus undesirable as a means of mass transport because of:

- (a) Increased street congestion.
- (b) Increased accident hazard.

3. Climatic conditions in some parts of the country do not permit all-the-year-round efficient operation of the motor bus.

Though the electric railway cannot in its proper sphere be supplanted by the motor bus as at present constituted, the service it renders can under certain conditions and in a measure be supplemented by automotive vehicle operation, particularly as follows:

1. The motor bus can act as a feeder line in suburban or urban sparsely settled territory.
2. The motor bus can act as a link.
3. The motor bus can under certain conditions furnish a *de luxe* service.

Where the need of motor bus service is found and determined to be economically sound, an opportunity should be given the existing transportation agency—the electric railway—to furnish such service. Monopoly in the public utility field is essential to efficient and economical operation from the community point of view as well as from the utility point of view.

With the advent and development of the automobile, the electric railways no longer have a monopoly in the field of urban transportation.

The rapid development of the automobile has had a tremendous and disastrous effect upon the earnings of electric railways and consequently upon the quality and quantity of service furnished by them to the public.

Efforts to supplant the electric railways with the automobile have injured the electric railways, but more so the communities served.

The unfair competition of the automobile did not solve the urban transportation problem; on the contrary, it made the solution more difficult by rendering inoperative an agency which the automobile cannot replace.

The automobile has benefited by the construction of good roads and highways, frequently paid for by the street car rider in the form of a paving tax.

The operation of the automobile should be regulated and its operating requirements made no less onerous than those imposed on the street car.

Wholesale Prices in August

A PRONOUNCED drop in the general level of wholesale prices in the United States from July to August is shown by information collected in representative markets by the Bureau of Labor Statistics of the United States Department of Labor. Measured by changes in the bureau's weighted index number, in which each commodity has an influence proportionate to its importance in the country's markets, the decrease was more than 4½ per cent.

Food articles showed the greatest price recessions, the decrease for the group as a whole being more than 12 per cent. Farm products, containing many basic food materials, declined nearly 6 per cent. Cloths and clothing followed closely, with a decrease of approximately 5½ per cent from the July level. Smaller decreases were recorded for the groups of building materials, chemicals and drugs, and miscellaneous commodities, the latter including, among others, such important articles as bran, cottonseed meal and oil, jute, rubber and soya-bean oil. Fuel and lighting materials, on the other hand, continued upward, with an increase of more than 6¼ per cent. Metals and house-furnishing goods also showed a net advance from the preceding month.

Are You Ready for the Coming Winter?

The Causes for Your Trouble Are Explained and the Author Outlines Some Practical Methods Which May Be Used in Advance to Minimize the Possibility of These Troubles

By J. S. DEAN

Railway Motor Engineering Department Westinghouse Electric & Manufacturing Company.



TO COPE WITH SNOW LIKE THIS TAKES PREPARATION AND FORETHOUGHT

THE problem of operating street cars during the winter season, particularly in localities subject to heavy snowstorms, is one that vitally interests all street railway men from the president down through the organization and including the men in the shops and carhouses. To the officials this problem is evidenced in a financial loss, due to reduced earnings and increased operating expenses, and in a possible antagonistic public sentiment very detrimental to the interests of the company. To the average employee of the company the winter weather means longer hours of labor, followed by physical discomforts, and in spite of increased earnings and larger pay envelopes the employee becomes inefficient and discouraged, resulting sometimes in a general breaking down of the morale.

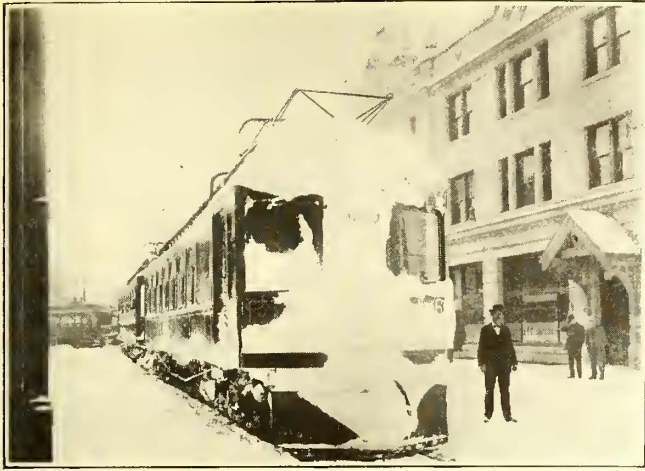
Interest in this subject varies between a maximum and a minimum, depending upon the geographical location of the operating company. Operators in the extreme South need give this subject but a passing thought, while those facing such conditions as shown in some of the accompanying illustrations are vitally interested. It is generally conceded that a line passing through Washington, Cincinnati and St. Louis, approximately the 37th degree of latitude, represents an intermediate point between the two extreme conditions referred to.

THE REASONS FOR MOTOR FAILURE ARE MANY

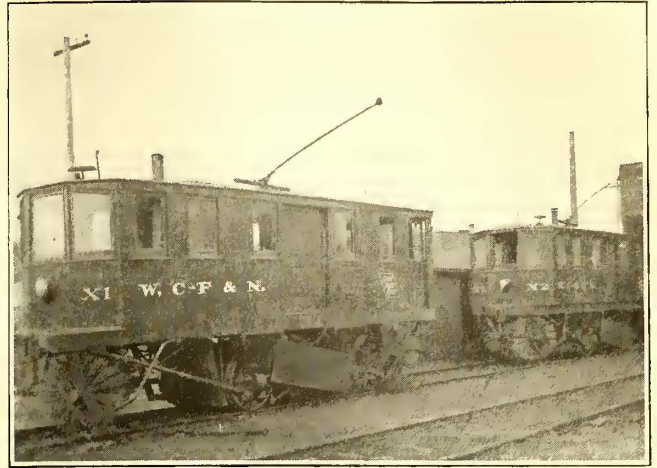
Careful analysis on a number of street railway properties of the operating conditions and equipment failures during the winter season, combined with an

expression of opinion from a number of men closely allied with the railway industry, shows the following primary causes as being largely responsible for equipment failures at such seasons:

1. Heavy snowstorms blocking the track, submitting equipment to an undue overload.
2. Inadequate and inefficient snowfighting equipment being unable to keep tracks clear, thus compelling the use of passenger cars to do a large share of this work.
3. Snow and ice packed between the rails by automobiles and heavy trucks. Under these conditions cars are lifted off the rails by motors riding on the ice, resulting in spinning of the wheels and roasting of the windings. Motors overloaded and sometimes burned out as a result of gear cases rubbing open on the ice and allowing the snow and ice to pack in the case, jamming the gears.
4. When a thaw comes the snow melts rapidly, and with sewers choked and consequent poor surface drainage abundant water and slush collect on the tracks and through this the cars must operate, resulting in wet motors caused by wheel splash and pocketing of water in depressed sections of the track.
5. Cars used to pull in cripples, thus overloading the motors.
6. Equipments in a general rundown condition, in most cases due to forced neglect of maintenance, and equipments physically unfit to meet emergencies caused by overloads.
7. Overworking all available equipments as a result of the many crippled cars in the carhouse and the increased travel due to poor weather conditions.
8. An increased number of mechanical failures due to the extreme low temperature, frozen condition of roadbed, and to the action of the frost on roadbed and track.
9. Sweating of motors that are parked in zero weather all night after being worked to the maximum temperature the previous day.
10. General demoralization of schedules due to crippled cars and stranded automobile trucks tying up traffic.



A RAILWAY SUBJECT TO SUCH OPERATING CONDITIONS AS THIS IS VITALLY INTERESTED IN PREPARATION FOR NEXT WINTER



THE SNOW SWEEPER IS BEST ADAPTED TO LIGHT SNOW AND FOR GENERAL WORK IN REMOVING SNOW FROM CITY STREETS

11. Rough and careless handling of the equipment by the trainmen, who are forced to make up lost time due to unavoidable delay.

12. Extreme cold weather, with resulting uncomfortable condition of the pits and carhouses, reducing the efficiency and the morale of the workmen and causing makeshift repairs and poor maintenance.

13. Poor shipping facilities, resulting in a scarcity of repair parts which are necessary to maintain the equipment properly.

THE WEATHER MAN TREATS 'EM ALL ALIKE

The experience of the past few years, and especially the past winter, in certain localities has demonstrated the fact that adequate preparation must be made in order effectively to cope with the heavy snowfall and severe winter weather conditions. An efficient snow-fighting organization with effective equipment must be maintained to combat these unusual operating conditions.

Evidence collected from fifteen representative operating companies by an official of a large railway company in New England was segregated and tabulated and showed that armature failures due to severe winter conditions during the early part of the present year were on the average about equally divided between those of the two large motor manufacturers.

These data further showed that approximately the same percentage of failures occurred with both the

interpole and non-interpole motors and with the non-ventilated as well as with the ventilated type of motors. This indicates that an epidemic of motor trouble during unusual weather conditions is no respecter of the manufacturer or of the type of motor construction. It was found that certain properties operating under practically the same conditions had less trouble in general than others, and this was accounted for only by the more thorough preparedness of the former to meet these emergencies.

THESE PRECAUTIONS WILL HELP REDUCE FAILURES

Some of the lessons learned from the investigation mentioned above and from data obtained through other sources of information bearing on this subject and gathered from a number of other railway companies operating in various parts of the country suggest the following points that are worthy of consideration if an effort is to be made to minimize possible trouble due to severe winter operating conditions:

In order to be prepared to handle all manner of equipment trouble it is of vital importance to have an efficient and well-organized body of trained shop men under the supervision of a competent master mechanic.

Regular and frequent inspections should be made at stated intervals of time or on a mileage basis and at least once a year all equipment should be given a



THIS TYPE OF PLOW IS SUITABLE FOR CLEARING SNOW FROM SINGLE TRACKS



THE SHEAR PLOW IS USED ON DOUBLE-TRACK RIGHT OF WAY

general overhauling. This will catch partial defects in equipment before they become so serious as to cripple the cars in service and will keep the equipment tuned up to meet any emergency.

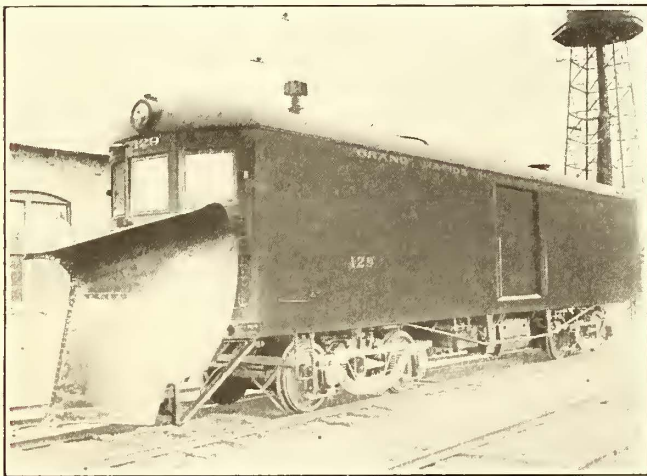
Completely wound armature and field coils that have been thoroughly treated by dipping and baking, using a good grade of baking insulating varnish, have been found to withstand the water and moisture encountered during the winter season with less resultant trouble than untreated windings. This treatment has been highly recommended as a means of fortifying windings against grounds and short circuits. In this connection reports submitted in the above investigation by two operating companies which did not dip and bake their armatures show that 58 per cent and 43 per cent of the total number of armatures in service had failed, while two other companies that give their armatures this treatment reported armature failures of only 20 per cent and 14.5 per cent respectively.

All motor leads should be cleated to prevent rubbing and chafing and to insure against grounded or broken leads. Breaks in leads may occur and cars be operated

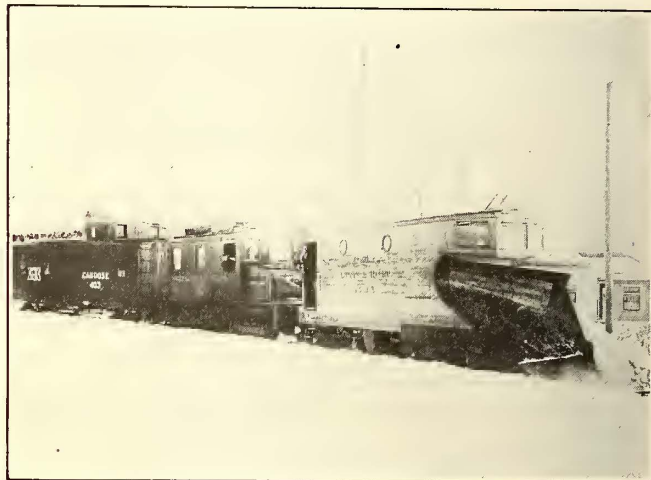
of the winter as judged from the average yearly snowfall. In general, where operating temperatures are as low as 55 deg. to 60 deg. C. rise, solid covers should be applied during the winter months in localities subject to snow. If operating temperatures are high, 75 deg. C. rise, and snowfall is light the regular ventilated covers should be used all the year round. Where snowfall is heavy apply solid covers during the winter months, disregarding the temperatures.

Motor drain holes which are provided in the bottom of the motor frame castings to allow for the proper drainage of water from the inside of the motor quite often become clogged with dirt, snow or ice. During the regular inspection period these holes should be cleaned out and openings cleared.

Gear cases are subjected to bumps and severe strains due to snow and ice between the rails, and for this reason they should be made to clamp securely to the supporting lugs by keeping the clamping bolts drawn up tight and securely locked. The two halves should be carefully fitted together and all covers should be made tight and kept closed to keep out the snow and water.



A PILOT PLOW MAY BE READILY ATTACHED TO ANY INTERURBAN CAR



THE PUSH PLOW IS USED EXTENSIVELY ON INTERURBAN LINES

“three-legged” for some time without detection, thus overloading the motors and roasting the insulation. A heavy coating of asphaltum paint protects these leads against snow and water by making them moisture-proof. All unprotected car wiring should be well cleated to prevent rubbing and should be painted with a heavy asphaltum paint to keep out the snow and water.

ABOVE ALL KEEP THE SNOW AND WATER OUT OF THE MOTORS

Suitable tight-fitting solid commutator and hand hole covers should be placed on all non-ventilated motors to prevent snow and wheel wash from getting inside the frame, resulting in damage to the windings and the brush-holders. Armature and axle bearing oil well covers and all dust shields should be made tight fitting and securely fastened to keep water, dirt and snow from getting into the bearing, with resultant bearing trouble. Motors of the ventilated type that ordinarily operate with perforated covers should be provided with solid covers wholly or in part for winter service to keep out the snow and water. The application of solid covers to these motors should, to a large extent, be controlled by local conditions, such as maximum operating temperature of motors and the severity

It is very important that all bolts on motors be kept tight and securely locked to prevent parts from working loose, thus allowing water to enter the motor frame and bearings. These bolts, which should be made of a special heat-treated steel, should be carefully gone over and tightened at each regular inspection.

By giving careful attention to the packing and oiling of bearings, using a clean long fiber wool waste and a good grade of winter car oil, bearing trouble will be reduced to a minimum. A further great saving in maintenance and reduction in the number of motor failures can be obtained by a careful and regular gaging of the armature bearing wear, using a feeler gage in the air gap. Bearings that are worn approximately $\frac{1}{16}$ in. should be replaced to prevent the armatures from getting down on the poles and damaging the windings.

The windings and leads of all detail apparatus should be thoroughly painted with a good grade of asphaltum paint and should be provided with suitable tight-fitting covers. Arrange to fit all cars with suitable splash guards, properly located to prevent, so far as possible, the snow and slush lodging on resistance grids, motors, wiring and other parts of equipments.

It has been found by experience that to meet emergencies it is good practice to keep in stock an available

supply of spare parts of all apparatus and detail parts. This is especially important at the present time owing to the long delivery dates forced upon the manufacturers on account of the present condition of the labor and material market. It is also well to remember that during the winter season the shipping facilities are not very reliable, and although the material may be available for shipment any promise of delivery cannot be depended upon under existing conditions.

A factor that is too often overlooked is the condition of the inspection pits and carhouses during the winter season. In many cases pits are poorly lighted, wet, dirty and littered with tools and broken repair parts. Many carhouses are not provided with storm doors and are poorly heated, resulting in cold, damp, uncomfortable conditions under which the men are compelled to do their work. These conditions, which exist on a great many railway properties, have a tendency to reduce the efficiency of the workmen, who slight their work and congregate in some corner around a small stove to thaw out and be comfortable.

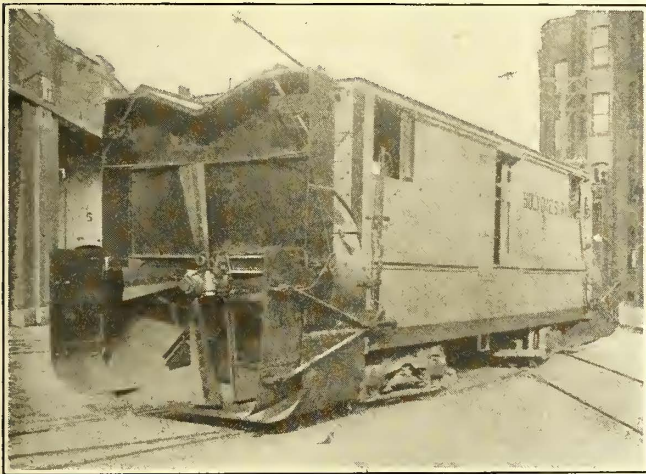
The organization of a city fire department is con-

7. Routes to be followed by plows.
8. Time of attack.
9. Provision for emergency and relay crews.
10. Sufficient power supply (consider the use of portable substations).
11. Rearrangement of schedules.

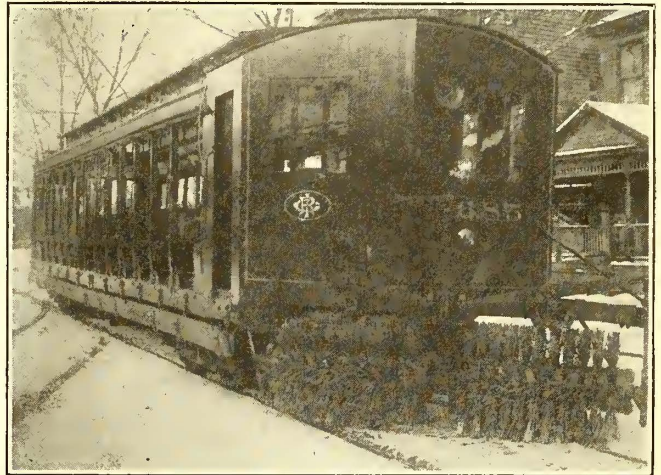
PROPER EQUIPMENT IS MOST IMPORTANT CONSIDERATION

Each individual operating company should figure out its requirements for snow-fighting apparatus based upon past experience. Railway companies with inadequate equipment are compelled to use passenger cars to keep the right-of-way open. Cars that are used in bucking snow may do this work without showing any immediate apparent injury to the motors, but it should be definitely understood that the excessive overheating of the motors by this overloading weakens the insulation of the winding and shortens the life of the equipment. This is especially true in the case of cars equipped with the light-weight ventilated type of motor which has a lower short time overload rating.

The problem of keeping electric railway tracks clear of snow and ice during the winter season has been



A ROTARY PLOW IS NECESSARY FOR HIGH DRIFTS AND OPENS A WIDE ROADWAY



SUMMER CARS CAN BE CONVERTED IN WINTER TO SWEEPERS AT LITTLE COST

sidered to be the last word in preparedness for combating fires. It has been suggested that the snow-fighting forces of a street railway company be organized along similar lines. Experienced and reliable crews should be assigned to the different types of snow-fighting equipment operating from the various carhouses and held in readiness so that on a comparatively short notice this equipment can be placed in service to clear the tracks.

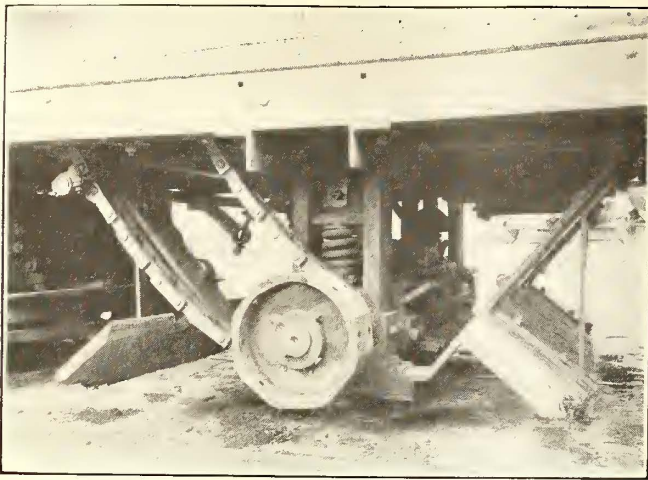
Railway operators can learn much from the army strategists, who before any important battle make a careful study of the minutest details of the strength and distribution of the enemy forces in order to determine his vulnerable points. With this information available, together with definite information of their own strength, an attack is planned and executed with clock-like precision. In preparing to fight snow an operating company should make a careful study of the situation and map out a definite program which should take into consideration the following:

1. Available snowfighting equipment.
2. Condition of equipment.
3. Additional spare equipment and parts available.
4. Study of weather conditions.
5. Assignment of crews.
6. Nature and severity of snowfall.

the means of developing a variety of ingenious devices, some of which have become standard pieces of apparatus and are used quite extensively by all railways. One great fault in connection with this class of apparatus and which is common with too many operators is the use of old and obsolete electrical equipment which is nearly ready for the scrap pile. This results in snow-fighting machines that are not always reliable. Various types of apparatus used to clear the tracks of snow and ice, the details of which are well known to all railway operators, will be touched upon only in a general way.

Snow sweepers consist of either four-wheel or eight-wheel self-propelled cars with a motor-driven broom rotating at an angle on the forward end of the car. This brushes the snow from the tracks and is best adapted for use in light snows and for general work.

Snowplows consist primarily of cars with either four or eight wheels, self-propelled, or pushed, and having on the front end a metal or wooden shaped nose which forces the snow from the track. This kind of apparatus is best suited for deep snows and for suburban and interurban lines. There are various types of snowplows. The nose plow, with the tip or point of the plow coinciding with the center of the track is self-propelled and



AN ICE CUTTER IS A VALUABLE ADDITION TO THE SNOW-FIGHTING EQUIPMENT

forces the snow to both sides of the right-of-way. This type is best suited to clear the snow from single tracks. The shear plow, with the tip or point of the plow offset from the center of the rails, is self-propelled and forces the snow to one side of the right-of-way. This type of plow is most commonly used to clear the snow from double tracks.

The push plow consists of a specially built car having the plow integral with the body of the car. This must be pushed by an external source of power. The pilot plow consists of a sheet metal plow adapted to the front end of any standard type of self-propelled passenger, freight or express car. The rotary plow consists of a self-propelled or an externally driven car with a motor-driven fan mounted at the front end. By means of the centrifugal action of this fan the snow is thrown a considerable distance from the roadbed. This type of plow is best suited for use in high drifts and deep snow.

Other detail apparatus used in fighting ice and snow includes snow scrapers fastened to the cars directly in

front of the wheels to clear away the snow and brooms or brushes placed directly in front of wheels to brush away the snow. Then there are also trolley sleet cutters attached to the trolley to clear the sleet from the trolley wire, and third rail sleet cutters attached to the car in front of the third rail shoe to clean the third rail. A chemical solution of calcium chloride may also be squirted on the rail to cut the sleet. Salt is often applied at spring switches to keep these operative, but in cases of a heavy snowfall shovels and brooms must be resorted to in order to keep these switches clear.

The placing of wooden fences along the right-of-way at points subjected to drifts will often prevent the snow from piling up over the roadbed at such points.

ICE CUTTERS ARE ESPECIALLY EFFECTIVE

Since the advent of the low floor car, operating on 24-in. wheels, considerable trouble has been experienced due to snow and ice packed between the rails, thus causing considerable damage to the equipment under the car on account of its small clearance to the roadbed. A very effective device for cutting this ice is illustrated. This consists primarily of a revolving cutter driven at 300 r.p.m. through a double chain drive connected to a 50-hp. motor. The cutter consists of a number of 1 x 5-in. x 5-ft. long standard angles with teeth cut by an oxyacetylene torch. These angles can be removed readily by taking out eight bolts. This cutter is spring supported and can be raised or lowered through a range of 4 in. to adjust itself to the thickness of the ice. The machine is run over the tracks and cuts the ice from between the rails and is followed by a sweeper that clears the chopped ice from the tracks.

Any further detail information regarding this machine can be obtained from J. W. Hulme, superintendent of motive power of the International Railway, Buffalo, N. Y., through whose courtesy this description and these photographs were made available for publication. This apparatus proved so successful last year that two more duplicate machines are being built.



THERE WAS PLENTY OF ACTION FOR ROTARY PLOWS IN NEW ENGLAND LAST WINTER

A similar device has been built by another operating company, but so far its success has not been assured, as the machine has not been given a thorough try-out in service. In general it is similar to the machine as described above except that the cutters used consist of a number of old gears with alternate teeth cut away.

One large operating company whose present equipment consists of forty-two plows and twelve sweepers is planning to add to this equipment for the coming winter. Arrangements have been made to utilize thirty-six double-truck freight cars and orders have been placed for the necessary material to change these over into seventeen sweepers and nineteen snowplows. The work of reconstructing these cars is being done at the shops of the railway company, and the equipment is expected to be ready for service during the coming winter.

An interurban company in the Middle West has taken a number of maintenance-of-way flat cars which will be heavily loaded and the front end fitted with a special pilot plow. These will be utilized as push plows during the winter season with very satisfactory results. This change can readily be made at a comparatively small expenditure of time and money.

An accompanying illustration shows a summer car that has been converted to a snow sweeper for winter service. This scheme also is being used by J. W. Hulme of the International Railway, Buffalo. In an article on this subject by Mr. Hulme in the Jan. 18, 1918, issue of the *ELECTRIC RAILWAY JOURNAL* he states that the initial cost of installing this sweeper equipment was \$900, and conversion at the end of the season can be made for approximately \$30.

OTHER CONSIDERATIONS BESIDES REMOVING SNOW FROM TRACKS

In the congested downtown districts of some cities it is necessary to remove the snow entirely from the streets. This work is usually done by shoveling the snow into wagons or cars and hauling it away. In some cities sewers have been utilized to carry away the snow. One novel and efficient scheme used in Boston during the past winter was to use an electrically operated crane, fitted with a grab bucket, to clean the streets of snow. This was described in the *ELECTRIC RAILWAY JOURNAL* for Feb. 21 and May 1, 1920.

Every railway company operating in the snow belt has experienced during the winter season a considerable demoralization of schedules due to the unusual operating conditions encountered at that time. It has been recommended that in order to meet these unusual conditions schedules be studied and a special snow schedule planned which will give motors sufficient lay-over at terminals during snowstorms to cool off before making the return trip.

A very important consideration which is too often overlooked in connection with the operation of a street railway, especially during the severe winter season, is the necessity of retaining the good will of the traveling public. During these months there are numerous existing conditions beyond the control of the railway company, such as extreme severe weather, poor surface drainage, with resultant flooding of streets and tracks; congested street traffic, stranded automobiles and trucks, abnormal labor conditions and shortage of coal.

These factors tend to disorganize the transportation department and cripple the regular operation of the

cars, thus arousing the indignation of the public, which to a large extent is ill-advised or ignorant of the facts. By the expenditure of a little printer's ink in the form of posters, publications or advertisements in the daily newspapers the truth regarding these conditions can be brought forcibly to the attention of the people, and in most cases this will result in securing their co-operation rather than their condemnation.

Securing Observance of Safety Laws*

Effect of Proper Enforcement of Laws and Ordinances Relating to Self-Propelled Vehicles in Reducing Crossing Accidents

BY J. A. VAN OSDOL

General Attorney Union Traction Company of Indiana,
Anderson, Ind.

OF THE factors to be dealt with in the problem of crossing accident prevention, the automobile is the conspicuous figure in the foreground. Probably no phase of accident prevention presents greater difficulties than this one because of the diversity of interests encountered and of the fact that practically every law or regulation impresses the individual upon whom it is intended to operate as an encroachment upon his personal liberty. This is especially true when the class to be restrained is composed so largely of persons of immature judgment, or of little or no responsibility. While the grade crossing is not the scene of all of the accidents of this class, it is the place where most of these tragedies are staged, and while they cannot be entirely eliminated so long as we have the crossing at grade, their number can be greatly reduced.

Grade crossings we shall have for years to come, and we must deal with the dangers which these crossings present and endeavor to reduce them to the minimum. Law enforcement is regarded as an efficient means to this end, but law enforcement is more than the mere matter of laws, courts and police officers; those factors are essential parts of our social structure, but they will fail to produce the desired results if left to work out the problem alone. We must bring to their support every agency that is calculated to put behind law enforcement the proper public sentiment.

An investigation made by the Indiana Public Service Commission in 1919 is instructive. The traffic at thirteen public highway crossings over steam roads in as many different parts of Indiana was checked by its inspectors, with a view to observing whether engineers were careless in giving signals, and the manner in which drivers of vehicles approached and passed over these crossings. Here is the result: During the checking 172 trains passed over these crossings, of which 163 gave the proper highway crossing signal. During the same period 1,924 vehicles crossed over these intersections, of which 625 drivers did not look or listen. Of the thirteen crossings checked, five were protected by bells or wigwag signals, which were found in perfect condition. Over those crossings, forty-six vehicles passed over the tracks when the warning signal was operating. The inspectors reported that the drivers of horse-drawn vehicles in most cases looked and listened, but that the automobile drivers as a rule did not look or listen until directly upon the tracks.

From the foregoing it is seen that while approximately 5 per cent of the engineers failed to obey the

*Abstract of paper read at Ninth Annual Safety Congress, Milwaukee, Wis., Sept. 30, 1920.

law at these crossings, 32 per cent of the drivers of vehicles failed to obey. We take it that the result of these tests may be said fairly to indicate the relative failure of duty as between the engineer and the driver of other vehicles. The recklessness of these drivers imperils not merely their own lives, but likewise the lives of the other occupants of the automobile, the train crew and passengers on the train.

If more individual offenders were held responsible in civil damages for the results of their own negligence, the cause of law enforcement would be greatly promoted and the reckless would have more respect for the law. The tendency of juries to set aside the rule of law which forbids one to profit by his own neglect, and the reluctance of some of our courts to interfere with verdicts which are contrary both to the law and the evidence, serves to put a premium on negligence and to bring the law into contempt.

Whether the law to be enforced is some federal or state statute, some municipal ordinance, or the rule prescribed by some commission or by some employer, or merely that particular rule of conduct which has the sanction of experience, public sentiment must back it up if it is to be properly observed or enforced. But these accidents cannot be wholly prevented by any sort of laws or rules which operate only to regulate the conduct of the individual; the personal equation is in this problem and must be taken into account. We cannot absolutely regulate human inclination or human judgment by any set rules, but we can influence them by a course of wise and persistent education. To that end systematic accident prevention should become a part of our national life.

The program adopted to carry on this work of general education must be sufficiently comprehensive to reach all classes and sufficiently practical to arrest the attention of the men of affairs. It must be applied constantly; we must not expect its accomplishment with a single effort. A simple statement shows the problem to be solved: Of the 91,000 lives lost in civil life outside of industry during the nineteen months our country was engaged in the World War, 15,800 of these deaths were caused by automobiles or auto trucks, while during the same period only 47,949 of our soldiers were killed by the enemy.

In 1910 there were 400,000 automobiles and 2,300 deaths; in 1917, 4,941,276 automobiles and 9,000 deaths; in 1919, 7,523,664 automobiles and 10,000 deaths. In 1920, it is estimated we will have 9,500,000 automobiles in use. If the ratio of fatalities for previous years holds good, there will have been 12,600 deaths chargeable to that instrumentality during this year.

The foregoing covers deaths due to automobiles under all circumstances. When, however, we view the automobile and its fatalities as related to railroad grade crossings, the figures published by the Interstate Commerce Commission comparing 1917 and 1918 furnish some comfort. Notwithstanding the fact that while the number of automobiles during that period increased 26 per cent, the total number of automobile accidents at railroad grade crossings increased only 9.5 per cent, the number of persons killed in those accidents but 4.2 per cent and the number injured but 3.6 per cent. These figures indicate that safety work is bearing fruit.

Here are the facts as ascertained recently through inquiry made by the Indiana Public Service Commission of commissions in all of the states, asking for data on crossing accidents, and for experience during the last

two years. Of thirty-one states answering, twelve either had no data on the subject or had not yet assembled any. Of the nineteen states which had such data at hand, fourteen reported a decrease and five an increase in crossing accidents. While in some the decrease was but slight, the tendency in that direction in view of the increase in automobiles is interesting and invites investigation.

Texas made an interesting return to the inquiry. Reports from that State show that railroad accidents at highway crossings from Jan. 1 to Dec. 31, 1919, compared with the corresponding period in 1918 decreased 20 per cent, and that deaths resulting from such accidents decreased 53 per cent. For the same period Michigan showed a decrease of 29 per cent in number of crossing accidents, and a decrease of 18 per cent in deaths from that cause. Ohio for the same period reports a decrease of 17 per cent in deaths from such accidents.

Thus far the effort to reduce accidents has been exerted in the urban centers, but before we can bring all the people to the proper appreciation of this work, and before we can expect a healthy public sentiment so general as to insure law enforcement, the rural side of the problem must receive attention. That is a field practically untouched up to this time, and while results there must not be looked for so quickly as in some industries where instruction, inspection and supervision in safety work are matters of daily routine, rural life stands ready to respond with community effort whenever it can be made to see the need of it.

Of all the channels selected through which it is now planned to reach the general public and induce it to take up this cause as a community effort, nothing offers more promise than that of the public schools. No more effective means exists for getting safety incorporated into the community life than to first get it incorporated into every school curriculum.

British Figures Regarding Tramway Transportation Made Public

ACCORDING to data just made public by the Ministry of Transport, the length of the tramway route open for public traffic in the United Kingdom has increased from 269 miles in 1878 to 2,728 miles in 1918-19. Of these 2,728 miles, 1,713 miles were owned and operated by local authorities and 146 miles were owned by local authorities but were operated by companies.

Compared with the last completed year prior to the war (1913-14) the total number of passengers carried has risen from 3,426,473,192 to 4,557,640,078 in 1918-19, an increase of 1,131,166,886, or 33 per cent. In the same period the number of car-miles run has decreased from 354,379,672 to 320,378,376, with the result that the average number of passengers per car-mile is now 14.2, as compared with 9.7 in the year 1913-14. This is an increase of 46 per cent.

The number of journeys per head of the estimated civil population works out at 108, as compared with 74 in the year 1913-14, while the number of passengers carried per mile of route open was 1,668,122, an increase of 400,387, or 31.6 per cent on the pre-war figure.

The number of local authorities who have obtained authority to install trackless trolley undertakings is twenty-six, but of these only seven actually operated lines. Five companies have also obtained powers, of which only one was operated during 1918.

Mechanical Department Stores Accounting*

An Airtight System of Stores Accounting Based on Efficient Administration of Standard Practice with Addition of Special Provision to Guard Against Leaks and Losses—
Cost Accounting Is Also Handled by Storekeeper

By THOMAS KENNEDY

Storekeeper Tri-City Railway & Light Company, Davenport, Iowa

STORES accounting is a subject that has been treated on but lightly, when we consider the numerous papers and books written on almost every other phase of accounting, organization and efficiency. It would seem that this topic was unimportant, merely a subject covering a minor routine and to be passed over lightly, and that same could be adjusted or corrected without the outlay of much time or thought.

All those interested in this subject should take the time to investigate the stores accounting systems of some of the large industrial corporations, the steel companies, railroads, etc., and they would soon learn that these companies insist that the routine of receiving and distributing of material and supplies be strictly adhered to and the accounting for them is as necessary to the economical operation of the business concerned as it is to see that the cash account is properly balanced.

There is not one among you who, if the storeroom bins and shelves were filled with dimes, quarters, dollars, etc., would allow the heart-breaking freedom of access and loose methods in the storeroom that you do at the present time. Yet that is what it amounts to. The bolts, batteries, bells, bearings, buckles, bushings that are stacked in your storeroom bins are in reality so many real dimes, quarters, half dollars, dollars, etc. Bins of them! Some full—some half full! The storekeeper and stores accountant must war continually against *carelessness, ignorance* and, without a doubt, against *downright thievery and dishonesty*.

It requires a man of rare intelligence and good judgment successfully to operate a stores system. He must be able to master a mass of detail and be a fighter for the system in the interests of the company. Do not be surprised or discouraged if you find that it takes time to develop the man you want. It has been my experience in the storerooms of the Tri-City Railway that a man is not of much value under two years of service.

There are no accepted standards to follow in installing a stores accounting system, as the details in some cases are always subject to local conditions of storeroom equipment, as well as the nature of the reports required by the accounting department.

I will endeavor to explain to you our method of handling stores material from the time it is requisitioned until final disposition is made of the stored material.

When any material is required for the operating, mechanical or construction departments, a requisition is made out on the purchasing department, either by the storekeeper or the foreman of the above departments. The storekeeper is furnished with a copy of all orders for material purchased by the purchasing agent, regardless of whether the material was requisitioned

by the storekeeper or by one of the superintendents or foremen. A yellow copy indicates to the storekeeper that it covers material requisitioned by himself, and a green copy indicates that it was requisitioned by some other party. One copy of the order is also sent to the party making out the requisition. The requisition form has a "Do not fill in or use this space" column for the notations of the purchasing agent to his clerks as to where to get quotations.

The purchase orders, issued from these requisitions, are made out in sets of three, a quadruplicate being used in rare cases, such as when material is requisitioned by others than the storekeeper, the usual use being made of the three. The copies of the purchase orders received by the storekeeper are listed alphabetically in the order record book and a chain index used which enables him to get at any order on any company very readily. They are then filed in a binder, numerically, to await the receipt of the material.

MATERIAL RECEIVED CAREFULLY ACCOUNTED FOR

When material is received by the storekeeper, he makes up a record of same on a loose leaf blank which gives a complete record of the order number on which it was purchased, from whom, the size or catalog number of the article, the article itself, the railroad or express company delivering same, with the railroad freight bill number, if by freight, amount of same and drayage, quantity, gross cost of same after deducting discount, net cost after adding freight, account to which this material is to be charged, folio number of the stock book to which these articles are afterward posted, as well as the voucher number which covers payment for the same. These sheets are made daily and are numbered consecutively from one up. All material received is listed on these sheets the day it comes in and the page number of this book is marked on his copy of the order. The order is then transferred from the open file to the closed file, if all the material is received. If only a part of the order is received the order remains in the open file until final completion. A similar form is used when material is delivered to branch storerooms, the original being sent to the main store room.

On receipt of material it is checked with the copy of the order. This copy also tells which account is to be charged with this material and this information is filled in under the heading "Charged direct to."

Very definite instructions are issued to cover receipt of material, checking, identifying shipments, handling short or damaged shipments, and unpacking.

The next step is the approval of the invoice for same. All invoices, after having been approved for price by the purchasing department, are forwarded to the storekeeper for check and receipt. If the material is to be in one of the stores accounts he so indicates on the invoice, or if it is to be charged to some operat-

*Abstract of paper presented before Iowa Electric Railway Association, Omaha, Neb., Sept. 16, 1920.

ing or maintenance account, he so indicates on the invoice. In either case he is guided by the charge appearing on the receiving sheet under the heading "Charged direct to," which he entered there on receiving the material. The invoices are then forwarded to the accounting department.

The material in the meantime, having been properly checked for quantity and quality, is stored in its proper bin or racks provided for same, and on which appears a blue label, shown in an accompanying illustration. For wire and other material not placed in bins, tags, as shown, are used.

All material received during the month is posted from the receiving book to the stock ledger sheets. These sheets have spaces on the heading for location of storeroom, bin number, folio, catalog number, name of article and unit of measure. The body is divided into three parts, the left hand side being a record of all receipts of this article and the right hand side for the record of all disbursements, a small space at the extreme

THIS MATERIAL NOT IN STOCK ACCOUNT

Belongs to Company

Came from (Location)

Description

Date Received this Store Room

Storekeeper

Form 775 Order 78207

RED "NOT STORES" TAG TO MARK MATERIAL NOT CHARGED TO STORES ACCOUNT

right being used for the balance on hand, which is brought down every month for comparison with the general books. There are two checking columns, one on the "receipt" side and one on the "disbursement" side. All entries on either side are rechecked, for they must be correct.

The method used to check what has been vouchered is for the accounting department to send to the storekeeper a transcript of his stores accounts for that month.

It is the policy of our company that all construction work must be duly authorized before same is started. To facilitate matters of this kind we have filled out and properly signed what is known as a proposed expenditure blank. After this has been approved by the general manager and executive board it is proper for work to be done and charges put through against construction accounts bearing this "P. E." number, in addition to its regular number under P. C. C. classification. Charges to operation and maintenance accounts come under the same classification.

When issuing material from the storeroom, a store-room requisition must be signed for all material issued regardless of who it is that is taking the material from the storeroom. Storekeepers must not sign storeroom requisitions for any one. Requisitions used by branch storerooms in requisitioning material from main storeroom are identical in form but of larger size. These requisitions are forwarded to the storeroom office, where they are posted daily on monthly summary sheets provided for this purpose and headed with spaces for the following information: Month; account number; credit, which applies to the particular stores account which is

to receive credit for the material issued; location of storeroom and clerk who enters same in stock record and approval of purchasing agent, who in our company is in direct charge of all storerooms. The folio number of stock sheet is also shown, as is the name of article issued.

The balance of the sheet is divided off for the number of days in the month. In our case, as the storeroom month runs from the 21st to the 20th, these sheets begin with the 21st, as this is on the first day of the storeroom month. To these sheets are posted daily all material issued. As the storeroom requisitions are numbered consecutively as passed, this number is carried also on the entry.

At the close of the month, these charges are totaled and priced, then entered in the stores ledger on the disbursement side of the stock ledger sheet. The totals of the monthly summary sheets constitute the charges to the accounts indicated for the month and the storekeeper's report is made from these sheets.

SOME OF THE AIRTIGHT PROVISIONS

The foregoing is a complete record of our method of distributing and accounting for materials. If that covered an efficient storekeeper's duties, you could in all probability train a man in six or eight months' time. But please let us pause here and consider that mass of detail, mentioned early in this paper, and which will cover: Credit memorandums, gasoline receipts, inventory tickets, inventory sheets, "not stores" tags, material returned reports, oil reports, brake shoe reports, monthly junk statements, wheel reports, shop orders.

Foremen are required to turn in daily scrap material accumulated in their departments, when it is practical to do so, but it must be turned over to storekeeper at least once a month. Scrap material should not be allowed to accumulate, except, in the storeroom until such time as it is sold by the proper party. In delivering scrap material to the storekeeper please advise the storekeeper the account or authorization number which is to receive credit.

For this purpose and also for crediting back material taken out of service and which can be reclaimed and put back in service, we use the credit form shown herewith, to credit the operating or construction accounts and charge "stores." These are made up in book form with original and duplicate. The original is perforated and is sent to the storekeeper by the foreman making out the credit, the duplicate remaining in the book for his record.

All the gasoline used in the operation of our automobiles and trucks is purchased from the filling stations. Our form for keeping a record of the same is shown in an illustration. These are made up in small bound books of fifty sets each. They are then issued to the operators of the automobiles and trucks by the storekeeper, and a record of the book numbers kept by him. From the pink duplicate copies of these receipts sent to him the storekeeper O. K.'s all invoices for gasoline.

Inventory tickets are made out in advance of an inventory period and the names of articles, bin number and folio number are taken from the stock ledger sheets. They are then distributed to the proper bins and count of same is taken on these tickets. At the close of inventory period, they are gathered up and after making the allowances noted for material received or given out since counted the net figure is transferred to inventory columns of the inventory sheets, which carry the usual information. The sheets can be used for two successive inventory periods.

A "not stores" tag, reproduced herewith, is attached to all material which is in the storeroom but for some reason is not charged to any stores account. It may have been charged to some special account on receipt, or it may be discarded material that can be used for some other purpose.

Another form is used when returning materials to dealers or manufacturers for credit, replacement, repairs or otherwise. If the material is to be repaired at the expense of our company, a purchase requisition is also sent to cover same. These reports are made up in books of 50 sets each. The original is green in color and the duplicate is pink and both are perforated. The triplicate is yellow in color and remains in the book. These forms are filled out by the storekeeper and sent to the purchasing agent to start a claim.

You will note the lower part of the original is per-

ments shown in the general accounts. They should give in detail the causes which produce certain totals, and will enable the manager to reason intelligently regarding these totals. A good cost system is impossible without a good storeroom and good storeroom accounting methods.

We were called on in the storeroom of the Tri-City Railway for the material cost of numerous classes of work done in the shops. It might have been the cost of repairing wrecked car number 452 or of painting auto number 19. To consolidate all the charges at one point, to get the information wanted when it was wanted, we instituted our present shop orders. To begin with, I wish to say that up to this time we had no method of knowing the total cost of any of the jobs and what information had to be got was taken care of by the storekeeper in special reports. While this

Form 774 Order 12007

From _____ Order No. _____

Article _____

Bin No. _____ Unit of Measurement _____ FOLIO _____

Property of _____

Gross _____ Tare _____ Net _____

Form 774 Order 12131 3M 7-13

FROM _____ ORDER NO. _____

ARTICLES _____

BIN NO. _____ UNIT OF MEASURE _____ FOLIO _____

Gasoline Receipt No 6603

Date _____

Has Delivered to _____

Charge to Auto No. _____ account No. _____ By _____

PEOPLES POWER CO

Form 855-Order 9323

Form 750 Order 81451 1M 7-19

Stock Min. _____ Stock Max. _____

Article _____

Bin No. _____ Unit of Measure _____ Folio _____

ON HAND		RECEIVED		ISSUED		ON HAND NET	
Date	Quantity	Date	Quantity	Date	Quantity	Date	Quantity

Form 711 Order 9279

MATERIAL RETURNED REPORT No 3400

Date Returned _____ 192...

Returned to _____

Address _____

Returned by _____

Via _____ Prepaid _____

Per _____

Purchased on Order No. _____ Reg. No. _____

NO	ARTICLES

REASON FOR RETURNING _____

RECEIVED BY _____ Company _____

Date _____ Per _____

For Replacement or Credit see Slips. Page _____

Return Covered by Claim No. _____

(Fill in number, detach and return to Dept. making return)
(Send this sheet in Purchasing Agent)

No 3400

Form 765-Order 6799

Dept. No. _____

CREDIT Work Order No. _____

Storeroom No. _____

Credit to _____ Company _____

Acct. No. _____ P. E. No. _____ Date _____

	at	per lb.					
lbs. Clear Copper		c					
lbs. Covered Copper		c					
lbs. Heavy Red Brass		c					
lbs. Light Brass		c					
lbs. Lead		c					
lbs. Zinc		c					
lbs. Iron		c					
lbs. Iron Borings		c					
lbs. Brass Borings		c					
lbs. Babbitt Borings		c					
MISCELLANEOUS							

Received By _____ Storekeeper _____ Total _____

Rec'd Page No. _____ Acc't Charged To _____

Place or to Whom Mat. Delivered _____ By _____

SOME OF THE INTERESTING FORMS USED BY TRI-CITY RAILWAY & LIGHT COMPANY IN STORES ACCOUNTING

Upper left, blue tag for material not in bins. Upper center, blue card for bin label. Center left, gasoline receipt blank. Center, inventory ticket, partly made out before inventory period. Lower

left, credit form for periodical return of material taken out of service. Right, material returned report made out by storekeeper. deals with only the direct materials and direct labor, nothing being done with such items as rent, heat, light, depreciation, insurance, taxes, etc., it answers the purpose for which it was intended, namely: To give the total amounts of the above-mentioned direct labor and material for any particular piece of work. The balance of the miscellaneous charges can be distributed under a percentage plan. Since all the methods of distributing expense establish a relation between expense and some feature of material and labor, a close appreciation of the expense necessary for a given piece of work can usually be made when this basic factor is known.

forated, and number of this report is also printed there. This is for the use of the purchasing agent's clerk, who fills in the number of the claim and returns it to the storekeeper, who enters the claim number on his yellow triplicate copy in the book. When material is returned or credit received he notifies the purchasing department to close this claim. More and more, good storekeeping really develops into cost accounting, and when you talk of cost—let us stop and consider that word and what it means. In modern industrial organizations there is no item of greater importance than cost. To know your cost is to thoroughly know your business. Cost accounts should be regarded as detailed statements of the condensed state-

The three principal uses of a cost system are: First, to show the actual cost of operations. Second, to form

the basis of managerial reports. Third, to predict future operations.

No one method of cost finding can be laid down that will answer the requirements of every situation. Our case was studied independently and a system arrived at that would be applicable to the problems we had at the Tri-City Railway. And it has opened our eyes to a good many things. For instance, we found we could not paint automobiles as cheaply as we could have them painted outside. We found men charging time promiscuously, to any maintenance account or wrecked car that was in the shop at that time. We found we could buy steel bushings cheaper than they could be made. We found that it was more expensive to wind and rewind field coils ourselves than it was to have the work done on the outside.

It is necessary to give detailed instructions for the handling of shop orders in order that the benefits of the cost accounting be realized. They are issued in triplicate, by the storekeeper, one copy going to the man in charge of the work, one going to the timekeeper and the third remaining in the book. The order indicates by whom it is issued and at whose request, to whom it is issued and the work to be done. An important item in our organization is to have noted, for intercompany accounting, the company to whom the work shall be charged. There is a shop order card for each shop order, and on this card all charges, for both labor and material, to this shop order are entered, as work progresses, so that at any time the total expenditure on this order is known. When the work is completed, the original order is returned to the storekeeper and the account of that order may be closed.

You will, no doubt, agree with me that you cannot attach too much importance to the value of a competent storekeeper and a good stores accounting system. They are, in my opinion, the life of the organization—to a certainty, they are the clearing house between the accounting, mechanical, operating and construction departments. Some of our members may think the system as outlined above may seem to be overburdened or to contain too much of the renowned "red tape." It seems to the writer that it is a common opinion that the storeroom is of little importance and that it is only necessary to have in charge of a storeroom a good strong man to open boxes and wrestle car wheels, with the usual characteristics of honesty. This, in my opinion, is a very serious mistake, as we have found from experience that brains are more necessary in a storeroom than brawn.

If you are going to have a storeroom and a stores accounting system and maintain them as such, it is necessary to have one in charge who thoroughly understands the accounting system of the company, and who is capable of properly classifying his charges from stores. An inefficient system can cause great inconvenience to the public as well as a great financial loss to the company in not having running repairs on hand so as to keep the cars in service at all times. It is much better to have the stock on hand than to have the cars tied up in the carhouse. And since the coming into existence of state commissions, it is imperative that you be prepared to furnish details of all operation and construction charges which your property shows.

Another feature is your ability at any time to determine the value of your stores, and this is especially true where the accounts of a company are examined by public accountants, who not only have to be shown that you have the material on hand as represented by your stock

ledgers, but also that the charges made against construction and operation have been properly classified. It is a rare instance indeed when a good stores system will not pay good dividends and adequate returns.

STOREROOM-RECORD ECONOMIES DISCUSSED

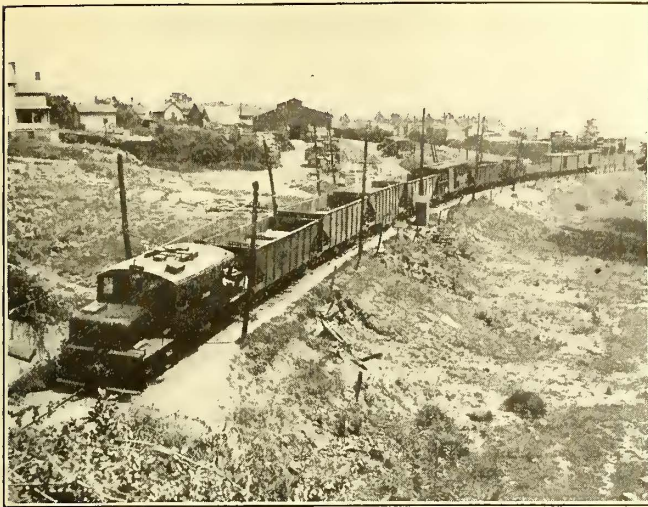
There was a rather long discussion of Mr. Kennedy's paper on storekeeping, the main thought at issue being whether or not an "airtight" storekeeping system was justifiable, comparing the savings to be realized with the cost. Mr. Kennedy summed up the results obtained in Davenport by adhering to the practice of a closed storeroom and a careful accounting of all materials and supplies by saying that prior to the adoption of the present system the stores accounts would come out \$3,000 or \$4,000 a month over or short, whereas the discrepancy now seldom runs over \$200 or \$300. He commented that there was absolutely no such thing as an exact balance in storekeeping accounts, for the cost of keeping such a close account of the very small things such as screws, nuts, etc., would be prohibitive.

R. H. Findley, Omaha, asked about the cost of the storeroom department in Davenport, in connection with the railway shops, and was informed by Mr. Kennedy that he employed only three clerks and two men to do the heavy work and issue and receive materials. He contended that this was all work which had to be done, and that if it was not done in the storeroom it would have to be done in the general office, so that the maintenance of a careful storeroom accounting system did not increase the company expense particularly.

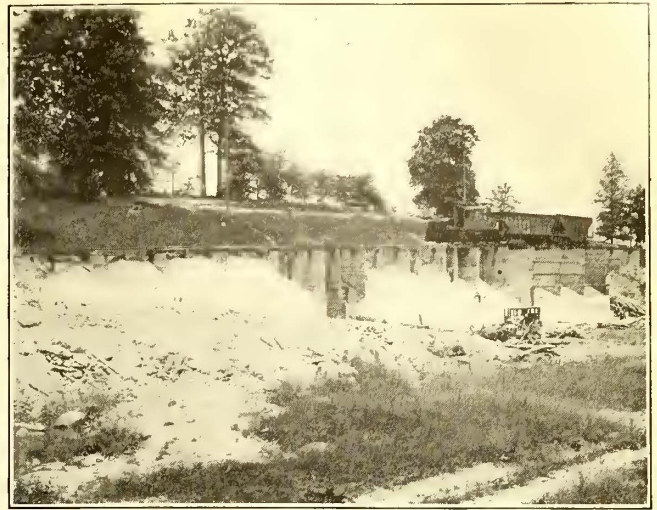
W. G. Lamb, Waterloo, Iowa, explained how a control over the storeroom issues was maintained on his property. After material is issued from the storeroom, all requisitions are forwarded to the general foreman of the shops, who glances over them in odd times and initials them before returning them to the stockroom. If he notes any undue requisition of material, he immediately checks up on it. Then in the problem of keeping down the stock of reclaimed equipment, Mr. Lamb said that whenever he noted an overstock of such used parts as nuts, bolts, trolley bases, trolley poles, etc., he puts a stop order on the issue of any of these things being issued from the new stock until the reclaimed ones are used up. This forces the repairing of the old parts and keeps the stock and investment in new parts down.

Mr. Kennedy was asked about his ability to keep up his maximum and minimum records on supplies. He replied that there had been so much trouble in securing materials in the last few years that the maximum and minimum records had been practically discarded. Presumably these records will go back into use again when the condition of the market becomes more nearly normal. The author was also asked about the manner in which the company disposed of junk. He explained that it was sold to the highest bidder each month. Mr. Keith, Des Moines, said that his company sold junk to one man in order to make identification of brass and copper more readily possible. Des Moines junk dealers are required to report to the city within twenty-four hours any copper and brass junk purchased. If the railway company sells to various junk dealers it is very difficult to check up on these city reports, a copy of which is immediately forwarded to the local railway company.

Mr. Kennedy said that this had formerly been the practice in Davenport, but it had been found that the junk dealer thus favored had not given the company as good prices as it should have received.



ONE OF THE YOUNGSTOWN & SUBURBAN ELECTRIC LOCOMOTIVES SHOVING A TRAIN OF EMPTIES ONTO THE PENNSYLVANIA RAILROAD TRANSFER



A 540-FT. TIPPLE OF 3,000 NET TONS CAPACITY UNDER CONSTRUCTION ON YOUNGSTOWN & SUBURBAN ELECTRIC LINE

Co-operating with Local Industries for Freight Business

Youngstown & Suburban Railway, Built as Passenger Line, Plays Important Part in Providing Freight Service to Industries Along Line

THE accompanying three views give some idea of the manner in which the Youngstown & Suburban Railway, Youngstown, Ohio, is tying up with the local industries along its line to serve their requirements for handling freight. Until a few years ago practically the entire attention of the officials of the road was devoted to passenger traffic, but the development of freight service on this 40-mile line in the last few years has increased to such proportions that today it requires almost the undivided attention of the management.

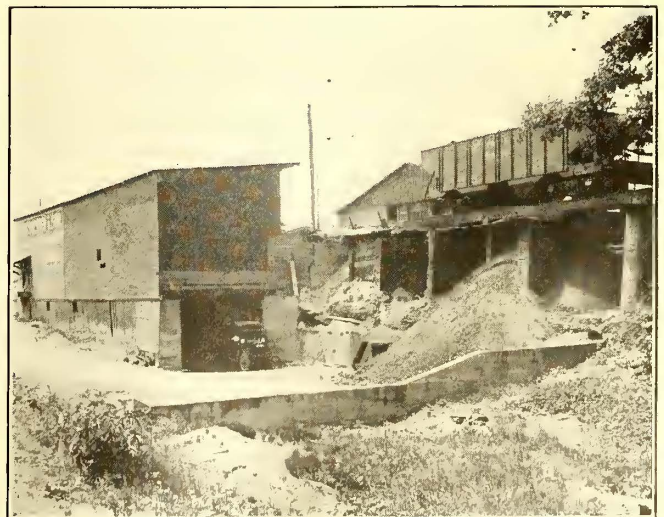
The line serves a thickly populated territory with numerous industrial plants, oil wells and coal mines along its line. One of the principal sources of revenue to the company has been in the handling of coal and building materials. This has been greatly facilitated and the continued patronage of customers assured through the building, by the customers, of unloading tipples served only by the electric line. Interchange facilities with the steam roads have made this exclusive service possible.

One of the three photographs reproduced herewith shows the tipple constructed on the electric line by a large Youngstown coal dealer. This tipple has a capacity of approximately 800 tons of coal. Slag, sand, cement, etc., are unloaded in the shed shown at the left. Brick, tile and the like are unloaded on the opposite side of the tipple. This company also has several large warehouses which are located on the opposite side of this tipple, one of which can be seen in the picture referred to.

The other tipple pictured herewith is under construction at the present time and is said to be one of the largest of its kind ever built on an electric railroad. This is being built on the electric line by a contracting firm which is spending about \$40,000 in the construction of this tipple and in adjacent warehouses, etc. The total trackage of the tipple shown herewith, when completed, will be more than 1,000 ft. and the tipple itself will be 540 ft. long and have a capacity of 3,000 net tons. The

grade from the bridge to the near end of the tipple is 3 per cent, with no grade on the part yet to be completed. A solid concrete wall is to be built along one side of the concrete piers supporting the track. Parallel to this wall there will be a macadam driveway, from which wagons and trucks can be loaded from the chutes with which the bins will be equipped. With these facilities a carload of material can be unloaded in five minutes or less and a 5-ton truck can be loaded in two or three minutes. At one side of this tipple there will be constructed sheds and stables with a capacity of thirty-five trucks and wagons and about fifteen head of horses. On the opposite side of the tipple several warehouses are to be built. This same contracting company is to construct adjacent to the tipple a track 1,100 ft. long with a clearance of 900 ft. for use exclusively in unloading brick, tile, sewer pipe, etc.

The Youngstown & Suburban Railway claims to operate entirely on a steam road basis and to be equipped to handle any amount of carload freight. The accompanying photographs illustrate how local industries may be induced to co-operate with electric lines, to the mutual advantage of both parties, in the problem of securing prompt transportation of materials and supplies.



RECEIVING TIPPLE OF YOUNGSTOWN COAL AND BUILDING MATERIALS DEALER SERVED BY ELECTRIC LINE

Railway Situation in Italy

THAT the critical shortage of coal in Italy is having a material effect upon railway development in Italy is shown in a report to the United States Department of Commerce by Trade Commissioner H. C. MacLean, Rome, Italy. He points out that efficient operation of any transportation system is dependent upon the adequacy and condition of its mechanical equipment, a sufficient supply of fuel and a disciplined personnel. Italy is at a disadvantage with respect to all three of these factors. At no time since the end of the war has the supply of coal in Italy exceeded more than about one-half the quantity normally consumed and the Italian railroads have been obliged to eke out their scanty allotment by employing unsatisfactory substitutes.

When the principal railway systems of Italy were taken over by the government on July 1, 1905, and became the Italian State Railways, their length was about 6,961 miles, while the length of the roads which continued under private management was about 1,924 miles, a total of 8,885 miles. At present the State Railways have a mileage in excess of 9,920 and the private roads 3,845, a total of 13,765.

The keen interest of the Italian government in providing for the rehabilitation of the railways and their expansion is clearly demonstrated by the action taken immediately after the signing of the armistice. Provision was made for the transition period between war and peace by the authorizing of an expenditure of 1,800,000,000 lire (lira at par of exchange = \$0.193 American money) for railway work and renewal of railway material. Much work is subsidized by the government and subsidies are allowed to private companies of from 5,000 to 15,000 lire per kilometer; 2,000 lire extra where electric operation is specified. Subsidies are also given for the electrification of existing lines.

Mr. MacLean gives the following data regarding lines under construction which will be operated by electric

motive power: Domodossola-Confine, 21 miles, 66 per cent of entire line completed; Modena-Lama-Mocogno, 37 miles, about 30 per cent of roadbed and buildings completed; Spoleto-Norcia-Piediripa, 34 miles, 45 per cent of 19 miles and 2 per cent of 15 miles completed; Rome-Ostia, 18 miles, commenced; Pracchia-San Marcello, 10 miles, commenced. In all, private companies have under construction about 366 miles of new railroad, about 245 miles of which will be steam traction and the remaining 121 miles electric traction.

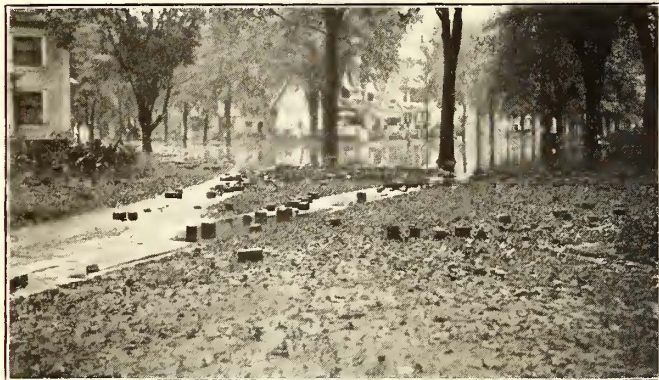
Other work which will probably be started in the near future covers a mileage of 281, of which 135 miles will be steam and 146 miles electric. The electric lines are Genova-Casella, 14 miles; Rome-Civitacastellana, 63 miles; Civitavecchia-Orte, 53 miles; Intra-Premeno, 9 miles; S. Giovanni Bianco-Piazza Brembana, 6 miles.

Cloudburst Expensive for Rail-Light

THE Toledo Railways & Light Company suffered heavily as a result of a cloudburst which occurred in Toledo and vicinity on Aug. 16. The severity of the storm can be inferred from the fact that 4.28 in. of water fell in one hour. The accompanying illustrations are from photographs taken at important points on the electric railway system and indicate the temporary operating difficulties which were encountered. At one low point the water was over 6 ft. deep, and the water fell so rapidly and with such force that at several points the creosoted wood paving blocks were floated out of place.

A total of 150 cars were crippled through the water-soaking of the field coils and armatures, and the shops have been hard put to it to get them dried out and otherwise rehabilitated.

In some ways the railway company was more fortunate than the city in that the rails and ties held the paving securely in the strip paved by the railway.



DIFFICULT OPERATING CONDITIONS FOR THE TOLEDO RAILWAYS & LIGHT COMPANY

A "Foot Punched" Transfer

New Machine Issues Transfer Without Demanding Use of Both Hands of Platform Men—Applicable to One-Man Cars

THE Shanklin rapid transfer machine, manufactured by the Shanklin Equipment Company of Springfield, Mass., represents a new and unique development in street railway apparatus. This machine issues a transfer punched and ready for the passenger to use, without the aid of any clockwork mechanism and with the use of only the foot of the conductor, after the "combination" is set.

The machine consists of a box mounted on a pedestal which has a foot lever at its base. The box is readily removed from the pedestal, weighs about 20 lb., is about 18 in. long, 12 in. deep and 6 in. wide. It is made of sheet metal and contains a strip of 500 transfers, a punch plate and an operating mechanism for feeding the transfers, properly punched, to the passengers.

The pedestal is of cast iron with a diameter of about 3 in. and a height of 3 ft. The foot lever at the base operates a rod, which in turn operates the punch plate and also a ratchet-and-pawl device, which feeds the transfer to the outlet. A push downward is all that is required after the initial adjustments are made. The rear portion of the box opens for the insertion of the lapped strip of 500 transfers in a receptacle, after which the first transfer is placed in the die plate and the door closed.

On the left-hand side of the box is a movable sector of a circle which has segments marked AM, PM, 15, 30 and 45. This is used to set for AM or PM and any fifteen-minute interval of an hour. On the right-hand side is a similar sector of a circle which has numbers from 1 to 12 on the segments. This is used to adjust for the hour desired. These two sectors thus allow the time to be set to within fifteen minutes of the time desired at the next transfer point.

SPECIAL EXPOSITION TRANSFER ISSUED BY MACHINE AT PREPAYMENT LOADING POINT, SPRINGFIELD FAIR GROUNDS

On the top of the box a set of push buttons is located and also a window which shows the counter dial for recording the number of transfers issued. The push buttons are labelled with the different routes, emergency, inbound and outbound. By means of the push buttons the conductor can punch the transfer for any route desired.

As an example, assume the next transfer point on an inbound car at 4 p.m. is at 4:15 p.m. on the run schedule. The sectors on the sides would be adjusted to 4:15 p.m. and the inbound push button would be pushed down. If the route to which transfers are desired is "Pine Street," then its push button is also operated. The conductor then simply pushes the foot lever as each passenger asks for a transfer and the properly punched transfer issues at the mouth of the box for the passenger to grasp.

The internal mechanism is simply a pressed steel die plate and a punch plate containing hardened steel punch slugs. The punch plate is on springs and the operation of the foot lever pushes it up against the die plate and causes the punch slugs to penetrate the transfer at the open holes in the die plate.

The die plates are removable, so that any plate corresponding to a given group of routes can be installed in the box. It is claimed that the box is particularly suited to one-man safety car operation, as it allows transfers to be issued quickly and safely while the conductor collects fares or watches the track ahead.

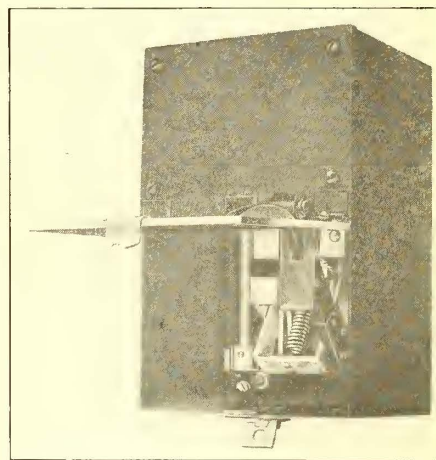
Four of these machines were recently used at the time of the Eastern States Exposition at Springfield for the purpose of issuing transfers at a prepayment loading station at the fair grounds exit. The records for the week show that Monday the four machines issued 4,363, Tuesday 5,011, Wednesday 10,862, Thursday 10,763, and Friday more than 10,000. On Thursday one machine issued 2,136 and the four machines more than 8,000 in about three hours. According to plans these machines were to be tried out in Springfield on safety cars commencing early in October in order to get a service try-out on cars.

Safety Switch for Electric Heaters

A NEW type of heater switch is being placed on the market by the Consolidated Car Heating Company, which is designed to prevent trainmen from accidentally touching any live part while throwing the switch or while changing fuses. It is inclosed in a steel box, having the lower half of the cover hinged to swing upward. The handle works through a slot in this hinged cover in such a manner that it is impossible to open the cover without first throwing the handle to the "off" position. When in this position the fuse and all accessible parts are dead and all live parts are protected by insulating barriers. With the cover open it is also impossible to throw the handle to the "on" position. The switch mechanism works on a toggle principle, which gives a quick brake and quick make, regardless of a slow operation of the handle. Whenever the switch is in the "on" position the slot for the handle is closed by a slide. These various features insure protection for trainmen.

This switch has been assigned type No. 311, and is rated at 50 amp. and 600 volts. A similar switch, No. 312, is made for 1,200-volt service.

In a recent issue the *Electric Railway and Tramway Journal* directs attention to the fact that owing to the linking up of bus services it is now possible to travel by this means a distance of 100 miles from London.



SAFETY HEATER SWITCH WITH COVER RAISED

Automatic Compressor Oiling

Oiling System for "Bungalow" Air Compressors Has Been Improved to Provide Direct, Positive and Automatic Lubrication

ALTHOUGH the splash system of lubrication employed in the Westinghouse "Bungalow" air compressor has proved eminently satisfactory, improvements have resulted in the standardizing of a direct, positive lubricating system entirely automatic. The only attention required is to replenish the oil supply in the crank case at intervals which can safely equal the longest permissible interval between general inspections of other car equipment. There is but one place in which to pour the oil. This consists of a fitting which also serves as a gage to indicate the oil level. In well-arranged installations it is readily accessible from the side of the car.

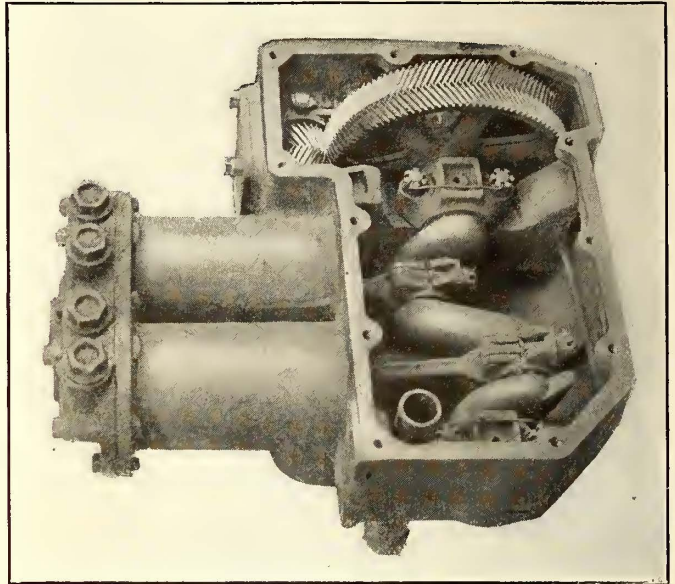
The cheeks of the crankshaft are extended to form oil throwers, which splash oil onto the front and back walls of the crank case and onto the cover, as the crankshaft rotates. The oil thrown against the front wall drips down onto the pistons and thoroughly lubricates them. The oil thrown up onto the under side of the cover drains from distributor ribs, provided for this purpose, into both crankshaft bearings and the connecting rod bearing, providing these parts with flood lubrication.

Some of the oil dropping on the connecting rod flows down a groove in the top side of the rod to the wrist pin bearing. The oil splashed against the back wall of the crank case flows down into a trough by which it is conducted over into the gear case. Some of this oil is carried up by the gear and thrown off into a trough, so designed and placed above the gear as to drop a definite and ample amount of oil into the armature bearings. The surplus flows back into the gear case.

The oil passage leading from the crank case to the gear case is restricted to such a size that it will, com-

bined with the pump action of the gear, maintain a certain definite oil level in the gear case. Thus the gear is amply lubricated and sufficient oil carried up to the armature bearings, and at the same time the gear runs in a small quantity of oil, thereby preventing the generation of heat.

Oil throwers on the armature shaft and a catcher on its housing, with a return passage to the gear case, insure that any excess oil passing by the large arma-

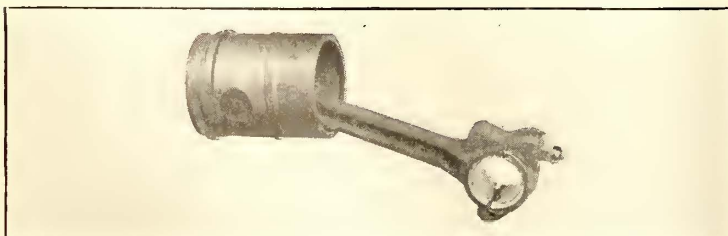
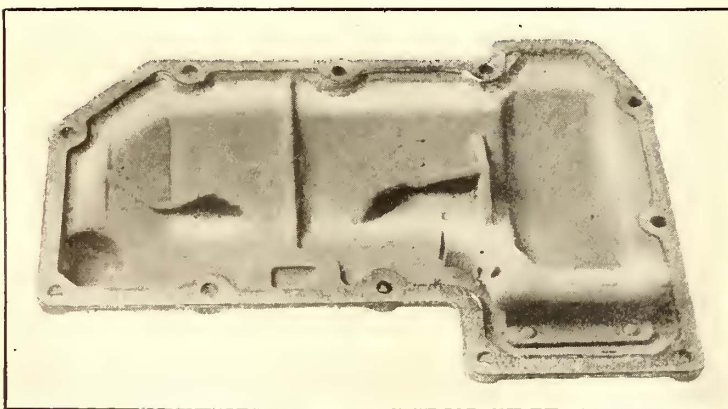


TOP VIEW OF COMPRESSOR, SHOWING DIRECT OIL DISTRIBUTING FEATURES

ture bearing will go to the gear case instead of over into the motor. This return passage is connected into the bottom of the gear case, which provides a seal and prevents even oil vapor reaching the motor.

The concave end of the armature is protected by a metal shield, and any oil which may have seeped past the bearing will be deflected into a passage and conducted away instead of being permitted to reach the motor windings. The various oil conductors and passages are so arranged that the integrity of the lubricating system will not be affected by the tilting of the car on a curve, either to restrict the flow of oil to the parts where it is desired or to permit flooding of oil to parts it should not reach.

The design of the pistons and cylinders is such as to limit the passage of oil from the crank case side to the pressure side of the pistons to an amount such as will insure the proper lubrication. The pistons are neatly fitted to the cylinders, and beveled grooves are provided on the non-pressure edge of the rear packing ring groove and that immediately ahead of the wrist pin. The excess oil is therefore wiped back by the rings, finally reaching the rear groove, from which it drains into the crank case through a hole provided for this purpose. An absolutely tight joint is maintained at the various covers by the use of cork gaskets. To prevent mechanical injury the gaskets are shellacked to the part receiving the least handling when the compressor is dismantled. The ribs and projections add strength to the castings as well as provide a means for directing the oil to a point when needed for lubrication.



AT TOP, UNDERSIDE OF CRANK-CASE COVER FITTED WITH OIL DISTRIBUTOR RIBS. AT BOTTOM, THREE RINGS IN THE PISTON PREVENT OIL FROM ENTERING AIR SYSTEM

The Atlantic City Convention Programs

Convention Motto: BE ON TIME

All Associations

MONDAY, OCT. 11

Registration and distribution of badges at booth, right of entrance, Youngs Million Dollar Pier. American Association; all day; all other associations 9.30 a.m. to 12.30 p.m.

American Association

TUESDAY, OCT. 12

9:30 a.m. to 12:30 p.m.

All meetings held in Greek Temple
Annual address of the president.
Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees.

Reports of committees:
On compensation for carrying United States mail.

On electrolysis.

On national relations.
Address on "Problems of Fuel Supply," by Eugene McAuliffe, president Union Colliery Company, St. Louis, Mo.

Reports of committees:
Aera advisory.

On company membership.

Discussion of report of the Federal Electric Railways Commission, led by Philip H. Gadsden, vice-president United Gas Improvement Company, Philadelphia, Pa.

WEDNESDAY, OCT. 13

9:30 a.m. to 12:30 p.m.

Reports of committees:
On fare systems.

On publicity.

Committee of One Hundred.

Paper on "Possibilities of Transporting Other than Passengers on Interurban Lines"—Britton I. Budd, President, Metropolitan West Side Elevated Railway, Chicago, Ill.

Address on "Training of Electric Railway Personnel," by Martin Schreiber, manager Southern Division, Public Service Railway, Camden, N. J.

Address on "Settlement of Labor Disputes in the Interest of the Public and its Influence on Fares," by Hon. Henry J. Allen, Governor of Kansas.

THURSDAY, OCT. 14

9:30 a.m. to 12:30 p.m.

Report of committee on valuation.
Paper on "Utility Regulation and Rate of Return"—Cecil F. Elmes, manager Sanderson & Porter, Chicago, Ill.

Paper on "The Place of the Motor Bus"—Frank C. Pick, Commercial Manager, London Electric Railway Co., London, England.

Paper on "The Place of the Motor Bus as a Supplement to Electric Railways"—R. Gilman Smith, Milwaukee Electric Railway & Light Co., Milwaukee, Wis.

Address on "The Motor Vehicle—Competitor or Ally?"—George M. Graham, Vice-President, Pierce-Arrow Motor Car Co., Buffalo, New York.

Reports of convention committees:
Unfinished, and general business, and election and installation of officers.

Engineering Association

MONDAY, OCT. 11

2:30 to 5:00 p.m.

Meeting Held in Engineers' Hall
Annual address of the president.

Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of committee on resolutions.

Reports of committees:
On way matters.

On buildings and structures.

TUESDAY, OCT. 12

2:30 to 4:30 p.m.

Meeting held in Greek Temple
Joint meeting with Transportation & Traffic Association.

Report of the committee on safety car operation.

4:30 to 5:30 p.m.

Meeting held in Engineers' Hall
Paper on "Standardization and Its Ef-

fect on stores." (a) "From a Storekeeper's Standpoint," P. F. McCall, storekeeper, South Side Elevated Railway, Chicago, Ill.

WEDNESDAY, OCT. 13

2:30 to 5:00 p.m.

Meeting held in Engineers' Hall
Reports of committees:

On power distribution.

On power generation.

On national electrical safety code.

Address on "Our Proposed National Power Policy," by W. S. Murray, chairman superpower survey, United States Geological Survey.

THURSDAY, OCT. 14

2:30 to 5:00 p.m.

Meeting held in Engineers' Hall
Reports of committees:

On equipment.

On heavy electric traction.

On standards.

Address on "Electrification of Railroads," by A. H. Armstrong, chairman, electrification committee General Electric Company, Schenectady, N. Y.

General business, and election and installation of officers.

Transportation & Traffic Association

MONDAY, OCT. 11

Booth, Young's Million Dollar Pier

2:30 p.m. to 3 p.m.

Meeting held in Greek Temple
Annual address of the president.

Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees.
3 to 4 p.m.

Joint meeting with Accountants' Association. Report of committee on collection and registration of fares.
4 to 5:30 p.m.

Joint meeting with Claims Association.

Report of committee on code of traffic principles.

Paper on "Automobile Hazards," by C. M. Talbert, commissioner of streets and sewers, St. Louis, Mo.

TUESDAY, OCT. 12

2:30 to 5 p.m.

Meeting held in Greek Temple
Joint meeting with Engineering Association.

Report of committee on safety car operation.

WEDNESDAY, OCT. 13

2:30 to 5 p.m.

Meeting held in Greek Temple
Report of committee on economics of schedules.

THURSDAY, OCT. 14

2:30 to 5 p.m.

Meeting held in Greek Temple
Reports of committees:

On express and freight traffic facilities and costs.

On merchandising transportation.

General Discussion.

General business, reports of convention committees, and election and installation of officers.

Accountants' Association

MONDAY, OCT. 11

2:30 to 3 p.m.

Meeting held in Accountants' Hall
Annual address of the president.

Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees.
3 to 4 p.m.

Meeting held in Greek Temple
Joint meeting with Transportation & Traffic Association.

Report of committee on collection and registration of fares.

TUESDAY, OCT. 12

2:30 to 5 p.m.

Meeting held in Accountants' Hall
Reports of committees:

On accounting-claims.
On accounting-engineering.

On standard classification of accounts.

Paper on "Accounting for Material Received and Used, Including Inventories," by R. A. Weston, certified public accountant, New Haven, Conn., formerly general storekeeper, New York, New Haven & Hartford Railroad.

Paper on "Cost of Service Accounting" by H. J. Davies, secretary-treasurer Cleveland Railway, Cleveland, Ohio.

WEDNESDAY, OCT. 13

2:30 to 5 p.m.

Meeting held in Accountants' Hall
Paper on "Financial Problems Confronting Public Utilities During the Period of Reconstruction," by Harry E. Mendes, member of Touche-Niven & Company, certified public accountants, Cleveland, Ohio.

Paper on "The Accounting Profession," by George L. Vannals, certified public accountant, Hartford, Conn.

Reports of Convention Committees:
Election and installation of officers.

Claims Association

MONDAY, OCT. 11

2:30 to 4 p.m.

Meeting held in Claims Hall
Annual address of the acting president.

Annual report of the executive committee.

Annual report of the secretary-treasurer.

Appointment of convention committees.

Reports of committees on membership, subjects, safety, ways and means, interchange of claims statistics and constitution and by-laws.

4 to 5:30 p.m.

Meeting held in Greek Temple
Joint meeting with Transportation and Traffic Association.

Report of committee on code of traffic principles.

Paper on "Automobile Hazards," by C. M. Talbert, commissioner of streets and sewers, St. Louis, Mo.

TUESDAY, OCT. 12

2:30 to 5 p.m.

Meeting held in Claims Hall
Paper on "Automobile Hazards," by Ralph Stickle, assistant superintendent accident department Cleveland Railway, Cleveland, Ohio.

Written Discussion by L. H. Roche, General Inspector Associated Bureaus, Pittsburgh Railway, Pittsburgh, Pa.; W. G. Fitzpatrick, general claims attorney Detroit United Railway, Detroit, Mich., and J. H. Hanlon, claim agent United Railroads of San Francisco, Cal.

WEDNESDAY, OCT. 13

2:30 to 5 p.m.

Meeting held in Claims Hall
Paper on "Accidents—Cause and Prevention," by F. E. Shumate, general attorney Atlanta Northern Railway, Atlanta, Ga.

Written Discussion on "Cause and Prevention of Accidents," by R. N. Hemming, Superintendent Transportation Indiana Service Corporation, Fort Wayne, Ind.

Written Discussion on "Co-operation of Trainmen," by J. E. Duffy, General Superintendent, New York State Railways, Syracuse, N. Y.

THURSDAY, OCT. 14

2:30 to 5 p.m.

Free-for-all discussion of the following topics suggested by members to the subjects committee at the mid-winter meeting. (members limited to five-minute discussion): "The increased cost of claims and some of the reasons contributing thereto"; "Prosecution of claims for damage to company's property"; "How best to safeguard releases from attack"; "Value of signed statements"; "The best method of keeping in touch with witnesses"; "Value of secret service"; "Handling blind and fraudulent cases."

General business, reports of convention committee, and election and installation of officers.

Letter to the Editors

The Movie and Other Publicity Means

GEORGIA RAILWAY & POWER COMPANY

ATLANTA, GA., Sept. 30, 1920.

To the Editors:

While I have read with real interest your editorial suggestion in the JOURNAL for Sept. 25, I am convinced that the question is not "Shall we use the movie," but how soon can we use it. The reason for not using it here has been that the only kind of movie proper to use is one thoroughly comprehensive and complete in every detail, which would be more expensive than one company would probably want to undertake.

My idea about the movie for the electric railway industry is that we should have two kinds. One for the system operated by hydro-electric power, and the other for the system using coal to generate electricity. It would be impossible to estimate the extent of the public interest, for instance, in a picture which begins with the showing of a bank of clouds and attractive mountain scenery, followed with a rainfall, streams trickling down the mountain side forming a larger body of water harnessed by a massive dam. Then a power house and transmission lines, followed by all phases of street car operations, with possibly a showing of the old horse car to illustrate the progress that has been made.

The other film could begin with a scene in the coal mine, followed by a representation of transportation with the increased prices of coal and cost of transportation brought out. This picture should be carried clear through to a showing of street car operations, including repair shop as well as the carhouse activities at 4 a.m., when the movie patrons are asleep. Sight should not be lost of the opportunity to show some of the public weaknesses, such as the blocking of car entrances, failure to move forward, talking to the motorman, one man in an auto delaying a car containing sixty-five people, etc. The possibilities of the movie are limitless.

There are of course situations where the influence of the movie would be limited. Members of the State Legislature are to a very large extent named by people living in the rural districts, most of whom would not be reached by the movie. Then there are questions that arise from time to time that are too specific to be answered effectively by motion pictures, and the practice of waiting until an appropriate time to put on a newspaper campaign, covering a limited period, brings us to a realization of the necessity for some means for supplementing the newspaper, preferably the educational movie. The next step seems to be a multigraphed letter, having the appearance of being typewritten, going, say, every Monday morning, in the form of a personal communication, to individuals in the county or state involved—these individuals being carefully selected because of their importance and the value of their judgment in their respective communities. In this way, if the whole story is told in brief letters covering a long period, a knowledge will be planted in the minds of an important number of people in their communities, so that no opposing sentiment could possibly grow.

J. F. TRAZZARE,

Manager Employment and Public Relations.

Association News

ATLANTIC CITY CONVENTION, OCT. 11 TO 15

Association Reports for September

THE following special reports and compilations were prepared by the Bureau of Information and Service during last month:

NEW BULLETIN No. 125 ON WAGES, containing over one hundred recent changes in wage rates.

SAFETY CAR COMPILATION; a summary of replies to a questionnaire.

NEW BULLETIN ON FARES, giving the latest information on increased rates of fare classified according to the cash fare paid in various cities throughout the country.

NUMBER OF JITNEYS IN VARIOUS CITIES; a summary of replies to a questionnaire, showing the number of jitneys operating in each city and the rules and regulations covering their operation.

TABLES SHOWING EFFECT OF INCREASED FARES ON OPERATING REVENUES FOR A NUMBER OF TYPICAL CITIES; a revision of the information shown in a former compilation entitled "A Series of Charts," bringing the information up to Sept. 1, 1920.

LIST OF CITIES WHERE MOTOR BUS COMPANIES ARE OPERATING, either as auxiliary or as a competitor to electric railways, with data on number of buses, miles of route, fare, etc.

TABLE OF OFFICIAL VALUATIONS per mile of track and per car based on Public Service Commission division.

Joint Meeting in Providence Great Success

New England Street Railway Club and Rhode Island Company Section No. 12, A. E. R. A., Enjoy Two Sessions and Dinner

WITH almost two hundred in attendance, about half of whom came from Connecticut and Massachusetts, the New England Street Railway Club and the Rhode Island Section No. 12, American Electric Railway Association, held a most successful meeting at the Narragansett Hotel in Providence on Thursday, Oct. 7. There was an afternoon session and a dinner and evening session.

I. A. May, president of the New England Street Railway Club, and W. C. Slade, president of Rhode Island Section No. 12, and also vice-president, for Rhode Island, of the New England Street Railway Club, alternated in the chair during the sessions.

The afternoon session at 4 o'clock was devoted to the subject of publicity or public relations, the one address being delivered by Fred A. Cummings, Public Relations Representative of the Eastern Massachusetts Street Railway Company, and the informal discussion which followed this address lasted until dinner was called at 6:15. After the dinner, at which music was furnished by the Rhode Island Section Orchestra, an excellent address was delivered by W. C. Bliss, chairman of the Public Utilities Commission of Rhode Island, followed by the other announced address of the evening by Joseph F. Berry, attorney for the Connecticut Company in Hartford. Mr. May, presiding, called upon the following for extemporaneous remarks: T. F. Green, Z. W. Bliss, and F. H. Swan, the three receivers of the Rhode Island Company; W. R. Dunham, president of the Connecticut Company Section No. 7, and C. C. Pierce of the General Electric Company. These talks were both entertaining and instructive.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION
PERSONAL MENTION

Commission Taking Evidence

Canadian Body Begins Inquiry Into Hydro-Electric Radial Railway Matters

The Ontario Hydro-Radial Railway Commission, under the chairmanship of Justice Sutherland, began its sittings at Toronto on Sept. 28 for the purpose of considering evidence in connection with the whole project. The personnel of this commission was given in the *ELECTRIC RAILWAY JOURNAL* on July 24, at the time the Ontario Government announced its appointment. Since that date T. A. Russell has resigned as a member, and Brigadier General C. H. Mitchell, of the Toronto University staff, was appointed in his place.

ENGINEER GABY FIRST WITNESS

The following are engaged as counsel: I. F. Hellmuth, K.C., representing the Ontario Government; Colonel C. S. MacInnes, K.C., for the Hydro-electric Power Commission; Robert MacKay, K.C., for the Ontario municipalities supporting the radial railway undertaking, and R. S. Robertson on behalf of the municipalities which are opposed to proceeding with the project and some other municipalities which are not included in the present scheme.

Chief Engineer F. A. Gaby of the Hydro Commission was the first witness called. He reviewed the progress of the hydro-radials since their inception in the year 1912, when the municipalities comprising the Ontario Municipal Electrical Association discussed electric transportation on the same basis as electric power distribution.

TORONTO & EASTERN FIRST

The first road dealt with was the Toronto & Eastern Railway. The estimates placed before the Government had amounted to \$7,206,687 for construction. An increase to \$8,368,794 had been made by the Government, which included rolling stock and substations and to provide for increases in labor and materials since the date of the commission's estimate of 1919 was presented as above for construction only. Of the increase between the two sets of figures above mentioned, Mr. Gaby stated that \$400,000 to \$500,000 had been occasioned by allowance for 6 miles of track within the city limits. The terminal of the road was planned to be at Bay Street.

Toronto to St. Catharines was next taken up. It was expected to purchase the existing line from Toronto to Port Credit, constructing 12 miles from the latter point to Oakville, and purchase the Hamilton Radial line from Oakville to Hamilton. From Hamilton to St.

Catharines, the line would run east parallel to the Grand Trunk steam road to Fruitlands, then across the Grand Trunk to Winona, and from there over the Jordan River into the city of St. Catharines. At St. Catharines it was proposed to purchase from the Dominion Government the Niagara, St. Catharines & Toronto lines to Niagara Falls and Port Colborne.

The cost of the Toronto terminals would be divided between the Toronto & Eastern and the Toronto & St. Catharines divisions in proportion of about two-thirds and one-third respectively.

Delaware Tube Plan Revived

Plans for a tube beneath the Delaware River will be discussed at a conference in the office of the Mayor of Philadelphia to be attended by Thomas E. Mitten, president of the Philadelphia Rapid Transit Company, and representatives of the Pennsylvania and Reading Railroads. Announcement to that effect was made at the Mayor's office on Sept. 12.

No talk of a tunnel under the Delaware to Camden has been heard in recent years prior to the above announcement except in the communications to the press from Samuel Rea, president of the Pennsylvania Railroad. Mr. Rea in announcing that the Pennsylvania, which operates the ferries, would not oppose the bridge project, always coupled with that the phrase "or tunnel project."

Another plan under contemplation involves double-decked ferryboats. That plan, it is said, could readily be adopted and would greatly reduce the traffic congestion if approaches for passenger traffic from footways running from the top of the hill at Market Street straight to the elevated railway structure were built in order that foot passengers be not mixed up with vehicular traffic running on the surface.

Electrification Nearing Completion

The Northeast Oklahoma Railroad will soon be in a position to use electricity on its line between Douthat and Miami, Okla. The last of the poles was installed on Sept. 30 and some of the trolley wire has been strung. A substation is being erected at Picher. The company has several cars in the carhouse in Miami which were bought from other cities for use until new ones can be delivered. The cars have been repaired and repainted. Most of the work in preparation for electrification has been completed.

Campaign Under Way

Toledo Prepared for Exciting Times Over Railway Settlement Proposal Soon Before Voters

The first day of registration at Toledo, Ohio, under the new conditions of twice as many precincts and women voting brought forth a showing which indicates that the women will take a large part in the election at which the railway franchise and municipal ownership propositions will come up Nov. 2.

WOMEN DEMAND MILNER RUN

The women have also demanded that W. L. Milner, the author of the service-at-cost measure and head of a commission appointed by Judge Killits of the Federal court, be a candidate for Mayor next fall. This indicates that they want the franchise settlement to be put into effect and desire Mr. Milner to be the man to start it on its way.

The *News-Bee*, which waged a campaign in favor of the twin municipal bonding ordinances when they were defeated by a majority of more than 4,000 votes, has taken up the battle against the Milner plan. That paper claims it is a perpetual franchise and a "blank check" system of financing.

Both of these claims are offset by improvements made upon the Tayler plan and backed by the same paper when there was a fight in conferences between Mr. Milner and Henry L. Doherty & Company interests.

The city begins to acquire an equity in the property of the new Community Traction Company as soon as the sinking fund begins to retire outstanding bonds. And this process will continue, so that the city will have nearly one-third interest at the end of the first ten years. It will gain representation on the board of directors along with the equity in the property. The last fifteen years of the twenty-five-year grant will be devoted to a process of amortization through which complete ownership of the system will be obtained with less than 0.8 cent extra fare during the period, according to Mr. Milner.

COUNCIL CONTROLS SERVICE

Council has the full authority to control service. Additional financing cannot be made without the authority granted by the elected representatives of the citizens of the city. The bond measures, ostensibly for municipal ownership of some kind of a transportation system, are designed to give to Council \$7,000,000 to spend.

Very little of a definite nature is available on the municipal ownership plan. No campaign is being made in its behalf yet.

Fresno Strike Over

Boycott and Intimidation Fail as Weapons Against Local Railway in Labor-Ridden Town

The strike of the employees of the Fresno (Cal.) Traction Company has not been declared off, but traffic has again become normal and nearly all of the strikers have found work elsewhere. The earnings of the company for the first three weeks in September show a substantial increase over the earnings for the same period last year.

FIRST TROUBLE IN TWENTY YEARS

In many respects the strike at Fresno was unusual. The company up to the time of the present disturbance had not had a strike in the twenty years of its existence. Its employees until very recently did not belong to any union, though constant pressure was brought upon them by unions to join the Amalgamated Association. Finally in response to the demands of these outside unions a capable organizer was imported from Tacoma. In April and May every effort was made to get the traction company employees to join the union, they being promised the full support of all the unions in Fresno in securing recognition if they would do so. The traction company paid no attention to the movement and something more than a majority of the men were finally induced to join. The men then presented a demand for recognition of the union, stating that they would not discuss any question of hours or labor until the union had been recognized. The request for recognition was refused and a strike resulted, about one-third of the men choosing to stay with the company.

Other men were brought to Fresno immediately and service was resumed. The men who remained loyal to the company were not subjected to the hazard of attempting to operate cars during the first strike period.

The morning paper came out strongly against the traction company, declaring it should recognize the union, and coloring all of its news in favor of the strikers. The evening paper adopted more of a "middle-of-the-road" attitude.

VIOLENCE RESORTED TO

The men who operated the cars were from time to time assaulted, but on the whole were able to take care of themselves. Jitney lines were formed all over the city by the unions and the strikers and a systematic course of persuasion and intimidation established to keep people from riding on the cars. Members of various unions declared boycotts on the railway and at permanent corners pickets were placed to persuade people to patronize the jitneys instead of the cars. Members of unions who rode on the cars were fined and in one case pressure was brought to bear which cost the user of the car her job. The boycott was highly effectual, but independent investigation showed that outside of unions there was not much sympathy with the strike.

A committee of sixty businessmen investigated the situation and with the exception of two declared the attitude of the railway to be entirely proper and undertook to bring about a strike settlement. The strikers finally voted to return without recognition of the union, yielding their seniority to the old employees who had stayed on the job, but the next day again quit work.

Thereupon the City Council passed an ordinance which in effect eliminated all of the jitneys where they competed with the street car lines. In the meantime the people had again begun riding on the cars and traffic gradually increased. At the time of the passage of the ordinance traffic was 50 per cent normal. It increased gradually and became normal with the withdrawal of the boycott.

The city of Fresno is the center of a very prosperous farming and fruit growing territory. It is essentially a merchandising city. The increase in wealth in the tributary territory during the last few years has been very large. High prices have been received for raisins, peaches and other fruits, and the income from oil well development has been very large. A large amount of Fresno capital is invested in oil wells, but there are no wells near the city. The city increased in population in the last ten year more than 80 per cent.

Labor in the city is employed largely in the packing and canning of fruits and the incidental manufacturing work that goes with a city of 50,000 people. For many years, notwithstanding it is a city of trade, it has been one of the principal centers of union labor in the West. The principal newspaper is a strong advocate of union labor. The city generally is so prosperous as to yield to union labor demands in various lines of activity without any fight. Even the newspaper reporters and school teachers are organized.

All Cincinnati Roads Under Service at Cost

Service at cost will be the basis of all electric railway fares in the city of Cincinnati, according to an opinion by Judge Stanley W. Matthews of the Hamilton County Court of Common Pleas, who recently dissolved temporary restraining orders preventing the Ohio Traction Company from charging more than 5 cents between the villages of Wyoming and Lockland and the Zoo.

The service-at-cost ordinance, the Judge held, is not only a contract between the city of Cincinnati and the Cincinnati Traction Company, but is also a law governing traction lines within corporation limits. He said the home rule charter of the city gives its ordinances the effect of state laws.

The villages of Wyoming and Lockland brought suit because, it was stated, they had contracts with the Ohio Traction Company whereby they were guaranteed a 5-cent fare between their corporation limits and the Zoo, which lies about a mile within the city limits.

Detroit Injunction Argued

Fight Still in Progress Over Rights of City Under Recent Municipal Ownership Authorization

Arguments of both parties in the injunction suit brought by the residents of Clairmount Avenue to restrain the city of Detroit, Mich., from constructing a municipal railway on Clairmount Avenue have been finished. Corporation Counsel Wilcox has ten days in which to submit his brief in answer to that of Attorney Weadock, who represents the 110 protesting residents. The case is being heard before Judge William B. Brown, Grand Rapids.

FORMER RAILWAY ATTORNEY IS COUNSEL

It is maintained by Mr. Weadock, former attorney for the Detroit United Railway, that the ordinance for the submission of the Municipal Railway proposal to the voters is invalid in that it deprives abutting property owners of their right of ingress and egress to their property, and because it attempts to authorize as a part of the Clairmount line, street railway tracks in streets of Hamtramck before having obtained the consent of that village. Hamtramck is entirely surrounded by the city of Detroit and the proposed route for the Clairmount line traverses the village.

Another point of the ordinance attacked by Mr. Weadock is the fact that the ordinance provides for a line in Linwood Avenue where the street is now occupied by a Detroit United track. The purchasing by the sinking fund commission of bonds for financing the street railway is branded as illegal on the ground that it is a contravention of municipal safeguards and against public safety. It is also argued that the ordinance is inoperative because there are no valid funds for carrying on the work, and that contracts to do the work are invalid because the law was not followed strictly by the Commissioner of Purchases and Supplies in advertising for bids.

CITY CONFIDENT OF ITS RIGHTS

In answering, Corporation Counsel Wilcox defended every step so far taken by Mayor Couzens, the City Council and the Street Railway Commissioners in the carrying out of the proposed municipal railway project, and upheld the contracts let for work upon the lines now under contract. That the city can take over the Linwood Avenue line at any time and oust the Detroit United Railway was argued by the corporation counsel since the company is operating there only on a day-to-day agreement.

Mr. Wilcox argued that, if necessary, the lines in Hamtramck can be altered in route to go around the village. He said that the people voted on a proposition, not an ordinance, and that it was not a piece of legislation.

In reply to the claims made by the Clairmount residents, it was denied by

Mr. Wilcox that the construction of a double-track railway on their street would shut them off from their property, except for the momentary passing of a car. He stated that engineers for the commission had made surveys and recommend Clairmount as a route, but that their recommendation might not be accepted by the commission.

All contracts, according to the corporation counsel, have been properly advertised, and the Sinking Fund Commission in buying the Public Utility Street Railway bonds was merely following the established custom.

In answer to Attorney Weadock's claim that the \$15,000,000 was insufficient and that the bond issue was therefore unlawful, Mr. Wilcox asserted that the adoption of the monolithic type of construction of tracks would enable the city to save enough money to acquire not only the 156 miles of track included in the class A and B lines but also the 62 miles of class C lines, and come within the \$15,000,000 bond issue voted on April 5. He denied that it was necessary to build the class C lines out of the \$15,000,000, and said that the sample ballot issued by the city called attention to a financial plan for the A and B lines. The charter was held to provide for the issue of street railway bonds to add to the system, and these bonds, according to Mr. Wilcox, were not a lien against the city but against the railway itself.

Interpretation of Utility Measure Asked

Assuming that the opinion recently given by J. O. Bailey, Assistant Attorney General, was sound as far as it pertained to the utility act giving to the Oregon Public Service Commission authority to remove any and all unreasonable franchise provisions now imposed on the traction division of the Portland Railway, Light & Power Company, the commission has asked Attorney General Brown to give legal construction and to express the propriety of the commission taking summary action upon a matter as important and as highly involved as the one presented.

The commission also seeks to ascertain from the Attorney General its actual jurisdiction in the matter and a statement as to what procedure should be followed in making a determination of the issues legally effective. Three questions were submitted for legal interpretation, as follows:

1. What part or parts, if any, of the application for removal of franchise provisions now imposed upon the company may properly be considered and to what items, if any, does our jurisdiction extend?
2. What is the extent of our jurisdiction, and the proper and necessary procedure to make a determination legally effective?
3. What consideration must the city of Portland receive if the effect of action taken by us reflects itself seriously upon the finances of the city?

\$862,000 for Betterments

Program of Improvement Work Under Way on Pacific Electric Lines in Southern California

Since July the Pacific Electric Lines, Los Angeles, Cal., have undertaken a vast program of improvement work on its system, which had been delayed during the past three years due to the late war affecting the labor and material situation. The greater portion of this improvement work became necessary principally through franchise and legal obligation; the following is the schedule of the improvement jobs now under way:

Pasadena City Lines (East Colorado Street)—2,154 lin.ft. double-track reconstructed with 7-in. 127-lb. grooved girder rail. Rock ballast and asphalt concrete pavement. Treated ties.

Long Beach City Lines (East Seventh Street)—11,250 lin.ft. of double-track reconstructed with 7-in. 91-lb. Tee rail (50 per cent); balance (50 per cent) with 4½-in. 75-lb. C. S. revised rail. Rock ballast and oil macadam pavement. Treated ties.

Long Beach City Lines (Magnolia Avenue)—2,375 lin.ft. single-track reconstructed with 4½-in. 75-lb. C. S. revised rail. Rock ballast and oil macadam pavement.

Santa Ana City (North Main Street)—Converting 6,110 lin.ft. of track to single-track line; 6,110 lin.ft. single-track reconstructed with 4½-in. 75-lb. C. S. revised rail. Rock ballast. Oil macadam pavement.

Santa Ana City (East Fourth Street)—2,300 lin.ft. double-track reconstructed with 4½-in. 75-lb. C. S. revised rail. Rock ballast. Oil macadam pavement.

San Bernardino City Lines (Third Street)—Reconstruct 2,050 lin.ft. single-track with 7-in. 127-lb. grooved girder rail. Rock ballast. Treated ties. Asphalt pavement.

San Bernardino City—New substation building and equipment to improve power conditions.

Redondo Beach—Pacific Electric is wrecking its Wharf No. 2 which extends 600 ft. out into the Pacific Ocean, including trackage thereon. This wharf formerly served as freight steamer unloading dock, but company's business is now handled at its Wharf No. 3 at Redondo Beach.

Long Beach—Relocating and construct new lines 2,310 lin.ft. of single-track and 8,600 lin.ft. of double-track as a portion of the company's Long Beach-Wilmington line and local city Seaside Park line, due to the county of Los Angeles Board of Flood Control and the United States War Department constructing and defining a permanent channel 720 ft. in width for the Los Angeles River and at the point for its emptying into the Pacific Ocean. The Pacific Electric in the relocation of its line relinquished its right-of-way for a consideration as awarded in interlocutory judgment of the court, outlining Pacific Electric rights and setting forth a fixed sum for settlement for right-of-way taken for the channel. Likewise, the county furnishes right-of-way easement for the company's relocated lines to be constructed on the east and west dykes of the new river channel being dredged by the county. The company is also provided rights for a double-track portion of one of the relocated lines over and across one of the bridges to be constructed by the county to span the new channel.

Glendale—Relocation of portion of the company's Glendale-Burbank Line at Arden Junction account of the County of Los Angeles Board of Flood Control constructing a new channel for Verdugo Wash.

King Street Station (Santa Ana Line)—Account of flood control work on Santa Ana River channel Pacific Electric is replacing its 1,104-ft. single-track pile trestle bridge spanning the river with 270 ft. of steel span structure; filling in and abandoning the maintenance of 744 ft. of the structure, while remaining portion of pile trestle will be replaced with common standard single-track pile trestle.

El Moro Station—Account of County of Orange Flood Control Board constructing and defining a new channel for the Santa Ana River at the point where it empties into the Pacific Ocean the Pacific Electric, operating its Newport Beach Line adjacent to the ocean, is constructing 525 lin.ft. of single-track steel span bridge to span the point where relocated river channel will be constructed by the county.

Rio Hondo Station (Whittier Lines)—The Pacific Electric is replacing 716 lin.ft. of double-track pile trestle with 122 ft. of double-track steel spans and replacing 594 ft. of present double-track pile trestle in kind. Two 60-ft. steel girder spans will be placed on one track and two 62-ft. steel girder spans on the other track. During years 1915 four 50-ft. spans were placed in this bridge, giving 100 ft. of the structure clear-spanned with steel girders, but County Flood Control work in defining a permanent channel for the Rio Hondo necessitates adding the extra spans at this time.

The approximate cost of the improvements mentioned, exclusive of the flood control program, is \$525,000.

The approximate cost of the flood control work, which is only a portion of the work of this nature that the company is facing, is \$337,000.

Segregating the improvement work by cities the approximate cost in each city is: Pasadena City Lines, \$77,000; Long Beach City Lines, \$196,000; Santa Ana City Lines, \$142,000; San Bernardino City, \$107,000.

Vote Urged to Establish Municipal Line

John J. Hamilton, Commissioner of Public Parks and Buildings, has recommended to the City Commission of Pasadena, Cal., that the proposition of constructing an electric railway between Pasadena and Los Angeles be submitted to the voters at the November election. Assembling all items of cost as reported and adding \$75,000 for interest during construction, \$100,000 for terminal buildings in Pasadena and Los Angeles and \$12,000 estimated as the total cost of option, surveys, engineering and appraisal cost thus far incurred, the probable cost of the entire project ready for operation as set down by Mr. Hamilton will be as follows:

Cost of railway and equipment, exclusive of right of way.....	\$3,465,867
Right of way, including damages.....	827,335
Terminal buildings.....	100,000
Duplicate electrical equipment, etc.....	45,000
Interest during construction.....	75,000
Option, survey, appraisal, etc.....	12,000
Total.....	\$4,525,202

In concluding a report which he made to the City Commission Mr. Hamilton said:

I recommend that the city press this vital and important enterprise to the earliest possible completion. The present condition of the market for securities would prevent the sale of bonds at the present legal rate of less than 5 per cent, but this is a temporary condition, and the city commission should not permit the project to wait a day beyond the time when the money market rights itself.

At the November election the residents of Pasadena (Cal.) may have an opportunity to vote on the proposed \$4,500,000 bond issue for the construction of the municipal railway, for Mr. Hamilton presented a resolution to this effect at the meeting of the City Commission on Sept. 1. Commissioner Reeves said that whereas he was in favor of the people voting on the project, he objected to the wording of the resolution "that public interest and necessity demand" the construction of the railroad. The matter has been delayed so that City Attorney Howard will have time to decide whether the question should be included on a ballot with other questions to be voted on.

Employees Appeal to Board

Electric Railway Not Represented at Hearing to Consider Its Discharging Union Employees

The Washington & Old Dominion Railway was unrepresented before the United States Railway Labor Board on Oct. 5 in Chicago in the case in which employees are endeavoring to secure the reinstatement of men discharged "for the good of the service." This case was reviewed in the *ELECTRIC RAILWAY JOURNAL* for Oct. 2, p. 684.

DISTRICT COURT DENIED INJUNCTION

The Supreme Court of the District of Columbia had denied the application of the Brotherhood of Railroad Trainmen for an injunction to restrain the officers of the Washington & Old Dominion Railway from discharging any of the plaintiffs because of union affiliation. This court expressed the opinion that this railway came within the classes of railroads included under the transportation act of 1920, and that therefore this labor dispute came within the jurisdiction of the United States Railway Labor Board created by that act.

W. N. Doak, vice-president of the brotherhood, appeared at the Chicago hearing to place the case before the labor board. There was some question as to the jurisdiction of the board and as to failure of the plaintiff properly to bring the case before the board. After a great volume of matter had been put into the record, Chairman R. M. Barton sought by questioning to bring out exactly what it was that Mr. Doak would have the board pass upon. It was finally determined that two questions were involved: First, whether the board had jurisdiction to pass on the disputes as to wages and grievances. Second, whether or not the officials of the Washington & Old Dominion Railway had the right to discharge those men because they belonged to the union. If not, it was the plea that the board should order their reinstatement. There was no indication as to the answer that would be made to either of these questions.

MR. HENRY IN ATTENDANCE

Charles L. Henry, chairman of the committee on national relations of the American Electric Railway Association, informed the board that he had been in close touch with the committeemen of the Senate and House of Representatives while they were formulating the act, and that it had been the understanding that the electric lines, except those operated as an integral part of the steam trunk lines, were to be excluded from the provisions of the act.

The board also questioned Mr. Henry as some length as to what constituted an "interurban" line as spoken of in the act. Mr. Henry advised the board that the Interstate Commerce Commission had sent out an elaborate questionnaire to all the electric lines in an

effort to determine more exactly whether any of them should come under the act. The result of this questionnaire has not yet been made public.

Charlton Ogburn Arbitrator

Will Act as Umpire in Settlement of Dispute Between Buffalo Company and Its Employees

Charlton Ogburn, New York, executive secretary of the Federal Electric Railway Commission, has been named by Governor Alfred E. Smith as the third member of the board of arbitration to settle the differences between the International Railway, Buffalo, N. Y., and its union employees, members of the Amalgamated. James H. Vahey, Boston, general counsel of the Amalgamated, represents the employees on the board, and Coleman J. Joyce, Philadelphia, counsel for the Mitten interests, represents the International. The first meeting of the board was held in New York City on Oct. 6.

Mr. Ogburn will be chairman or umpire of the board. At the conference in New York details of organization were agreed upon and the method of taking testimony was decided. All testimony and hearings will be held in Buffalo.

The position of the International Railway in the arbitration proceedings is outlined in a letter written by Herbert G. Tulley, president of the railway, to the company's representative on the board, Mr. Joyce. Mr. Tulley says the company has not receded in its stand that any increase in wages awarded the employees must be contingent upon the granting by the Public Service Commission of a higher rate of fare on the Buffalo city lines.

In his letter of instruction Mr. Tulley tells Mr. Joyce that "any further increase in wages shall be made effective only from the date when such increase in rate of fare is made effective as is necessary to make the payment of such increased wage possible."

Although the company's employees ask that the wage award be made retroactive to May 1, on which date their agreement with the company expired, they have announced their intention of allowing the board of arbitration to decide when the wage award shall be made effective. The company points out that Buffalo cannot fairly be expected to pay increased fare to meet the cost of increased wages at Niagara Falls or Lockport, or on the interurban lines.

In this connection Mr. Tulley says that "consequently, if a general increase in wages be ordered by the arbitration board, there must be a separate action to secure increased revenue to meet the separate requirements of each of the four different locations." The present rate of fare in Buffalo is 7 cents with transfers or four tickets for 25 cents. The men now are receiving a maximum wage of 60 cents an hour. They ask 88 cents an hour maximum.

Strike Settled Temporarily

Men at Kalamazoo on Strike Fifteen Days When People Fail to Approve Fare Increase

Some time ago the City Commission of Kalamazoo, Mich., granted the Michigan Railway a temporary local rate of fare of 10 cents cash and four tokens for 30 cents. At this time the company had an understanding with its trainmen that their wages were to be increased from 40 and 42 cents an hour to 60 and 62 cents, with 10 cents additional for overtime, so long as the company was able to collect the increased fare, granted by the City Commission as a temporary measure, but that the old rate of wages was to go into effect again if the company was forced to go back to the old rate of fare.

The matter of an increased rate of fare was placed before the voters of Kalamazoo on Aug. 31. While 300 more people voted in favor of the measure than against the proposal, it failed to receive the three-fifths vote required to make it effective. Consequently, the commission rescinded its temporary fare order and refused to do anything about fares until it should receive a petition signed by 5,000 qualified voters. The company therefore announced to the men that the wages would be returned to the former scale. The trainmen then struck.

After a suspension of service lasting fifteen days a petition was presented signed by 6,000 voters. The commission then put into effect the rate of fare originally granted the company for the purpose of paying the increased wages, and the men went back to work at the 60-cent and 62-cent scale. The fare question is to be voted on again at the election on Nov. 2.

As a result of the August election the car riders lost their car service, the trainmen lost their pay for fifteen days and the railway lost its revenue for a like period.

Trainmen on "Vacation"

Trainmen of the Northwestern Ohio Traction Company refused to take out their cars because they objected to new schedules placed in effect on Oct. 2. Officially the men went on a "vacation" till the schedules are adjusted.

The company is insured against loss on account of strikes, riot or insurrections.

Company officials declared the cars would not operate till a new force of platform men was secured. If the vacation continues 125 more men may be thrown out of work. F. K. Woodring, general manager, said the company would not take back the men who quit because they did not like the schedules. He said there had been no wage difficulties and no differences about working conditions.

The general offices of the company are at Oak Harbor. Power, light and line workers were not affected, but they may be if the vacation is prolonged.

District Court Intervenes in the New Orleans Tangle

The Mayor and the Commission Council of New Orleans, La., have been estopped from acting upon the award of the Special Masters in Chancery in the street railway controversy. The 8-cent strip car fare is still a remote possibility.

Judge King, of the Civil District Court, has issued an order granting the petition of the Assistant Attorney General of Louisiana, for a writ of injunction, without bond, prohibiting the city of New Orleans from increasing the street railway fares. The case has been allotted to Judge Cage, of Division A, who, on his own motion, has fixed the case for hearing on Oct. 15.

It is alleged in the petition of the Assistant Attorney General that the original franchises sold to the existing street railways were disposed of by the city, acting as agent of the State, under authority conferred on the city by the State for that special purpose. The franchises were all 5-cent franchises, and the Mayor and Commission Council are without authority to increase the fare, it is averred. It is further alleged that the present necessities of the New Orleans Railway & Light Company arise from improvidence.

The members of the local union of the Amalgamated Association of Street & Electric Railway Employees were to take a secret ballot on Wednesday evening, Oct. 6, on the acceptance of the Court's strike award. The principal point on which the men objected to the award, is the elimination by the Masters of their right to arbitrate. Judge Foster, however, has given them the right to appeal to the court.

It is believed that the men will accept the recommendation of the executive board that the union shall approve the court's findings.

The Facts About Nashville

The statement in the *ELECTRIC RAILWAY JOURNAL* for Sept. 25 regarding the strike on the railway lines of the Nashville Railway & Light Company, Nashville, Tenn., received by telegraph, was inaccurate. The facts are that on Aug. 21, 600 men, members of the Amalgamated, employees of the company, went on strike. Of the 450 platform men employed, 350 were among the strikers.

The company immediately put into operation 60 per cent of its normal service and has built up to normal from that point. The service was never tied up. No strike breakers were employed. The old men have not returned to work and will not return to work.

The union demanded a closed shop and the equivalent of 25 per cent increase in wages. The men struck without notice after a conference with B. C. Edgar, vice-president, and J. P. W. Brown, general superintendent. There was a strong public sentiment with the company from the beginning. The strikers spread rails, but a dynamite plot was

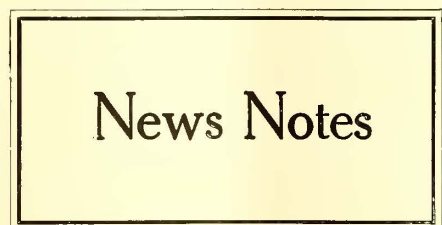
thwarted. In connection with the dynamite plot and other disorders thirty-three strikers and many of their sympathizers were arrested. One hundred and twelve loyal employees remained at work. Only fifty-seven strikers known to be loyal men were re-employed during the first few days. No more strikers have been re-employed. The securing of new men made possible the quick return to normal service.

Plea for Power Conservation

Frequent and prolonged stopping of electric cars during rush hours, and costly interruptions of factory operations and all other electric service, will be unavoidable in spite of anything the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., can do, it is announced, unless each light and power customer immediately reduces his use of electricity 20 per cent between the hours of 7 a.m. and 7 p.m. The announcement was made through the medium of third-page newspaper advertisements placed in the Milwaukee papers on Sept. 26, 1920. It follows a similar appeal made about a week earlier which resulted in a reduction of about 4 per cent in the total use of electricity during the hours specified.

The company points out that it is up against the same conditions that handicap electric central stations in many other large cities at this time. The war stopped the expansion of the power producing facilities. Since the end of the war the company has been making every effort to get its new power plant ready for service. The first generating unit of 20,000 kw. is expected to be in operation within three months.

The company further points out that the best coal it can get today costs more than three times what good coal used to cost and it produces 15 per cent less energy. The co-operation of all customers in conserving electric current is again asked.



Advance for Platform Men.—The platform men of the Chattanooga Railway & Light Company, Chattanooga, Tenn., have been granted an increase of 4 cents an hour effective Sept. 16. The present rate is from 41 to 45 cents and the men had requested an increase of 46 to 55 cents.

Wants Expert Retained.—The City Council of Akron, Ohio, has been petitioned by the Car Riders' League of that city to retain Delos F. Wilcox as expert to make an analysis and pass judgement on the proposed new franchise between the city and the Northern Ohio Traction & Light Company.

Railway Official Indicted.—The indictment of James W. Samuel, former assistant secretary and treasurer of the United Railways, St. Louis, Mo., on a charge of embezzlement of \$27,619 of the company's funds, has been announced by the Circuit Attorney's office. Mr. Samuel immediately arranged for bond, which was placed at \$5,000. The date for the trial has not yet been set.

Akron Grant Completed.—Work on the proposed franchise for the Akron, Ohio, lines of the Northern Ohio Traction & Light Company has been completed and the measure was to be submitted to the City Council at its meeting on Oct. 5. City Manager Laub has announced that he will demand that the measure be amended to prevent an increase in the fare above 10 cents.

East St. Louis Arbitration Begun.—Testimony offered by W. H. Sawyer, president of the East St. Louis & Suburban Railway, East St. Louis, Ill., in the hearing before the arbitration board on the wage difference between the company and the men, showed that conditions are such that the wage given to the East St. Louis and Belleville employees several weeks ago, of 70 cents an hour, is unjust both to the company and the public. Mr. Sawyer will present further evidence to support this contention at the next hearing of the board. Earlier in the same session Frank P. O'Shea, international vice-president of the Amalgamated, presented the demands of the men. The present wages are 53 cents an hour. The men want 90 cents an hour.

Advance for Pine Bluff Men.—Increases of 7 cents an hour in rates of pay of motormen of the Pine Bluff (Ark.) Company, retroactive to Sept. 21, were announced recently by J. L. Longino, manager of the company. With the increase of 3 cents an hour made on Aug. 1, this raise puts the rate of pay at 10 cents an hour more than prevailed on Aug. 1. This increase in pay of the motormen, together with increases to other employees, will absorb all of the additional revenue derived from the 7-cent fare. Under the new schedule of rates motormen in the employ of the Pine Bluff Company may earn from \$125 to \$159 a month, in addition to bonuses offered for careful operation of the cars.

One-Man Cars Cause Strike.—Union carmen of the Cedar Rapids & Marion City Railway, Cedar Rapids, Iowa, went on strike on Sept. 24 as a protest against the use of one-man cars by the company. The railway, which raised its fares recently from 6 cents to 8 cents, had announced that it would reduce the fare to 7 cents provided it was allowed to install "safeties." The City Council gave its consent to this proposition, but the carmen objected on the ground that adoption of this plan would lead to the reduction of wages and to the discharge of many men. The strikers returned to work on Sept. 27 with the understanding that wages should not be reduced.

Financial and Corporate

Cleveland Offers Stock

Railway Operating Under Model Service-at-Cost Points Out Strong Investment Features of Issue

Last April Henry J. Davies, treasurer of the Cleveland (Ohio) Railway, notified stockholders that it was necessary to sell the remaining 10,000 shares of stock in the treasury in order to make needed improvements. Additional stock is now being offered to present holders for full cash or on the basis of \$10 down per share and \$10 per month per share until the subscription has been paid in full.

In the letter which it is sending to its own stockholders, the Cleveland Railway first tells the history of the effort to obtain 7 per cent on its capital and of the refusal of the voters to sanction it Aug. 10. Then it itemizes various reasons why the stock should still be considered, even by investors, a sound and attractive "buy" at par. The letter is concluded in part as follows:

The 6 per cent rate cannot be reduced, however, at any time in the future without our consent. Our ability to earn this rate is more certain than it has been in past years, for several reasons:

1. The life of the franchise has been extended. It ran originally to May 1, 1934; it runs now to May 1, 1944.

2. The maximum rate of fare that could be charged under the original franchise was 4 cents cash fare, seven tickets for 25 cents, 1 cent for transfer—an average of about 4 cents. The maximum now is 6 cents cash fare, nine tickets for 50 cents, 1 cent for transfer—an average of about 6.2 cents.

3. The maintenance allowance provided for in the franchise has been increased. It was 5 cents per car mile; it is now 10 cents.

4. Several amendments besides those mentioned have been made in the franchise since its original passage and acceptance. Every one of them has been of advantage to the stockholders of the company.

This railway is the only one in the world that was able to pay 6 per cent upon its capital stock, without skipping a single quarterly payment through the period of the war. It is better able to earn that rate now than it has ever been before. It is as certain of earning it as the savings banks can be certain of earning and paying 4 per cent. Investment in the stock will earn a larger return than has ever been paid for savings bank deposits.

INVESTMENT FEATURES OF STOCK OUTLINED

The rate of return on our stock has been higher than the rate of return on the stocks of the steam railroad companies since the war started. Higher dividends have been paid upon some industrial stocks, but the dividends on those stocks fluctuate, and, while they may be in excess of 6 per cent at times they may fall below that rate at other times. Our dividend rate has been constant, and will continue to be 6 per cent until the city buys the property, if it ever becomes able to do so; and if it buys it must pay a price equal to \$110 per share of stock.

Ohio stockholders are reminded that the stock is not taxable by the State, nor by any county or municipality in the State.

The dividend on the stock is exempt from the United States normal income tax.

The stock is good collateral at any bank in Cleveland.

Cleveland is still growing fast and the number of car riders is increasing faster. There were 3,665,000 more in June, 1920, than in June, 1919, an increase of more than 15 per cent.

To take care of this increasing business we must add to our track and equipment. For these purposes money is needed. It is impossible to borrow enough at the banks.

If we should issue bonds the equity of the stockholders would be thereby reduced. Preferred stock is still more objectionable. It was the intention and understanding of the framers of the franchise that money for additions to the property of the company should be raised by the sale of stock.

We solicit your subscription for more stock. You may have as many shares as you wish to buy at par and accrued dividend and you may pay for the shares at your convenience at any time within a year. For convenience in calculating the dividend we prefer that you buy on a dividend day. The dividend days are Oct. 1, Jan. 1, April 1 and July 1. If you prefer, however, you may pay at the rate of \$10 per share per month on the first day of each calendar month. Receipts will be issued for payments for fractions of a share, certificates for whole shares when fully paid for.

Mr. Feustel Will Check P. R. T. Appraisal

Robert M. Feustel, president of the Indiana Service Corporation, Fort Wayne, Ind., has been appointed as the representative of the city of Philadelphia in checking the inventory and appraisal of the Philadelphia Rapid Transit System. While the railway is exerting every effort to avert a financial crisis, the valuation proceedings before the State Public Service Commission are continuing.

Commissioners Benn and Clement took steps on Sept. 30 to speed up the proceedings when they ordered the minute examination of the witnesses discontinued and instructed Coleman J. Joyce, counsel for the Philadelphia Rapid Transit Company, to present all of the items that are on the inventory of the company's assets as soon as possible. Commissioner Benn urged haste on Mr. Joyce and suggested that lawyers in the city and company cooperate to the fullest extent.

The Superior Court has postponed to Oct. 18 hearing on arguments on the question as to whether the Public Service Commission has the power to probe the matter of rentals paid to the Union Traction Company and other Philadelphia Rapid Transit Company subsidiaries.

Common Stock Dividend Reduced

The directors of the American Light & Traction Company, New York, N. Y., on Oct. 6 cut the common cash dividend of the company to 1 per cent for the quarter. The stock dividend declared on the common was 1½ per cent., which was unchanged from the July 6 declaration. The cash declaration on the common as of that date was 1½ per cent. The regular quarterly dividend of 1½ per cent was declared on the preferred. All of the disbursements are payable Nov. 1 to stockholders of record Oct. 15.

Before the July 6 declarations the company had paid 2½ per cent in cash and 2½ per cent in stock on the common shares.

Fare Increase Fails

Seattle Municipal Railway Still Going Behind Despite Recent Fare Advance

Mayor Hugh M. Caldwell of Seattle, Wash., in a statement about the jitney situation in Seattle, predicts a further increase of fare on the Seattle Municipal Railway unless some other means is found to increase the revenue. In discussing the jitney situation, Councilman Drake declared that elimination of the jitneys would increase the receipts of the railway \$80,000 to \$100,000 a month. Mayor Caldwell took exception to this. He declared that during the two or three days jitney service was stopped by the city authorities in their attempt to enforce the jitney regulation ordinance the average daily increase in receipts on the railway was only \$300.

CITY TREASURER GROWING CAUTIOUS

The Mayor's assertion that the finances of the railway are in bad shape despite the recent increase in fares was confirmed by other city officials. Attention was called to the fact that the department has asked for \$513,435 to defray operating expenses during the month of October. This sum is only \$17,401.32 less than the receipts during the first month under the increased fare. It included no allowance for interest, redemption or depreciation, covering only expenditures for salaries, wages, materials and supplies.

Reports from the city treasurer's office, councilmen said, showed that the average daily overdraft on the city railway has not been reduced by the increase in fare. The treasurer's records showed an overdraft of \$392,736 on this fund for one day. On July 23, the day before the increased fare went into effect, the overdraft was \$324,000. Since that time the overdraft fluctuated from \$264,000 to \$514,000.

NEWSPAPER ISSUES WARNING

The Seattle *Times* in the course of a column editorial said recently:

The jitneys must go or the bankruptcy of the municipally-owned street car system is certain.

And, if the latter "goes broke," the municipality will be extraordinarily fortunate if it does not follow the same road.

These were the outstanding facts developed at yesterday's conference on the street car situation between Mayor Caldwell and the City Council.

It is not the purpose of the *Times* to adopt a critical attitude toward the municipal authorities.

They are desperately striving to put Seattle's "white elephant" on a paying basis. In this effort, they need all the encouragement and constructive assistance public-spirited men can offer.

But this newspaper earnestly counsels both the Mayor and the City Council to face this outstanding fact:

They are not SOLVING the problem at all.

They merely are straddling two stools and inevitably are due to fall!

The city cannot support two transportation systems.

The street cars must be removed from the streets in order that the jitneys may prosper; or

The jitneys must be barred in order that the car lines may live.

There is no middle ground.
THE JITNEYS MUST GO!

Rochester Has Deficit

Only Four Days of Operation at Service-at-Cost Are Included in August Figures

The income statement of the New York Railways, Rochester Lines, for August was submitted to Mayor Edgerton and the Common Council on Sept. 28 by Charles R. Barnes, city commissioner of railroads. A deficit of \$71,525 was created in August, notwithstanding that the month included four days of operation under the 7-cent fare.

The service-at-cost contract became effective on Aug. 1 but the increased fare did not go into force until Aug. 28. Commissioner Barnes points out in his report that had the increased fare been in force throughout the month there would not have been a deficit. His report follows:

The following is the income statement for the month of August:

Revenues from transportation:	
Passenger revenues.....	\$355,958
Chartered car revenues.....	1,128
Miscellaneous.....	146
	\$357,232
Revenue from other railway operations:	
Station and car privileges.....	\$3,189
Rent of track and facilities.....	1,294
Rent of buildings and other property.....	686
	\$5,170
Railway operating revenues	\$362,402
Railway operating expenses:	
Ways and structures.....	\$31,242
Equipment.....	42,712
Power.....	23,462
Conducting transportation.....	159,436
General.....	36,280
Depreciation.....	29,166
	\$322,701
Net revenue from railway operations.....	\$39,701
Auxiliary operation revenues.....	\$1,614
Auxiliary operation expenses.....	564
	\$1,049
Net revenue.....	\$40,751
Taxes assignable to operation.....	23,276
Gross income.....	\$17,474
Return to the company.....	89,000
Deficit for August.....	\$71,525

In commenting on the earnings, Mr. Barnes said:

The above income statement is compiled from the accompanying detailed report of operation, and with a 5-cent fare shows a deficit for the month of August of \$71,525. Included in the revenue for transportation of \$357,232 are four days of operation at a 7-cent cash and a 6½-cent ticket fare. Had the fare been 7 cents during the whole of the month the deficit of \$71,525 would not appear.

The revenues in the above statement have been carefully checked by the auditing department of this office, payrolls have been examined and verified, vouchers for every item of expense in the detailed report have been audited both as to quantity and price, all of which has been done under my personal supervision. Therefore, I am able to verify these statements setting forth the results of operation for the month of August, 1920, of the New York State Railways within the territory affected by the contract.

Pacific Electric Improves

For the month of June, 1920, the Pacific Electric Railway, Los Angeles, Cal., showed a net loss of \$28,269 compared with a loss of \$147,671 for the month of June. The total net loss of the first six months of the year was \$653,567. The total loss for the five years to last May 31 was \$12,189,781. During 1919 the loss was \$2,767,726; in

1918 it was \$1,778,192, while in the years 1914, 1915, 1916, and 1917 the loss ran from a low \$467,220 to \$885,116. Wages in 1919 were \$6,232,105 for 276

EARNINGS OF PACIFIC ELECTRIC RAILWAY FOR JUNE	
Passenger revenue.....	\$870,083
Freight and switching revenue.....	338,175
Other revenue.....	62,822
Total railway operating revenue.....	\$1,271,080
Ways and structures.....	133,482
Equipment.....	148,941
Power.....	147,631
Conducting transportation.....	364,477
Traffic.....	21,192
General and miscellaneous.....	90,627
Transportation for investment—Cr.....	1,894
Total railway operating expenses.....	\$904,456
Net operating revenue.....	\$366,624
Taxes assignable to railway operations.....	49,735
Operating income.....	\$316,889
Non-operating income.....	9,035
Gross income.....	\$325,924
Deductions from gross income, Interest on bonds and other debt.....	294,918
Rents and miscellaneous income debentures.....	36,752
Depreciation.....	22,523
Total deductions from gross income.....	\$354,193
Net income transferred to profit and loss.....	*\$28,269
Net income for six months ended June 20, 1920.....	*653,567

*Deficit.
fewer men than were employed in 1915, when the wages were \$3,610,942. It is estimated that the loss this year will be \$2,364,656. This does not include expense of \$400,000 for paving.

Court Agrees to Name Receiver

Judge Clarence Murphy at Hamilton, Ohio, on Sept. 27 rendered a decision in the suit of the Citizens Savings Bank & Trust Company, trustees, Cleveland, against the Cincinnati & Dayton Traction Company and twenty-eight other defendants seeking a foreclosure of mortgage and appointment of a receiver. Argument was heard last July.

The Cincinnati & Dayton Traction Company bought at a foreclosure sale in 1917 all the property of the Cincinnati, Dayton & Toledo Traction Company, subject to underlying mortgages amounting to \$2,300,000. Holders of these mortgages brought action for foreclosure.

The court ruled that the property subsequently acquired by the consolidated company was not subject to the mortgages of the constituent companies, except where the original tracks were removed to property subsequently acquired, and that they did not constitute a lien upon equipment acquired later, except when the equipment of the consolidated company became mingled with and part of the equipment of the constituent companies.

It was further held that the mortgages were entitled to judgment and foreclosure upon the property upon which mortgages are predicated, and, as this property is probably insufficient to pay the mortgage debt, that the mortgages are entitled to a receiver. The receiver will be named later.

Abandonment Opposed

City of San Francisco Operates Switching Service on Ocean Shore Railroad

A petition asking permission to dissolve the Ocean Shore Railroad, a steam line running from San Francisco down the coast about 38 miles, was filed with the California Railroad Commission on Sept. 13. The grounds given were that the road had incurred a deficit of \$364,187 during the past seven years because of the progress of automobile passenger and freight traffic between points which it also served and that no relief from the present unprofitable situation could be found. The road recently ceased operations entirely as mentioned in the ELECTRIC RAILWAY JOURNAL for Sept. 11.

In the hearing before the commission the auditor testified that assessments totaling \$1,100,000 had been collected from the stockholders in an effort to put the road on a paying basis, but that the road has not shown a profit since 1912. He also said that rates were now as high as they could be and that an increase would tend to reduce further shipments over the line and would add to the deficit that has been accruing.

Proposals for tearing up the rails and constructing a private roadway for auto trucks have been considered. The Railroad Commission has announced an investigation in the hope of finding some way of enabling the railroad to continue operation. Shippers along the line protest against the discontinuance of service. The hearing was continued to Oct. 1.

Meantime, in order that the industries in San Francisco served by spurs from this line should not suffer, the city has secured a thirty-day permit for operating the electrified division of the system. This includes the main line tract from Army and Kansas Streets to the Twelfth and Market Streets depot and about sixteen sidings at industrial plants. All freight and passenger traffic on this part of the company's system has always been handled electrically, no permit having been issued for operation of the company's steam equipment inside the city limits.

The operation which the city has taken over, under the direction of its municipal railway department, is purely a switching service, requires only one freight crew and now includes the handling not more than 100 cars a month.

Municipal Road Still Going Behind

In connection with the announcement made at Attleboro, Mass., on Sept. 29, that a 10-cent fare will go into effect on the municipally owned Norton, Taunton & Attleboro Railway, the present zones being maintained, it was also announced that there is a deficit of about \$25,000 under municipal operation since last fall.

The Kansas City Railways Receivership and Its Causes

Accumulated Deficit Overcomes Bondholders' Faith as Improvement in the Situation Seems at Hand—Company Suffered from Increased Costs and Failure of Authorities to Increase Fares

The trouble with the Kansas City (Mo.) Railways, now in receivership, is obvious enough—its gross revenue has been insufficient to keep pace with growing expenses. This fundamental has been greatly accentuated by the unfortunate labor conditions with which the company has had to contend during the last three years. The first of three strikes within a period of eighteen months occurred in August, 1917, and

and in view of the accumulation of debt as noted in Mr. Woods' report, and the unfortunate financial showing made in June, no one felt optimistic enough to advance the cash necessary to secure these judgment appeals. Immediate action was necessary as the term for filing appeals was drawing to a close and receivership proceedings were accordingly brought.

NO NEW FACTORS

No new factor was interjected at this time that could change what had been known for many months as to expected earnings and expenses. A budget prepared by the operating officials for the Bondholders' Protective Committee, formed a year ago, stated that the net for the calendar year, 1920, would approximate \$1,000,000. The experience of the first nine months of this year under this budget has shown that this estimate will be almost exactly realized. A new and detailed budget made in May, taking into account every classification of accounts, showed an expected net for the last six months of the calendar year of \$600,000, and this estimate will be realized.

The fiscal year ended June 30, 1920, was completed with a deficit including taxes and all fixed charges of \$1,599,812, the net revenue above operating

expense and taxes having been \$420,021. The July, 1920, statement, in spite of the wage increase effective on June 1, showed a net of \$73,516 as against a budget estimate of \$64,377.

On the basis of May coal and labor prices, this July showing would have included a net of \$130,000, this giving a measure of the increase in gross revenue.

Comparing the results of the fiscal year ended June 30, 1920, with that of 1919, a considerable improvement is noted. For the year ended June 30, 1919, the company failed to earn operating expenses and taxes by \$509,339, so that the net of \$420,021 for 1920 would indicate an improvement of \$929,360. Another evidence of the general improvement in the financial conditions of the company may be observed by comparing the statements for the last three six-month periods. For the six months ended June 30, 1919, the net operating income was recorded as a deficit of \$838,249. For the six months ended Dec. 31, 1919, there was a net income of \$88,149, while for the six months' period ended June 30, 1920, the net income was \$298,901.

The Kansas City Railways has suffered from the same situation that has been the cause of precipitating receiverships generally throughout the country

OPERATING RATIO KANSAS CITY RAILWAYS

	1917-18 Per Cent	1918-19 Per Cent	1919-20 Per Cent
July.....	75.08	84.29	104.83
August.....	97.76	82.70	95.87
September.....	74.94	85.00	96.21
October.....	78.55	93.88	92.58
November.....	84.19	93.26	103.67
December.....	94.87	130.00	98.03
January.....	90.91	193.52	94.05
February.....	94.99	133.59	92.27
March.....	97.98	101.86	90.50
April.....	75.60	101.68	90.47
May.....	87.64	96.10	91.50
June.....	87.60	119.14	98.90
Average	86.16	106.34	95.74
July, 1920			86.50

lasted ten days. The immediate cause of this was the unionization of the property.

The second strike took place in March, 1918, and was one with which the company had nothing whatever to do. It was brought about by local unions in sympathy with a strike of laundry workers which had been going on for some time. On this occasion the trainmen were out for a period of five days and came back without any concessions by the company. The most disastrous strike, and the one to which the present receivership may fairly be attributed, occurred Dec. 11, 1918. It was caused primarily by the union breaking its contract and refusing to abide by the decision of the War Labor Board. The receivership occurred since the abstract of the report of Mr. Woods, published elsewhere in this issue, was prepared.

\$180,000 IN JUDGMENTS

The immediate cause of the receivership, if indeed any one thing can be assigned the immediate cause, was the necessity to meet judgments amounting to \$180,000 rendered against the company in the last term of court, or put up \$360,000 of appeal bonds to cover. The company's earnings have been used to pay off other pressing obligations;

GROSS OPERATING REVENUE (INCLUDING AUXILIARY REVENUE) WITH TOTAL OF OPERATING EXPENSES, AUXILIARY EXPENSES AND TAXES, KANSAS CITY RAILWAYS (Last 000 revenue and expense figures omitted)

1917				1919			
	Revenue	Expenses	Fare, Cents		Revenue	Expenses	Fare, Cents
July.....	\$689	\$517	5	January.....	\$467	\$905	6
August*	522	510	5	February.....	528	705	6
September.....	685	513	5	March.....	653	665	6
October.....	704	552	5	April.....	677	691	6
November.....	679	571	5	May.....	758	820	6
December.....	714	679	5	June.....	727	868	6
				July.....	716	752	6
				August.....	781	751	6
January.....	635	578	5				(up to Aug. 20)
February.....	598	568	5	September.....	820	790	7
March**	603	592	5	October.....	969	897	7
April.....	722	554	5	November****	815	845	7
May.....	722	634	5	December.....	877	860	7
June.....	700	553	5				
July.....	775	653	5				
			(up to July 16)				
August***	811	671	6				
September.....	767	652	6				
October.....	696	652	6				
November.....	679	632	6				
December****	477	624	6				

* Strike Aug. 8 to Aug. 17.
 ** Strike Mar. 29 to Apr. 3.
 *** Aug.-Nov.-Revenue affected by influenza epidemic and coal shortage.
 **** Strike commencing Dec. 11, 1918, effects of which on revenue were not overcome until May, while expenses were affected for a much longer time.

1920			
	Revenue	Expenses	Fare, Cents
January.....	873	821	
February.....	798	735	
March.....	888	807	
April.....	881	797	
May.....	931	852	
June.....	977	1,038	
July.....	943	870	

***** From Nov., 1919—Mar., 1920, both revenue and expenses were affected by influenza epidemic and coal shortage, due to strike.

WAGES OF TRAINMEN OF KANSAS CITY RAILWAYS

Aug. 1, 1917*	July 16, 1918	March 1, 1919	July 1, 1919	10-16-1919	6-1-20	
First six months.....	25 cents	30 cents	35 cents	40 cents	45 cents	55 cents
Second six months.....	26 cents	31 cents	36 cents	42 cents	47 cents	52 cents
Second year.....	27 cents—one uniform	32 cents—one uniform	37 cents	43 cents	48 cents	53 cents
Third year.....	28 cents—one uniform	33 cents—one uniform	38 cents	44 cents	50 cents	55 cents
Fourth year.....	29 cents—one uniform	34 cents—one uniform	39 cents	45 cents	50 cents	55 cents
Fifth year.....	30 cents—one uniform	35 cents—one uniform	40 cents			
Sixth year and over.....	33 cents—two uniforms	38 cents—two uniforms	40 cents	Mail cars.....	4 cents add.	4 cents add.
	\$60 minimum	\$60 minimum	One-man car, 2½ cts. add.	One-man cars.....	5 cents add.	5 cents add. 55-60 (cents)

*Agreement Nov. 12, 17. One-man car, 2 cents add. One-man car, 2 cents add. \$75 minimum \$85 min. \$105 min. \$110 min.

in the traction industry; namely, the failure of public authority to grant fare increases promptly enough to care for the rapidly mounting expenses. This is particularly well illustrated by the comparison of the actual deficit for March, April and May, 1920, with what the operating results would have been provided fuel and labor prices had remained the same as in August, 1919.

The deficit is seen to check almost exactly with the increased cost of fuel and labor, this fact incidentally pointing to the accuracy of the rate of fare set up by the commission, had prices in effect when the rate was made remained the same. The increase in the total operating expenses of the company since 1916 has been 110 per cent in spite of the fact that, based on 1916 prices for materials and labor, the present operation of the property is 10.7 per cent more economical than in 1916. On the other hand, the increase in fare since 1916 has been only 48 per cent, the fare in 1916 having been 5 cents and the present average fare per revenue passenger 7.4 cents.

TRAFFIC STUDY HELPFUL

Of the things which are contributing to this more economical operation, perhaps the most important is the work which has been done by John A. Beeler in relieving the congestion in the business center by revising the number and location of car stops, double-berthing of cars, use of loading platforms, etc. This has contributed materially to the increase in the system average schedule speed from 8.9 miles per hour to 9.2 miles per hour. A material rearrangement of schedules by which short looping and turnbacks have been inaugurated has enabled the company to keep the cars working in the thickly built-up districts, thus providing what in reality amounts to about 20 per cent more service than was formerly derived from the same number of cars.

\$1,000,000 A YEAR TO THE JITNEYS

Following the strike in August, 1917, the jitneys, which prior to that time had shown a tendency to disappear, were again revived. They were not a

TABLE OF FARE INCREASES OF KANSAS CITY RAILWAYS
 (a) 5 cents to 6 cents in Missouri only, July 16, 1918.
 (b) 5 cents to 6 cents in Kansas, April 17, 1919.
 (c) 6 cents to 7 cents in Missouri only, Aug. 20, 1919.
 (d) 7 cents to 7 7/8 and 8 cents, Missouri only, Dec. 14, 1919.
 (e) Extra 1 cent collected from interstate Kansas-to-Missouri passengers at state line, Nov. 11, 1919.
 (f) 6 cents to 7 7/8 and 8 cents in Kansas, Jan. 4, 1920, abolishing (c).
 Present results: 10 per cent cash fares; 72 per cent 7 1/2 cent ticket fares; 18 per cent 7 cent ticket fares.
 Average rate of fare now received, 7.46 cents.

EARNINGS OF KANSAS CITY RAILWAYS FOR SIX-MONTH PERIODS

	6 Months Ended June 30, 1919	6 Months Ended Dec. 31, 1919	6 Months Ended June 30, 1920
Transportation revenue.....	\$3,061,483	\$4,130,237	\$4,567,434
Other revenue.....	46,320	55,298	57,187
Miscellaneous income.....	5,604	9,410	20,256
Total.....	3,113,408	4,194,947	4,644,878
Operating expenses:			
Way and Structure.....	\$307,546	\$390,373	\$328,366
Equipment.....	674,482	581,753	552,920
Power.....	626,765	696,581	738,871
Transportation.....	1,702,428	1,682,866	1,708,168
Traffic.....	729	3,379	12,737
General and miscellaneous.....	459,289	630,999	769,689
Total operating expense.....	\$3,771,242	\$3,985,955	\$4,110,853
Taxes.....	258,842	262,961	320,022
Total operating expenses and taxes.....	\$4,030,084	\$4,248,916	\$4,430,875
Net operating revenue.....	* 916,676	* 53,969	214,002
Auxiliary operating revenue.....	701,857	787,364	705,100
Auxiliary operating expenses.....	623,430	645,245	620,201
Auxiliary net revenue.....	\$78,426	\$142,118	\$84,898
Net operating income.....	* 838,249	88,149	298,901

*Deficit.

serious menace, however, until the first fare increase in July, 1918, gave them encouragement. The strike in December, 1918, brought them out in constantly increasing numbers, and the other fare increases also served to induce more jitneys to go into the business. As a result, the company for the past year and a half has been losing, according to various estimates and checks, from \$2,500 to \$3,000 a day through this form of competition. Approximately 500 jitneys are today operating in Kansas City and have been for the past year.

They have a well organized association, they are powerful politically, and are well entrenched. Ordinance regulations defining bonds, restrictions, etc., have been loosely applied, so that their effect has been practically nothing and jitney competition, as a result, is unrestrained. The effect of this has been to deprive the company of approximately \$1,000,000 in revenue for the past fiscal year ended

June 30, 1920, which would have reduced the company's deficit to in the neighborhood of \$500,000.

THE OUTLOOK

Despite the discouraging factors which have brought about the present situation, indications point out that with proper support, and with the carrying out of plans already formulated and ready for execution, the property can be put upon a self-sustaining basis in the near future. For example, a rerouting plan now before Council, in addition to providing better service where it is most needed, will make possible a saving in operating expenses of at least \$620,000 a year. In addition, there is now pending before the Missouri Public Service Commission an application for a 10-cent cash fare with three tickets for 25 cents. This, it is expected, would substantially improve the gross earnings of the railway company.

This application provides for a sliding

STATEMENT OF INCOME OF KANSAS CITY RAILWAYS FOR ELEVEN MONTHS ENDED JUNE 30, 1920, AND FOR JULY, 1920

	August	September	October	November	December	January	February	March	April	May	Year Ended		
	1919	1919	1919	1919	1919	1920	1920	1920	1920	1920	June 30, 1920	July 1920	
Transportation revenue.....	\$640,858	\$672,400	\$825,820	\$707,782	\$692,812	\$732,598	\$684,702	\$779,512	\$766,120	\$807,790	\$796,709	\$8,697,672	\$800,204
Other revenue.....	7,847	9,789	11,596	8,790	9,523	11,027	8,991	9,274	9,143	8,776	9,974	112,486	4,357
Miscellaneous income.....	1,510	1,204	1,823	1,767	1,776	1,865	1,973	2,052	3,451	*316	11,230	29,666	11,557
Total.....	650,217	683,394	839,241	718,340	704,112	745,490	695,667	790,839	778,715	816,249	817,914	8,839,825	816,119
Operating expenses:													
Way and structures.....	66,189	83,882	79,787	60,989	40,878	23,892	29,163	47,573	50,112	83,061	91,762	715,940	72,837
Equipment.....	86,536	90,958	102,516	93,639	129,651	87,847	84,574	111,105	87,264	87,055	95,073	1,134,674	87,919
Power.....	107,391	95,242	117,960	132,206	135,107	124,555	110,462	109,535	119,779	117,890	156,648	1,435,452	128,016
Transportation.....	266,960	268,012	291,238	300,622	289,147	290,350	269,141	284,213	270,081	283,899	310,607	3,391,161	305,012
Traffic.....	341	556	1,692	455	332	6,786	3,368	593	755	398	835	16,117	473
General and miscellaneous.....	67,297	98,617	135,311	116,474	117,631	114,021	101,797	116,121	122,460	122,055	167,721	1,375,178	113,426
Total operating expenses	594,717	637,269	728,507	704,388	712,748	647,453	598,508	669,142	650,454	694,361	822,648	8,068,523	707,685
Taxes.....	43,318	44,719	47,999	46,692	37,052	53,508	51,911	52,940	53,887	53,887	53,887	582,983	53,887
Total operating and taxes..	\$638,035	\$681,988	\$776,506	\$751,081	\$749,800	\$700,961	\$650,419	\$722,083	\$704,341	\$748,248	\$876,536	\$8,651,507	\$761,572
Net operating revenue... ..	\$12,181	\$1,406	\$62,734	*\$32,741	*\$45,687	\$44,529	\$45,248	\$68,756	\$74,374	\$68,001	*\$58,622	\$188,318	\$545,546
Auxiliary operating revenue	132,773	138,083	129,456	96,601	172,580	127,271	101,115	99,573	102,613	114,975	159,552	1,492,465	127,597
Auxiliary operating expense	112,646	108,342	120,041	93,682	109,746	119,917	84,832	85,381	93,031	103,819	133,219	1,265,447	108,627
Auxiliary net revenue... ..	\$20,126	\$29,741	\$9,414	\$2,919	\$62,834	\$7,354	\$16,282	\$14,191	\$9,581	\$11,156	\$26,332	\$227,017	\$18,969
Net operating income....	\$32,308	\$31,147	\$72,149	\$29,822	\$17,146	\$51,883	\$61,530	\$82,948	\$83,955	\$79,157	*\$32,289	\$415,335	\$73,516

*Deficit.

scale of fares adjustable every sixty days to take care of variations in the cost of coal and labor. The case is in and no opposition was introduced, the company's figures having been admitted. While no one can say what the commission will do, it is felt that it must grant some relief.

As a further reason for optimism, negotiations for power are now under way with the Kansas City Power & Light Company, which, when consummated, are expected to result in a substantial saving for the railway in its power costs.

The city is beginning to realize that the competition of jitneys has a direct effect upon the rate of carfare, and that it means that a penalty must be imposed upon the 350,000 daily street-car riders in order to provide jitney service for from 40,000 to 50,000. This revenue alone would increase the company's gross income approximately \$1,000,000 a year.

Furthermore, the riding habit is improving, due, no doubt, in large measure, to the improved service. Another favorable circumstance is the fact that the peak in material and labor prices has probably been reached and passed.

The winning of the 1918 strike and the reorganization, while exceedingly costly at the time, are not without compensation. With normal service restored and normal operating conditions practically obtaining, department heads throughout the company now feel that the morale of the employees is better than they have ever known it to be before, and that this labor situation is about to bear fruit in great advantage to the company. Inasmuch as a loyal and efficient operating force is the key to success on any property, it seems that the company should now be in a position to give a service that would attract patronage and reduce unit operating costs.

Valuation Report Near Completion

The Public Utilities Commission of Connecticut has practically concluded its task of placing a valuation on all electric railways in the State of Connecticut. Until the report is complete the facts will be withheld from the public. Consideration is being given to the average prices of all equipment for the period of 1910-1914 and the cost of things as of Dec. 31, 1919. Those working on the valuation work are E. Irvine Rudd, chief engineer; Joseph P. Wadhams, assistant engineer, and A. E. Knowlton, electrical engineer of the utilities commission. Mr. Knowlton is assisted by Prof. Charles F. Scott, Prof. L. P. Breckenridge and R. G. Warner of Yale University.

Interest Payment Postponed

The board of directors of the Denver (Col.) Tramway has announced the postponement of the interest payment on the \$2,500,000 of outstanding notes of the company. Changes in the personnel of the company are announced elsewhere in this issue.

Financial News Notes

Receivership Hearing Again Postponed.—The hearing set to be held before the Federal court in Kansas City, Mo., on Sept. 30, on the matter of the appointment of a permanent receiver for the Kansas City Railways, and which was postponed until Oct. 14, has again been postponed until Oct. 21. Frank C. Niles was appointed temporary receiver on Sept. 9.

Sale at Foreclosure Ordered.—The property of the Norfolk & Bristol Street Railway, a Massachusetts corporation, will be sold at public auction in Walpole, Mass., on Oct. 23, 1920. It is to be offered for sale at the behest of the American Trust Company, representing holders of bonds of the company secured by a mortgage against the property.

Illinois Road Sold.—The Aurora, Plainfield & Joliet Railroad has been authorized by the Illinois Public Utilities Commission to sell its electric interurban line to the Aurora, Plainfield & Joliet Railroad for \$757,000. The transfer was consummated on Oct. 1. The buying company assumes the accounts payable and obligations of the selling company.

Tax Valuation Announced in Wisconsin.—The twenty-three electric railways in Wisconsin were valued by the Wisconsin Tax Commission at \$71,000,000 this year as compared with \$69,417,000 last year. The companies will pay \$1,352,498 in taxes this year as compared with \$1,015,640 last year. The Milwaukee Electric Railway & Light Company was assessed by the State Tax Commission at \$40,000,000 and will pay \$758,137 in taxes for the year.

Missouri Short Line to Readjust Capital.—The Kansas City, Clay County & St. Joseph Railroad, Kansas City, Mo., has applied to the State Public Service Commission for authority to reclassify its capital stock of \$10,000,000. Only \$4,000,000 of the stock so far has been issued, the petition stated. It is proposed to issue \$3,000,000 of cumulative preferred stock bearing 7 per cent dividends, of which \$1,450,000 is to be held for future issue, and to issue \$7,000,000 of common stock. Of the common stock, \$2,450,000 is to be reserved for future issue, according to the petition.

Sale Under Foreclosure Confirmed.—George Whysall, receiver of the Springfield Terminal Railway & Power Company, Springfield, Ohio, has filed in the United States District Court his report of the sale of the properties of the company to W. P. Sturtevant, representing the stockholders, for \$300,000, the upset price fixed by the court. The decree of U. S. District Judge John

E. Sater, confirming the sale, also has been filed along with an order of court authorizing the receiver at once to pay off \$14,000 in receiver's certificates issued to meet operating deficits, together with accrued interest.

Resolutions Adopted Revoking Franchise.—Resolutions have been adopted by the Board of Estimate of New York revoking all the franchises of the Richmond Light & Railroad Company, Staten Island, N. Y. The resolutions were presented by Commissioner Whalen of the Department of Plant and Structures, who pointed out that the ninety-day period had expired which was required since the company and its temporary receiver had been notified by the city of forfeiture of its franchises because of failure to provide adequate service. Under an injunction of the Federal court the city is prevented from interfering with the company's cars, tracks, etc., but it is stated that the city will now ask that the injunction order be rescinded.

Reno Company Abandons Franchise Rights.—A written release abandoning certain franchise rights it has enjoyed in the city of Reno, Nev., has been filed with City Clerk Sullivan by the Reno Traction Company. The release abandons all rights to exercise the privilege of maintaining electric railway service on Second Street from Sierra to the west city limits; Sierra Street from Fourth to Ninth and Ninth from Sierra to Center; from the intersection of Second and Virginia to Moran Street, thence westerly on Moran to Wells Avenue and on Wells Avenue to Cheney Street; on California Avenue to Plumas Street and on Plumas Street to Reno Avenue at the south city limits. These are presumably the rights included in the order of service abandonment approved by the Public Service Commission as noted in the ELECTRIC RAILWAY JOURNAL for Sept. 4, page 477.

Electric Operation Discontinued.—The electrical equipment left on the Rock Island (Ill.) Southern Railroad will be discarded and all trains operated by steam or gasoline, according to an order of the Illinois Public Utilities Commission. An order has also been issued for the company to sell its power house, poles, wires and other equipment. The order comes as the result of the hearing in Rock Island before an examiner of the commission. Receivers of the Rock Island Southern Railroad were cited to show cause why an order of the commission for rehabilitation of its service issued in November, 1919, had not been complied with. The plea was that the company's financial condition would not allow it to rehabilitate its lines properly with electrical equipment. Gasoline cars were suggested as a solution to the difficulty and will probably be tried. For the last year trains have been operated by steam. The receivers have filed a petition with Federal Judge Louis FitzHenry asking permission to borrow funds for the rehabilitation of the road.

Traffic and Transportation

Syracuse Plea Made

New York State Railways Asks Immediate Action Looking Toward Financial Relief

Benjamin E. Tilton, general manager of the Syracuse lines of the New York State Railways, has issued a statement in which he says the Syracuse unit is running behind \$1,000 a day and that the company has the right to ask for immediate action in the matter of relief. Mr. Tilton says that the company was called upon to make an expenditure of \$20,000 in supplying information in connection with the investigation referred to in the issue of the *ELECTRIC RAILWAY JOURNAL* for Sept. 25, page 610, and that in carrying out agreements with the city the company has sustained a loss of \$150,000.

LOCAL SETTLEMENT FAVORED

Last February it was decided by the Mayor of the city to appoint a committee of citizens to look into the whole matter of transportation in the city and report back to the Mayor and Common Council, the idea being at that time that the matter should be settled locally as it was strictly a problem which is the concern of the citizens of Syracuse.

The New York State Railways was asked at that time to place the determination of its case as to revenue and valuation in the hands of this commission, giving the fullest co-operation possible. Since the formation of the commission the company has been called upon to make an expenditure of \$20,000 in supplying information in connection with the investigation. It has also been called upon to bear the cost of the increases in wages granted by the arbitration board to the employees amounting to \$25,000 a month, or \$300,000 a year.

The company has, therefore, in carrying out its agreement with the city to co-operate to the fullest extent with the commission, sustained a loss of \$150,000 to date and is at present running behind in bond interest at the rate of \$1,000 a day.

ASKS DECISION ON MERITS

Now that the work of the commission has been concluded and the report submitted, the company feels that it is justified in asking that immediate consideration of its case, at least as to fares, should be given on its merits. All facts that enter into the determination of the fixing of a rate according to law have been made available.

The matter may be settled in one of three ways—locally, by appeal to the Public Service Commission or by curtailment of service to a sufficient degree to make up the loss.

As regards the comparisons made in

the newspapers between the valuation of the Syracuse lines and the valuation of the Rochester lines, Mr. Tilton points out that they are entirely unfair for the reason, first, that they are incorrect, and, second, that they do not take into account the comparison of the property included in the two amounts, an omission which obviously destroys the value of such a comparison. Mr. Tilton said:

To make a true comparison, if the matter in Syracuse is to be settled by comparisons with other cities, an adjustment would have to be made as between the very much greater mileage of unpaved tracks in Rochester as against Syracuse. While we are not going to get anywhere by making comparisons with other cities, it is only fair, in view of the fact that these comparisons have been made here, to state that the difference in cost between the paved and unpaved track is \$10 a foot, and that there are 67 miles of unpaved track covered under the Rochester contract and only 24 miles covered under the Syracuse contract. This difference would add approximately \$2,000,000 to the Rochester valuation in order to bring it on the same basis as Syracuse, which is approximately \$117,000 a mile instead of \$100,000 a mile as has been given to the public as the tentative Rochester valuation.

It has also been stated that this company has spent practically nothing for additions or improvements to its Syracuse lines since 1917. The fact is that the following expenditures for improvements and additions have been made:

In 1917, \$491,630; in 1918, \$283,147; in 1919, \$325,838.

During that period 12 miles of track have been replaced.

Fast Train on North Shore Line

"The Badger Limited" is the name of a new fast train which the Chicago, North Shore & Milwaukee Railroad has recently installed for the particular convenience of business men out of Chicago to Kenosha, Racine and Milwaukee in the morning and back in the evening. The road now operates a limited train every hour between Chicago and Milwaukee which makes the run in two hours and thirty-five minutes.

It was found that the largest number of through passengers were carried on the 9 o'clock and 10 o'clock morning trains, northbound, and on the 4 o'clock and 5 o'clock afternoon trains southbound from Milwaukee. The new train, scheduled to make the run with only the two intermediate stops indicated above, in two hours and fifteen minutes, was therefore timed to leave Chicago at 9:30 a.m., arriving at Milwaukee at 11:45; and on the return trip, leaving Milwaukee at 4:30 p.m. and arriving at Chicago at 6:40. The running time indicated is the total time required for the run between the Adams and Wabash Elevated Station in Chicago, over the structure to Wilmette, through the streets of some of the North Shore towns and to the new terminal at Sixth and Sycamore Streets, Milwaukee, Wis. This is a distance of 86 miles, giving an average schedule speed for the run of practically 40 miles an hour.

Voters Refuse Relief

Six-Cent Fare Ordinance Again Defeated at Duluth—Union Labor Blamed for Failure

The voters of Duluth, Minn., at a special municipal election on Oct. 4, refused to ratify the referendum ordinance granting to the Duluth Street Railway the right to charge 6 cents instead of 5 cents on its city lines. The ordinance was lost by 637 votes. The vote was 7,561 for and 8,198 against the measure.

A similar 6-cent fare ordinance was defeated at a special city election held on primary election day, June 21. At that time the fare proposition was rejected by 1,297 votes, the poll being 6,076 for and 7,373 against. An amendment to the city charter granting the Council the right to levy on a rate of 16 mills for municipal taxes, instead of 13 mills, which was decisively defeated at the primary election in June, was carried by a substantial majority at the Oct. 4 election. The vote on this measure was 10,655 for; 5,042 against.

Upon learning the result of the election, Herbert Warren, vice-president and general manager of the railway, gave out a statement in which he said:

The company and its employees are, of course, very much disappointed in what seems to be the defeat of the ordinance by a majority of some 600 votes. Since the ordinance has been defeated I can see no other possible course for the company than to make the best of the situation by giving as much and as good a service as is possible under a 5-cent fare. All extensions and improvements requiring the expenditure of cash will necessarily have to be indefinitely postponed. All I can say at this time is that the company will do its best under the circumstances.

WAGE INCREASE PROMISED

The rejected ordinance provided that the company should share with its employees the additional revenue obtained by the additional cent in fare. The management had promised all employees an increase in wages of 10 per cent, retroactive to July 1, in case that ordinance carried. An intensive campaign to "put across" the ordinance was waged by a publicity committee of the carmen's association.

Union labor is credited with having turned the tide against the proposal. Voters in the industrial end of the city voted almost solidly against the increase. The unfriendly feeling of the labor element is believed to have grown out of a feud of long standing between the unions and the railway, which has not permitted its men to organize and affiliate with the American Federation of Labor.

The company announced on Oct. 7 that it would substantially reduce its service and would lay off several crews. At the same time it stated that it would raise the pay of the men retained 10 per cent. Mr. Warren declared that the number of employees would be reduced to a minimum and that all cars not "paying their way" would be taken off. Owl cars will be discontinued. The new schedule will take effect on Oct. 11.

Five Cents Flat or Failure

Mr. Mitten Appeals to Public for Immediate Relief to Save P. R. T. from Disaster—Riders Forego Free Transfers

In a desperate attempt to preserve the basic nickel fare which, a year ago, he termed his "religion," Thomas E. Mitten, president of the Philadelphia Rapid Transit Company, on Sept. 30 appealed to the people of Philadelphia to pay flat 5-cent fares. Mr. Mitten asked the car riders to forego the privilege of free transfers and 3-cent "exchanges" to save the city's transportation system from disaster. Response to Mr. Mitten's appeal on the part of the public was immediate. On Oct. 1 thousands of passengers refrained from demanding transfers. As a result of the public's stand the company's revenue for the first three days of the month was increased by a total of \$20,857. As a final means of financial relief the company on Oct. 4 asked the State Public Service Commission for authority to make the 5-cent flat rate universal beginning Oct. 6, without giving the thirty days' notice ordinarily required. At a hearing before the commission on Wednesday, Mr. Mitten begged for an immediate decision. The commission, however, declined to act until it had obtained the opinion of the City Council.

MR. MITTEN asked the car rider to pay 5 cents every time he changed cars. He pointed out that the present delay in getting the straight 5-cent fare from the City Council and the Public Service Commission would plunge the company deeper into financial difficulties and that unless there was a response to the "voluntary contribution" plea, the accumulating deficit would be so great that in order to avoid bankruptcy, the company might have to ask for an 8- or a 10-cent fare.

No effort was made to force the riders to avoid asking for transfers or exchange tickets. The conductors have been instructed to give the transfer or exchange whenever it is asked for by the passenger, but great faith is being placed by the P. R. T. in the public's response to the no transfer or exchange plea.

"Will You Pay Five Cents for Each Ride Now?" is the text of the signs posted outside and inside the cars.

"FIREBRANDS" PROPOSE STRIKE

The latest move of the company to get more funds was made known by Mr. Mitten at a meeting on Sept. 29 of the Co-operative Welfare Association delegates. The meeting was called hurriedly to end talk of a strike against the public that had been urged by firebrands in the ranks of the men. Car-men, impatient at the delay in getting the higher fare that would enable the company to pay them the back wages to which they are entitled, thought to bring the fare question to a "show-down" by taking a "vacation" as a protest against continued delay in the consideration of the higher-fare proposal now before Council.

Mr. Mitten urged the men not to strike or do anything to inconvenience the riding public. He told them of his plans for the appeal to the public, and put his proposal up to them for approval.

The men, who unanimously approved the plan, were instructed to inform their associates of the manner in which the appeal to the public would be made. Officials pointed to the fact that \$3,000 had been collected from persons who refused to accept transfers when the

company first put the no-transfer, no-exchange up to Council. They said they expected the plea to result in the daily receipts being greatly increased. In addition, other plans to tide the company over the present difficulty are being considered.

President Mitten, in appealing for the public's aid, said:

If P. R. T. waits longer for city consent and then files its tariff, to become effective under the law thirty days later, P. R. T.'s accumulating deficit will be too great to be overcome by the proposed 5-cent fare, without exchanges or transfers, so that P. R. T., if further delayed, will then, to avoid bankruptcy, be forced to file its new tariff for a still higher fare.

P. R. T. must commence to collect the added revenue now—immediately—if the collection of an 8-cent or even 10-cent fare is to be avoided during the coming winter; 476,027 persons have signed a petition to the Mayor, City Council and the Public Service Commission, requesting necessary assent to the immediate collection of the proposed 5-cent fare, without transfers or exchanges.

Since the car-riders, including these petitioners, must be later subjected to an 8-cent or 10-cent fare, in the event that P. R. T.'s looked for relief is longer delayed, P. R. T. has decided that, commencing Oct. 1, 1920, the car-rider will be given an opportunity to insure against higher fares by the voluntary payment of the proposed 5-cent fare, without transfers or exchanges. If the response is not such as to provide the increased revenue necessary to insure the continuance of the proposed 5-cent fare, without transfers or exchanges, then P. R. T. must perforce file its tariff at the proper time for a higher rate of fare.

P. R. T. has confidence in the fairness of its car-riders and looks forward to a rapid reduction of requests for transfers and exchanges; thereby increasing the revenue to the volume necessary to carry the company through and justify the management in filing its tariff for not more than a 5-cent fare, without transfers or exchanges, as soon as such action can properly be taken.

The P. R. T. employees have voluntarily agreed to forego the use of their pass-books in order to aid the company. Many of the employees are paying 5 cents fare when they carry a free pass in their pockets.

The "pay-your-fare" movement of the employees started, it was said, at a meeting of sixty-five employees of the utility department. They agreed to pay their fares and not take advantage of the pass-books or the unwritten law of the company that an employee does not have to pay fare for himself or his family.

Word of that action reached the stenographers, telephone operators, clerks and executives employed at the Land Title Building offices of the com-

pany and they immediately decided to emulate the example of the mechanics. As a result, the movement has spread through the ranks of the company employees and cases of where conductors off duty insisted on paying fare for themselves and their families were reported.

APPEAL GETS RESULTS

The company announced on Oct. 3 that its appeal to car riders to forego transfers and exchanges had been successful. Furthermore, the company officials said that the entire scheme was working smoothly and that the distribution of the cards setting forth the reasons for the appeal for the voluntary payment of the straight 5-cent fare had been attended by no disorder. The statement further read:

P. R. T. men and management are greatly encouraged by the added interest of the car riders and are now settling down to a campaign of earnest solicitation and salesmanship, fully determined to save Philadelphia from the higher rates of fare that would unquestionably follow the abandonment of the straight 5-cent plan.

A second statement was issued by the management on Oct. 4, as follows:

P. R. T.'s increased earnings resulting from the voluntary disuse of transfers and exchanges for Sunday, over the Sunday preceding, were \$9,591, as against the increase of Saturday, the second day, of \$6,697, and Friday, the first day, of \$4,569.

The campaign of the men and management to retain the straight 5-cent fare for Philadelphia is now on in real earnest, and the car rider is responding in a truly wonderful way.

The management is limiting the men to a campaign of solicitation and salesmanship. If, however, there be instances where the men become over-zealous the kindly consideration of the public is bespoken, as much may be forgiven these men when they express their feelings in an effort to collect the money necessary to keep the fare down and the cars running, as compared to the old-time practice of tying up the service to enforce their demands.

It was announced on Oct. 4 that Robert M. Feustel, president of the Indiana Service Corporation, Fort Wayne, Ind., had been appointed as the city's representative in checking up the inventory and valuation of the P. R. T. property. There was also a postponement until Oct. 18 of the argument before the Superior Court on the question as to whether the Public Service Commission has a right to probe into the rentals paid to the underlying companies.

Buses Perplex Seattle Authorities

Mayor Hugh M. Caldwell of Seattle, Wash., in a recent letter to the City Council, expresses the strongest opposition to the proposal to hold a special referendum on general election day, Nov. 2, to obtain the expression of voters on two jitney bills, one barring jitneys from the downtown section of the city and the other an initiative bill drawn by the jitney men, which would allow operation of buses on the jitney men's own terms. The Mayor favors the present jitney ordinance over either of the two proposed measures. Court cases on the present ordinance are pending to determine the right of the Council to refuse to issue licenses under an ordinance which expressly authorizes the operation of jitneys under bona fide regulations to be fixed

by the city. Mayor Caldwell has returned to the Council without his signature the bill passed recently by which jitneys would be barred from the downtown district. Mayor Caldwell said:

This Council bill impresses me as an indirect effort to abolish the jitneys, and until the city of Seattle can offer some form of transportation that will take the place of the jitneys as a means of rapid transportation I am opposed to excluding them from the streets, provided they can be subjected to reasonable regulation.

Mayor Caldwell expresses the opinion that if the Council bill prohibiting the use of any downtown streets by the jitneys is submitted to the voters it will be defeated. Failure of the Mayor to approve the election ordinance would mean that the Council would have to change the measure to a thirty-day bill, and pass it over his veto to put it into effect. It would be impossible to take this action in time to call a special election for November 2. The Mayor has since asked the Council to prepare an alternative measure, similar to the ordinance now in effect, to submit with the initiative bill proposed by jitney interests.

Underground Challenges London County Council

A cable dispatch from London, England, dated Sept. 25, indicated that omnibuses in London would start a counter offensive against the tram cars on Sept. 26 by cutting fares during the non-rush hours to practically a flat 5-cent basis. The London Electric Railway, which owns all the subways and omnibuses in London, believes it will be able to show that the municipally-owned tram cars are operated at a loss, which the taxpayers have to make up, and that these tram cars constitute a costly and unfair competition to private enterprises. For six months the tram cars have been selling "tuppenny" (4 cents) tickets, which are good on any line between 10 o'clock in the morning and 4 o'clock in the afternoon. The management of the London Electric Railway believes it will be able to show that the tram cars cannot earn more money on the basis on which they are operated now and will challenge the London County Council, owning the tramways, to publish a statement of earnings and operating cost, hoping thus to be able ultimately to replace the tramcars and substitute omnibuses on many routes after showing the taxpayers what the tramways actually cost them.

Seven Cents in Trinidad

The Colorado Public Utilities Commission has authorized the Trinidad Electric Transmission, Railway & Gas Company, Trinidad, to raise its fare from 6 cents to 7 cents. The company some time ago applied to the commission for authority to discontinue service on its line in Pine Street and to remove the tracks. This petition is denied by the commission, which has allowed the rate increase as an alternative. The 6-cent fare took effect about a year ago.

Ten-Cent Fare Imperative

Connecticut Company Appeals to State Commission for Further Rate Increase—Seven-Cent Rate Proves Insufficient

Declaring that the Connecticut Company, New Haven, Conn., must have more revenue if it is to continue operation, Lucius S. Storrs, president, and other officials of the company appeared before the State Public Utilities Commission at a hearing on Oct. 1 to ask authority to charge a 10-cent fare. The railway management had previously intimated that a 10-cent fare was necessary. Although the 7-cent rate now in effect has yielded the company larger returns than the former zone fare system, the increase has not been sufficient to meet the operating expenses. The company officials declared that the 10-cent rate is imperative. The company is already charging a 10-cent fare on its lines in New London, formerly operated by the Shore Line Electric Railway.

THE opening arguments for the company were presented by President Storrs. He was followed in turn by George D. Watrous of New Haven, general counsel for the company, and Joseph D. Berry of Hartford, associate counsel.

P. J. MacCreedy of New Haven, statistician, spent most of the forenoon presenting figures tending to show the company's receipts and expenditures. The cities and towns of Hartford, East Hartford, New Haven, West Haven, Vernon, Rockville and Hamden were represented at the hearing

GAIN IN RECEIPTS

The increases in fare last fall and in August of this year showed the following percentages of increase in receipts over the year preceding, as shown by Mr. MacCreedy's figures: November, 1919, 18; December, 21.96; January, 1920, 23.29; February, 25.9; March, 18.98; April, 17.20; May, 15.71; June, 2.62 loss; July, 0.96 loss; August, 6.62 increase. The receipts in Bridgeport for 1919 were not included in the lists, the discontinuance of the service there making it inadvisable in order to secure actual figures of gain or loss for the rest of the system.

Total receipts for 1920 to date are \$12,715,017, while for the same period in 1919 they were \$12,638,979, or an increase of \$76,037 or 2.88 per cent. Redemptions of \$34,344 for zone cards sold were made, which left the net increase \$41,692 or 1.58 per cent. The estimated expenses of the company to Dec. 31, 1920, are \$15,657,222, not including dividends or surplus. The operating expenses to Dec. 31 are given as \$12,833,995. In 1916 these figures read \$6,554,304. This gives an increase in the past four years of 95.81 per cent. The operating expenses for 1919 were stated to have been \$9,210,376.

WAGES UP 97.4 PER CENT

It was shown that in 1916 wages amounted to \$3,925,854 as against \$5,959,332 for 1919, or an increase of 51.8 per cent. In 1920 with four months estimated the wages will be \$7,750,000 or an increase of 97.4 per cent. Fuel cost \$571,589 in 1916 and \$850,979 in 1919, an increase of 48.9 per cent. In 1920 the fuel expense will be \$1,400,000, an increase of 145 per cent. The cost of materials in 1916

was \$374,560. In 1919 this expense was \$515,111, an advance of 37.5 per cent. This year the cost of materials will be \$800,000.

It was stated that one-half of the operating expenses are charged to wages and 30 per cent to fuel. The maximum cost of materials over pre-war prices was given as 595 per cent and the lowest increase as 27 per cent. In 1914 coal was delivered for \$3.15 a ton. Now it costs \$16 and the company has paid as high as \$20.

No figures were given showing the increases individually for the various branches of employment over the figures for 1916. No data were presented to show to what extent the jitneys had cut into the company's business throughout the State. Mr. MacCreedy said that in August, 1920, under the 7-cent rate it would have required 40 per cent more revenue to care for the fixed charges and allow a fair return, and as the conditions were unchanged for September, this percentage applies for that month.

WOULD RETAIN TRANSFERS

Walter C. Noyes, chairman of the board of directors of the Connecticut Company, expressed the belief that the elimination of the transfer privilege would not help the company much, though it might possibly add a few hundred dollars in revenue. He admitted that it might be possible to raise the fares to such a figure as to induce patrons to ride on the steam cars but he estimated that 70 per cent of the traffic would stand the fare increase to 10 cents and that such a rate would produce the needed revenue.

Judge Noyes thought that the proposed 10-cent fare would pull the company out of the financial hole it is now in though it would be far in the future before the railway could pay off its debts. He said the problems of the company could be solved with the 10-cent rate or not at all.

It was pointed out to the commission that the debts of the company, in addition to the operating expenses, included \$1,500,000 owed to the State of Connecticut and between \$4,000,000 and \$5,000,000 due to the New York, New Haven & Hartford Railroad, which it would take some time to pay off. Judge Noyes thought it far better to have the State take over the company's lines as a unit rather than to have the system split up.

Personal Mention

H. R. Fehr Retires

Veteran Traction Operator Resigns as President of the Lehigh Valley Transit Company

Harrison R. Fehr has resigned as president and a director of the Lehigh Valley Transit Company, Allentown, Pa., as vice-president of the Pennsylvania Power & Light Company and as an official and a director of all subsidiary and affiliated properties. At the urgent request of the boards of directors of the various companies with which he has been connected, Mr. Fehr has consented to remain with them in an advisory capacity, so that the interests which he has served for many years will be in a position to consult him and will have the advantage of his judgment. At the same time Mr.



H. R. FEHR

Fehr will be relieved of the active management.

The news of Mr. Fehr's resignation was received with regret not only in business and professional circles in Allentown, but also among the general public of the Lehigh Valley, where he has been a dominant figure in engineering and transportation affairs for more than a quarter of a century. There had been rumors of his desire to retire ever since his recovery from a recent illness. When Mr. Fehr first broached the matter of resigning the board of directors of the Lehigh Valley Transit Company appointed a committee to induce Mr. Fehr to reconsider his action, but he remained firm in his determination.

Mr. Fehr's career has been one of growth matching that of the community in which he had resided, and with whose development he has been actively identified. He was born in Nazareth, Pa., in 1863. At an early age he took up engineering and in the spring of

1883 he accepted a position with the engineering corps of the Lehigh Valley Railroad and later became assistant engineer. In the fall of 1891 he was elected city engineer of Easton, Pa., and occupied that position for eight years. He next engaged in engineering construction work on electric railways and in general contracting. In May, 1904, he was appointed general manager of the Easton Transit Company. In the following year he was elected president of the company. Seven years ago he was called to Allentown to become president of the Lehigh Valley Transit System, of which the Easton Transit Company is now a part.

Mr. Fehr's administration of the property has been characterized by vision and progress. Under his management the system has been largely rebuilt, including the construction of the Philadelphia line cutoffs, the erection of the Fairview carhouse, the extension of the Front Street power station and the completion of the Eighth Street bridge. He has for many years taken an active interest in the work of the American Electric Railway Association and of the Pennsylvania Street Railway Association. During 1911 he served as president of the latter body.

M. V. Dommech has been elected president and general manager of the Porto Rico Railway, Light & Power Company, San Juan, Porto Rico. Mr. Dommech succeeds E. M. Sewell, resigned.

H. R. Domby has resigned as purchasing agent of the Birmingham Railway, Light & Power Company, Birmingham, Ala. Mr. Domby has been in the employ of the company since September, 1906, all of his work being in connection with the purchasing and stores department, which he entered as a clerk.

Benjamin F. Thomas, who has been connected with the United Railways of St. Louis, Mo., for the past three years as mechanical engineer, has resigned, effective Oct. 1. Mr. Thomas has been appointed assistant superintendent of power of the Scullin Steel Company, St. Louis, Mo. He is a graduate of the Massachusetts Institute of Technology, Boston.

Charles S. Ruffner, vice-president of the American Institute of Electrical Engineers and vice-president of the North American Company, New York, N. Y., has been appointed chairman of the traction and transportation committee of the American Institute of Electrical Engineers, succeeding W. S. Murray, who is at present devoting his attention to his work for the Super Power Survey.

Bigger Louisville Staff

President Barnes Brings F. E. Belleville and E. F. Kelley from Schenectady —Operating Personnel Complete

Two additions have recently been made to the staff of James P. Barnes, president of the Louisville (Ky.) Railway. The new members of Mr. Barnes' official family are F. E. Belleville, who becomes general auditor of the company, and Edward F. Kelley, who has been appointed secretary to Mr. Barnes. Both Mr. Belleville and Mr. Kelley served under Mr. Barnes when the latter was general manager of the Schenectady (N. Y.) Railway.

Since assuming the duties of president of the Louisville system last July, Mr. Barnes has spared neither time nor energy in building up an organization composed of picked men upon whom he can fully depend. With the appointment of Mr. Belleville and Mr. Kelley, the new administrative force has been completed. The executive committee made up of three of the company's directors which has been in charge of the railway's affairs since the resignation



F. E. BELLEVILLE

of Thomas A. Minary early this year, has therefore been relieved of the task of administration. The committee, composed of John W. Barr, Jr., W. H. Kaye, and W. S. Speed, will continue to serve in an advisory capacity for an indefinite period.

Under the reorganization plan the operating staff is made up as follows: Mr. Barnes, president; Samuel Riddle, vice-president in charge of transportation and traffic; Frances H. Miller, vice-president with supervision over engineering and construction matters; Samuel G. Boyle, secretary-treasurer; F. E. Belleville, general auditor; Judge A. P. Humphrey, general counsel, Churchill Humphrey, assistant general counsel. With but three exceptions, the present executive force was with the company before the resignation of Mr. Minary.

Mr. Belleville's electric railway career began nineteen years ago when, at the age of seventeen years, he entered the service of the Rutland Railway, Light

Ernest Stenger, New Denver President

Steam Railroad Executive Is Chosen Head of Denver Tramway—
Vice-President F. W. Hild to Retire on Jan. 1

Ernest Stenger, superintendent of the Southern Division of the Union Pacific Railroad, was elected president of the Denver (Col.) Tramway by the board of directors on Sept. 29. At the same time F. W. Hild, general manager, was elected vice-president. Immediately thereafter Mr. Hild submitted his resignation. Mr. Hild will probably remain with the company until Jan. 1, when he will retire to devote his attention to other activities. The board also announced the postponement of payment of interest on \$2,500,000 of outstanding notes. Mr. Stenger arrived in Denver on Oct. 6 to take up his new duties.

SIMULTANEOUSLY with the announcement of Mr. Stenger's election, officials of the carmen's union declared that they would reopen negotiations with the company. They stated that they were optimistic that the new management would recognize the union and would take back the strikers. Mr. Stenger stated, however, that hopes of the reinstatement of the men with full seniority rights were absolutely without foundation. The directors stated that their position remains unchanged and that "there is not a chance in the world" for the

elected to the vice-presidency. The position of president has been vacant for a great many years, and while the board regrets that the Tramway will within a few months lose the services of Vice-President Hild, it believes that in Mr. Stenger the company has a man who will carry on successfully the Tramway policies so efficiently handled by Mr. Hild.

As only a small measure of tribute and appreciation, the board takes this opportunity of stating publicly that for some time past General Manager Hild has asked that he be relieved in order that he might be free to devote himself to fields and other activities that would permit the reward and compensation not possible with the Tramway. The board appreciates fully his fine sense of loyalty and self-sacrifice in sticking to his post during the Tramway's worst and darkest periods, and in the face of attractive offers elsewhere. The Tramway now being over the worst crisis, Mr. Hild has consented to remain until such time as may be necessary to reorganize the operating forces and to help the new President, Mr. Stenger, to take over the work. The board of directors unanimously and in all respects indorses and approves the policies and management of Mr. Hild, and they will be continued by President Stenger.

The difficult and trying conditions under which the Tramway has been compelled to operate during the past several years, arising from very great increases in labor and material costs, culminating in the strike of August, has at this time used up all of the company's available funds. The board of directors has therefore decided to postpone payment of interest due Oct. 1 on its outstanding convertible notes, with the hope and expectation that a solution of the Tramway's problems can be worked out within the next few months.

Mr. Stenger is the general superintendent of the Union Pacific Railroad in Kansas City. He comes here highly recommended as an able executive.

The statement just quoted was made over the signature of C. Boettcher, chairman of the board of directors.

Mr. Hild became vice-president and general manager of the tramway four years ago. Prior to that time he had served as general manager of the Portland Railway, Light & Power Company, Portland, Ore. He was graduated as an electrical engineer from Union College, Schenectady, N. Y., in 1898, and was for a time connected with the General Electric Company. He was one of the originators of the idea of forming an association to represent the electric railway industry on the Pacific Coast, and was chosen president of the Pacific Coast Electric Railway Association upon its organization in San Francisco in April, 1913.

Will Raise Suburban Rates

The Syracuse & Northern Electric Railway, Syracuse, N. Y., under a tariff filed recently with the Public Service Commission, Second District, effective on Sept. 30, will increase present one-way cash and ticket fares approximately 25 per cent, with a minimum fare, except in Syracuse, of 10 cents. It is also proposed to increase commutation ticket and mileage book fares 25 per cent.

& Power Company, Rutland, Vt., as a stenographer and clerk. In 1907 he was made chief clerk in the accounting department of the United Traction Company, Albany, N. Y. Two years later he went to Schenectady, where he served in various capacities with the Schenectady Railway, finally being appointed general auditor.

Mr. Kelley became connected with the New York State Railways in 1909 when he entered the mechanical and engineering department of the company's Utica and Syracuse lines. In 1914, when the Buffalo, Lockport & Rochester Railway, Rochester, passed into the control of Allen & Peck, Inc., Mr. Barnes, then general manager of the property, made Mr. Kelley chief clerk. Later Mr. Kelley was appointed purchasing agent of the company in addition. He resigned this position to accompany Mr. Barnes to Schenectady when the latter was made general manager of the system there.

R. W. George, a division superintendent of the Georgia Railway & Power Company, Atlanta, Ga., has resigned.

F. R. Murrie has been elected president of the Hershey (Pa.) Transit Company. Mr. Murrie succeeds M. F. Hershey.

F. Pfefferkorn has succeeded E. C. Brister as general manager of the Alexandria (La.) Municipal Street Railway.

W. R. Bell has resigned as commercial agent of the Baton Rouge (La.) Electric Company, to accept a similar position with the Haverhill Gas Light Company, Haverill, Mass.

W. D. Chalmers, formerly connected with the Columbus (Ga.) Electric Company, has succeeded E. P. Williams as assistant treasurer of the Baton Rouge (La.) Electric Company.

J. M. Strike, superintendent of production of the Toledo Railways & Light Company, Toledo, Ohio, has been transferred by the Cities Service Company to be results engineer for the Western District with headquarters at St. Joseph, Mo. Mr. Strike joined the Doherty organization in 1917. After working with the Acme Power Company as superintendent and the Toledo Railways & Light Company as results engineer, and assistant superintendent of production, he was placed in charge of the production department as superintendent.

George Carson, claim agent Fifth Avenue Coach Company, New York, N. Y., has resigned. Mr. Carson has removed to Seattle, Wash., his former home to organize and to become manager of the Pacific Investigation, Adjustment & Lawyers' Service Bureau. The purpose of this bureau is to conduct a business in the adjustment of all classes of claims, prepare cases for trial, carry on investigations, etc. Mr. Carson was formerly claim agent of the Puget Sound Traction, Light & Power Company and has been president of the Pacific Claim Agents Association and of the American Electric Railway Claims Association.



F. W. HILD

recognition of the union and the reinstatement of the strikers.

Mr. Stenger is a newcomer in the electric railway field, his previous experience having been entirely in steam railroading. Shortly after his arrival he stated that he had come to Denver to operate the tramway in such a way as to best serve the public. He outlined his position as follows:

I have no antagonisms or prejudices and am actuated by a desire to get on well with everybody. Throughout the country the Denver Tramway is regarded as one of the best street railway systems in the United States. There will be no changes in policies or officers that I know of.

Mr. Hild stated that he would remain with the company until the reorganization of the operating force had been completed. He has had many offers in the past two years from other lines of business presenting much greater opportunities, but has stuck by the tramway because of its many difficulties. A high tribute was paid to Mr. Hild in the following statement:

At the meeting of the board of directors of the Denver Tramway held on Sept. 29, Ernest Stenger, of Kansas City, Mo., was elected president of the company and Mr. F. W. Hild, present general manager, was

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Shortage of Guy Wire Relieved

Scarcity of Wire Rods Has Impeded Production—Deliveries Now Made in Thirty Days

The shortage in guy wire seems to have been due in large measure to the number of different types of mills required to make the finished product. Because of better labor supply and improved transportation facilities, however, the shortage is gradually being overcome.

The stranding mills have been held up waiting for supplies from the wire mills, and it seems that the wire mills, on the other hand, have been unable to get a sufficient supply of wire rods to permit them to draw sufficient wire to supply the demand for both wire and strands. Trouble started in the steel mills last fall when the stocks of the stranding and wire mills became depleted, and the demand has been so heavy since that time that they have been unable to build up any reserve stock of raw materials to tide over temporary labor and transportation difficulties.

On the higher grade steel strands, such as high-strength and extra-high-strength strands, the shortage is more acute because it has been practically impossible to secure from the wire-rod mills the high-grade steel from which these strands are made. Deliveries from the mills have been running from sixty to ninety days, but now they are promising thirty-day shipments and even better than this on some kinds and sizes of strand.

Supply of Wood Handles Improving

Demand Is Heavy and Stocks Not Large, but Raw Material Is Received in Better Shape

Manufacturers of wooden handles for track and boiler room tools report that the condition of shortage is easing up slightly now that transportation is improving and they are able to obtain raw material more readily. No letup in the demand is seen, in fact, in some quarters the pressure of orders is said to have increased within the last month, as the heavier buying of steam railroads on account of their new rate increases makes itself felt. Not only is a good domestic market available but foreign countries have been buying consistently, it is stated. Good sales are made to South Africa, Australia, England, Cuba, and other countries.

A considerable volume of back orders

has accumulated with manufacturers. Production is said to be proceeding normally on the whole, but consumption is going ahead at a faster rate than goods can be turned out. Many producers have had considerable difficulty in securing first grade and extra quality hickory to go into the making of sledge, pick, scoop and shovel handles, etc. Consequently in many cases an inferior grade of wood has been used, but because of the high prices prevailing for the finest quality material, many buyers have been satisfied to accept second grade wood. Deliveries of the finished products are now encompassed within a period of one to three months, according to representative manufacturers. The extra quality handles require the longest time, in one or

two cases ranging up to even six or eight months. Stocks are spotty, as some factories have fairly good supplies while others report none on hand.

One of the factors which has been hampering handle makers is the handicap that has all along been imposed by the unfavorable winter last season. Rain and the lack of frozen ground interfered with getting out the timber to a serious extent. Furthermore, during the Federal control railroads allowed their stocks of wood handles to become depleted and factories never fully caught up with the volume of orders that eventually piled up. Prices on handles used in track tools have not advanced for the last three or four months. Opinions differ as to whether a change is to be expected.

Manufacturers See Small Hope of Immediate Price Reductions

Labor and Raw Material Costs Are at High Level, Although Copper and Cotton Show Slight Decline—Outlook for Future Business Is Held to Be Favorable

Considerable speculation is manifest as to the effect that price cuts in many lines may have upon prices of material used by electric traction companies. As yet it seems there has been no decided reaction in this line. In the East the view is expressed in authoritative quarters that conservatism in buying will rule for the next few months until business conditions become more settled. Further than that, while many manufacturers will not venture predictions, a very large number seem to feel optimistic over the outlook for 1921. The basis for this is held to be the undersold condition of the railway market. Traction companies in the past have curtailed equipment buying to a minimum commensurate with their financial condition. As the buying power of money increases, however, orders are expected to multiply, according to one of the largest manufacturers of electric railway equipment.

The general feeling seems to be that no decided price decline can be looked for in the immediate future. Labor is one of the largest factors in the cost of production. Labor prices remain high and existing contracts in many cases have considerable time to run yet. Furthermore, it is pointed out that a great part of the manufacture of goods in this line is dependent upon finished products in other lines. For this reason, though the same basic condition of supply and demand is existent, producers hold that raw mate-

rial costs must first drop before their prices can come down. As yet about the only materials reported easier in price are copper and cotton, so that products of which these materials form an important part may be expected to soften in price first, it is stated. A similar factor largely governs chances of lower prices on other material. The trend of iron and steel quotations should have an important bearing upon prices of goods employing that material in large quantity, according to manufacturers. Others oppose this view on the ground that if the market is largely undersupplied with any article, that circumstance will defeat a trend toward lower prices regardless of raw material costs.

GENERAL TONE IS FAVORABLE

The point upon which all interests apparently agree is a persistent optimism regarding the future of the industry. In this connection, an analysis of statements recently received by the ELECTRIC RAILWAY JOURNAL from about sixty of the largest manufacturers of equipment representing thirty different lines of material is interesting. Barring the non-committal replies in each case, only two manufacturers reported an appreciable number of cancellations while four others received a few. The number of companies that are hampered by a scarcity of raw material were slightly in the majority. Stocks of finished goods are also unfavorable, those whose stocks are low

outnumbering those whose supplies are good by more than two to one. On the other hand, transportation is very generally improving. Manufacturers who reported a decidedly better labor situation were in the majority by more than five to one. Production in two out of three instances was reported up to normal capacity. Another encouraging feature is that thirty-eight companies are meeting a strong even demand, three find it fair and only nine report a poor or slackening volume of sales. With regard to the trend of prices, sixteen manufacturers believe slightly higher levels are in order, twenty-five think present quotations will hold firm, and three look for lower prices.

The latter views covered bare and insulated wire and trolley wheels, though other opinions on the same material differed. In forty-three of the replies the tone is optimistic, five are pessimistic and the remainder are non-committal.

2,400 Power Saving Recorders Ordered for Brooklyn

The Arthur Power-Saving Recorder Company announces that it has just received an order through its Eastern agent, J. H. Denton, for 2,400 recorders for surface cars of the Brooklyn Rapid Transit System. This is the largest order of power-saving instruments ever placed at one time and the choice was made after very thorough tests had shown the value and desirability of these instruments.

London Asks for Bids on Cars and Equipment

The London County Council invites tenders for the manufacture, supply, delivery and maintenance of:

"A" 125 complete bodies for electric tramcars.

"B" 125 complete sets of maximum traction bogie trucks for electric tramcars.

"C" 125 complete sets of electrical equipments for tramcars, together with the assembly of 125 car bodies, sets of trucks, electrical equipments and brakes into complete tramcars, and the preparation thereof in readiness for service operation.

Specifications, forms of tender, and other particulars may be obtained on application to the Clerk of the Council, at the County Hall, Spring Gardens, S.W.1, upon payment to the cashier of the Council of a fee of £2 each for either "A," "B," or "C," or £5 for the three sets complete, according to the *Electric Railway and Tramway Journal* of London.

All the drawings and samples which are referred to in the specifications can be inspected by appointment with the general manager, London County Council, Tramways Department, 23 Belvedere Road, S.E.1, on production of either a copy of the specification concerned, or a signed receipt for the fee paid in respect thereof. Each tender submitted must be upon the re-

spective official form and with its accompanying documents is to be enclosed in a sealed cover and addressed to the Clerk of the Council. No tender received at the County Hall, Spring Gardens, London, S.W., after 4 p.m. on Monday the 25th day of October, 1920, will be considered.

Rolling Stock

Birmingham (Ala.) Railway, Light & Power Company, it is announced, expects the arrival of fifteen new one-man cars about the middle of October.

The Chicago (Ill.) Surface Lines now has under construction in its west side shops fifty two-way trailers similar to the sample car described in the July 17 issue of *ELECTRIC RAILWAY JOURNAL*. The company is also preparing plans and specifications for new motor cars.

Dallas (Tex.) Railway Company has received eight of the fifty new safety cars ordered some time ago from the J. G. Brill Company, Philadelphia, Pa. Each car is propelled by two 25-hp. interpole motors of the very latest design and is equipped with H.B. life-guards. The complete weight of each car is a little over eight tons. It is the plan of officials of the company to operate twenty-five of the new cars on one line, and with the remainder to operate two crosstown lines.

Northern Ohio Traction & Light Company, Akron, Ohio, mentioned in the Aug. 14 issue of the *ELECTRIC RAILWAY JOURNAL* as having just received authority from the Public Utilities Commission to purchase fifty-six city cars, among other equipment, has specified the following details on thirty-one of these cars:

Number of cars ordered.....	31
Date of order.....	Feb. 11, 1920
Delivery.....	August
Builder.....	G. C. Kuhlman Car Company
Type.....	"Peter Witt" Steel
Seating capacity.....	54
Weight, total.....	42,880 lb.
Bolster centers, length.....	25 ft. 6 in.
Length over all.....	50 ft. 1 1/2 in.
Truck wheelbase.....	0 ft. 5 3/4 in.
Width over all.....	8 ft. 4 in.
Height.....	11 ft. 1 1/2 in.
Body.....	Steel
Interior trim.....	Cherry
Headlining.....	Agasote-Buffer
Roof.....	Arch
Air brakes.....	G. E.
Axles.....	Penna. R.R., Ltd.
Bumpers.....	Hedley Anti-Climber
Signal System.....	Faraday
Control.....	Westinghouse HLM Modified
Couplers.....	Ohio Brass
Curtain fixtures.....	Curtain Supply Company
Curtain material.....	Pantasote
Designation signs.....	Hunter
Door operating mechanism.....	National Pneumatic Company
Fare boxes.....	Cleveland Fare Box Company
Fenders or wheelguards.....	N. O. T. & L. Co., Ltd.
Hand brakes.....	American Brake Company
Heaters.....	Peter Smith Heater Company
Headlights.....	Crouse-Hinds Company, Type W
Lightning arresters.....	Westinghouse
Motors.....	Westinghouse 532-A
Sanders.....	Nichols Lintern Company
Seats.....	Brill
Seating material.....	Rattan
Trolley catchers or retrievers.....	Trolley Supply Company
Trolley wheels.....	More-Jones Brass & Metal Company
Trucks.....	Brill 68-E
Ventilators.....	Nichols-Lintern Company
Wheels, Forged Steel Wheel Company, 26 in.	

The remaining twenty-five city cars were ordered from the same company on Feb. 16, 1920, and specified the same equipment as above except that in this case the control is Westinghouse K-35-G-2, and the trucks Brill 51-E.

Track and Roadway

San Diego (Cal.) Electric Railway.—The San Diego Electric Railway is planning to use heavier rail and to reconstruct its lines on Sixteenth Street, Logan Avenue and National Avenue.

Carolina Power & Light Company, Raleigh, N. C.—The Carolina Power & Light Company is preparing to extend the double-tracking of its line on Hillsboro Street, Raleigh, from the place where the single-tracking begins near Park Avenue to the College Court Pharmacy in West Raleigh. This improvement will cost approximately \$10,000.

Hamilton (Ont.) Street Railway.—The City Council has approved the report of the street railway committee providing for an extension on King Street West, from Margaret Street to Paradise Road. The proposal of the company to construct this line was referred to in the *ELECTRIC RAILWAY JOURNAL* of Aug. 7.

Ottawa (Ont.) Electric Railway.—The acquisition of the Ottawa Electric Railway was discussed at a private meeting of the board of control of the city. The matter is due for discussion at the next meeting of the City Council.

Sarnia (Ont.) Street Railway.—Citizens of Sarnia are anxious to obtain a better railway service along the river front, and local men are endeavoring to get support for a radial proposition here. A suggestion that the line be extended to Corunna has received much support.

Montreal, Que.—F. W. Cowie, chief engineer of the port of Montreal, has stated that the electrification of the Montreal harbor railway terminals is now well in hand and about 42 miles of track will be in operation next spring. The remaining 16 miles will be electrified later.

Rhode Island Company, Providence, R. I.—It is possible that the Rhode Island Company within the next few months may discontinue the line from Crescent Park to Bristol. This line has been operated at a loss for some time according to the general manager.

Cincinnati, Ohio.—An additional strip of the canal, approximately 1 1/2 miles long, is sought by the Rapid Transit Commission for the subway system now in process of construction. A resolution will be introduced in Council providing for the leasing of the section from the state. The strip sought extends from a point 300 ft. west of Mitchel Avenue to a point 1,000 ft. beyond the crossing of the canal at the intersection of the B. &

O. Railroad in St. Bernard. Governor Cox will be requested to appoint a commission to place a value upon the strip as a basis for the lease.

Interurban Railway & Terminal Company, Cincinnati, Ohio.—City Solicitor Saul Zielonka has requested an opinion from Street Railway Director William C. Culkins as to the legal right of the Interurban Railway & Terminal Company to remove a track extending to California, Ohio, along Kellogg Avenue, a distance of approximately 300 ft. The company asserts the track is no longer required for the operation of its cars since only a single track is used. In a letter to the City Solicitor, Attorney Eli G. Frankenstein states the action of the company is prompted by a desire to prevent the extension of the East End line to California, an initiative ordinance which is to be submitted to the voters at the November election.

Dallas (Tex.) Railway.—The City of Dallas has asked the Dallas Railway to rebuild its tracks on South Lamar Street, in connection with the opening up, widening and paving of this street so as to provide a cross-town thoroughfare for that part of the city. Rebuilding of the tracks on this street will be one of the largest improvement projects of the railway now in prospect.

Houston, Bay Shore & Texas City Traction Company, Houston, Tex.—The Houston, Bay Shore & Texas City Traction Company, a recent incorporation, is making headway toward the construction of its interurban line.

Fort William (Ont.) Electric Railway.—A by-law authorizing raising of \$12,150 for the extension of the Fort William Electric Railway to the site of the new pulp mill, which is under erection in Fort William, will be submitted to ratepayers on Oct. 13.

Canadian National Railways, Montreal, Que.—The Hydro-Electric radial policy of taking over branch lines of the Canadian National Railways, electrifying them and using them as feeders for the national lines, has been approved by the City Council.

Seattle (Wash.) Municipal Railway.—Work of laying tracks on Washington Street from Second Avenue west to the approach of the elevated railroad at First Avenue and Washington Street has been ordered by the Municipal Street Railway Department. When these tracks are in, it will permit of Second Avenue cars reaching the elevated direct without detouring.

Walla Walla Valley Railway, Walla Walla, Wash.—The Walla Walla Valley Railway is considering the extension of its interurban line from the State line to Umapine. The proposed extension is six miles in length and if built will tap a big alfalfa and fruit belt which now has no railroad facilities. It is said that the company is now tearing up rails in Walla Walla on several abandoned lines and will have steel sufficient for the proposed new work. It is expected definite action will be taken shortly by company officials.

Power Houses, Shops and Buildings

Eastern Massachusetts Street Railway, Boston, Mass.—The Eastern Massachusetts Street Railway plans to convert the carhouse at Washington Avenue, Chelsea, into a repair shop.

Connecticut Company, New Haven, Conn.—A permit has been granted by the city of Rockville to the Connecticut Company to build a waiting station at Spring Street, Rockville. This convenience was requested about a year ago, but the construction work was held up because it encroached on railroad property and extended into the street several feet.

Trade Notes

The Chicago (Ill.) Surface Lines has purchased ten Johnson registering fare boxes for installation on the ten safety cars, purchase of which was recently announced in Electric Railway Journal.

The General Electric Company, Schenectady, N. Y., has acquired the five-story, 60 ft. x 242-ft. factory of the Randal-Faichney Company at 76 Atherton Street, Roxbury, Boston, together with a large power plant.

A. C. Streamer, manager of the switchboard section of the supply department, Westinghouse Electric & Manufacturing Company, has been appointed industrial assistant to the manager of the supply department of that company, with headquarters at East Pittsburgh, Pa.

The M. H. Detrick Company has opened an Eastern branch at 30 Church Street, New York. The company makes suspended arches and steam-set ash conveyors. The office will be under the direction of R. D. Foltz, Eastern sales manager. H. S. Sleicher will handle sales in New York as before.

Charles Piez, president of the Link-Belt Company, 910 S. Michigan Avenue, Chicago, Ill., and former director-general of the Emergency Fleet Corporation, has written a report on the steel strike. Copies of the article can be secured by applying to the executive offices of the company.

Ackley Brake & Supply Corporation, 50 Church Street, New York, N. Y., has appointed A. W. Arlin, who is located at 772 Pacific Electric Building, Los Angeles, Cal., as its Pacific Coast representative. Mr. Arlin's experience in the railway field dates back twenty years to his connection with the General Electric Company, with which he has been connected at the Salt Lake City and Denver offices.

R. A. Bull of Pittsburgh has been appointed consulting metallurgist for a number of prominent steel foundries grouped for the purpose of developing and perfecting higher standards in the production of steel castings, it is an-

nounced. Mr. Bull will devote his entire time to preliminary research work and has resigned his position as vice-president of the Duquesne Steel Foundry Company. The members of the group include Electric Steel Company, Chicago; Fort Pitt Steel Castings Company, McKeesport, Pa.; Isaac G. Johnson Company, Spuyten Duyvil, N. Y.; Lebanon Steel Foundry Company, Lebanon, Pa.; Michigan Steel Castings Company, Detroit, Mich., and Sivyor Steel Castings Company, Milwaukee, Wis. Mr. Bull is a member of numerous technical associations and since 1911 has been a director of the American Foundrymen's Association. During 1916 and 1917 he served two terms as its president. His connection with the foundry industry covers a period of more than twenty years.

Whiting Foundry Equipment Company, Harvey, Ill., specializing in electric traveling cranes and complete foundry plants, announces its consolidation with the American Foundry Equipment Company of New York City. The new organization will be known as the Whiting Corporation and will be capitalized at \$5,000,000. J. H. Whiting, president of the Whiting Foundry Equipment Company, becomes chairman of the board, and V. E. Minich, president of the American Foundry Equipment Company (Sand-Mixing Machine Company) and of the Foundry Equipment Manufacturers' Association, will be president. As the lines of manufacture do not overlap it is the intention to maintain all present manufacturing facilities. The plans include maintaining and enlarging the present offices of the American Foundry Equipment Company, 366 Madison Avenue, New York, N. Y., as the eastern sales and export office of the combined companies. Important economies in manufacture and distribution are expected to result.

New Advertising Literature

Carbon Electrodes.—National Carbon Company, Inc., New York, N. Y., is distributing an eighteen-page booklet on "The Carbon Electrode." Copies may be obtained upon request.

Wire.—Habirshaw Electric Cable Company, Yonkers, N. Y., has issued a new 172-page, flexible-cover illustrated handbook, entitled "Habirshaw Manual of Wires and Cables."

Trolley Equipment.—"Nuttall Products for Electric Railway Service" is the title of illustrated bulletin No. 28, issued by R. D. Nuttall Company, Pittsburgh, Pa., describing its gears, trolley bases, poles, wheels, harps and sleet wheels and scrapers.

Electric Hoists.—Link-Belt Company, 910 South Michigan Avenue, Chicago, Ill., is distributing the ninety-six page revised edition of catalog No. 38, covering the Link-Belt line of standardized monorail electric hoists and overhead electric traveling cranes in capacities of one-half to three tons.