

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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All Franchise Clauses Should Be Clearly Expressed

THE controversy now going on in Toronto over the interpretation of a clause in the franchise of the street railway company again calls attention to the necessity for careful drafting of such grants so that all their terms may be clear not only at the time of origin but at any date in the future. The Toronto franchise expires on Sept. 1 of this year, at which time the city hopes to exercise its privilege of taking over the property. Thirty years ago when the grant was accepted both parties to the deal probably understood all the provisions. As the time for agreeing on a purchase price draws near there is a division of opinion over the intent of several clauses bearing on valuation.

One of the clauses says that in determining a value the arbitrators are to consider only the value of the actual and tangible property necessary to the operation of the railways; also, that the arbitrators are to award only the value at the time of the arbitration, "having regard to the requirements of a railway of the best kind and system then in operation and applicable to the said city."

It is interesting to note that while this franchise was drafted some thirty years ago, both parties to the agreement then recognized the principle that payment should be made only for "property used and useful in the public service." Since that time many of the public utility laws in the United States have embodied the same principle, and thus in determining a valuation of a public service property some of the old contentions have been eliminated. The Toronto grant would appear clearly to exclude any claim for capitalization of franchise, good will or earning power.

Woolworthing the Car Ride in Beaver Valley

BY "WOOLWORTHING" the car ride, nothing more nor less is meant than the application of the practices made so successful by the late Frank W. Woolworth to electric railway merchandising by the sale to customers of articles in such sizes or quantities that they can be sold for a small and single coin. Such an example of Woolworthing is given by the experience of the Beaver Valley Traction Company, described in this issue under the heading "Adjusting the Fare to Length of Ride." To discuss the pros and cons is unnecessary, inasmuch as the article speaks for itself, but an outline of the situation that had to be faced may be helpful.

The Beaver Valley Traction Company, as its name implies, is a river valley railway. It is one of those long, shoestring roads serving a mixture of small towns and sparsely peopled country that is much more common in the United States than in countries which have been less liberal with electric railway promotion and building. In pre-war days it was a multiple-fare railway made up of 5-cent sections, but with a 4½-cent

fare for the buyer of ticket books. First, the fares were brought closer to 5 cents flat. Later, the company "followed the crowd" by seeking increased revenue through a higher unit fare per section, this fare being successively 6 cents and 7 cents. These successive changes brought the company up squarely against the facts that its traffic was falling off and that it was not getting all the revenue hoped for and needed. From the railway checks of the traffic that it had (the passenger on the car) and of the traffic that it wanted (the rider in the automobile and pedestrian on the sidewalk), it turned out that more than half the actual and possible business was short haul. As a consequence, the management came to the conclusion that a shortening of the zones, the restoration of the 5-cent unit rate, the elimination of transfers on one route and the modification of transfers on another offered better prospects. Upon this change it superimposed a second one welcome to the short rider, namely, a shortening of headway from twenty to ten minutes on at least one line to date. The results have been all that could be expected, for the increase in traffic in the urban parts of the system has been great enough to produce more dollars than the longer ride at the higher fare.

The Problem of the Abandoned Line

THE report of the Massachusetts Department of Public Utilities on the subject of the support of electric railway lines in that State, reviewed elsewhere in this issue, is of interest outside as well as within Massachusetts as the report naturally includes a consideration of the question of abandoned lines. According to the report of the Massachusetts commission, in that state alone 371 miles of track have been abandoned up to the present time.

This condition existing in a state which has, from the earliest days of the industry, consistently applied strict regulation of all financing and operation shows clearly that there is something more than overcapitalization or mismanagement involved in the instance of these abandoned and poorly paying lines, in spite of the apparently unceasing clamor of political demagogues and would-be economists, whose chief stock in trade seems to be destructive rather than constructive criticism.

Although the Massachusetts report does not attempt any blanket recommendation for the resumption of service on all abandoned lines, it is at least constructive and reasonably optimistic. It clearly recognizes the economic fact that if a community is to have street car service somebody must meet the entire actual cost of that service, and it recommends that the individual community directly concerned devise the best means of meeting that cost, rather than resorting to state ownership or subsidy. At least it believes this plan should have a fair trial before any more extensive experiment be made in the direction of the State's assumption of

the obligation. The probability of reduced wage scales and lower prices generally was apparently in the minds of the commissioners when they referred to possible future far-reaching economic changes which are likely to bring relief. The recommendation that the street railways be freed from all charges for construction and repair of streets and bridges and from the taxes intended to be in commutation of such charges would seem to be in line with sound public policy, and capable of relieving at least a part of the present strain.

The Massachusetts Department of Public Utilities has done wisely in refraining from attempting to specify particular lines which should be re-established and others which should not be. Presumably the people in the communities which have lost the service are best able to decide just how much they need the street railway after having done without it for a while or having tried some substitute methods of transportation. And if the legislation proposed by the department is acted upon by the Massachusetts Legislature, the people of that State will have at hand a means of preventing the discontinuance of any line, or the restoration of service on any line, by the simple but essential expedient of providing the necessary funds to keep it going.

Governor Miller Carries Through His Traction Reform

GOVERNOR MILLER of New York has had his way. One of his early official acts after taking office on Jan. 1 was to indicate to the legislators the need for constructive action looking particularly toward relief from the intolerable conditions into which war-time costs and the unbending attitude of the Hylan administration had thrown the railways in the greater city. Gradually as the purposes behind the Governor's special message became plain the opposition among the legislators dwindled until the only voices that remained to protest were those of the Democratic minority and the Socialists. Political strategy apparently dictated the course pursued by the Democrats. The Socialists of course, as ever, were the irreconcilables.

The bill that has become law is broad and sweeping in its powers, but no less so than would seem to be necessary if the regulatory bodies which it creates are to be permitted to function properly. On account of the investment of the city of New York in the present subways the cry has been raised by the opposition that the new measure is unconstitutional because it makes incumbent upon the city the acceptance of such proposals as may be evolved by the Transit Commission for New York City in laying down a plan for settlement there.

The bill does not provide a settlement; it merely creates a means whereby a settlement can be brought about. Until the commission has functioned and brought forth its plan it would seem that the opposition to the measure is merely tilting at windmills. The commission under its wide powers will have certain strong cards to play in the interest of the city, and it is not beyond the bounds of probability that the new body may evolve a plan of settlement under which the city will benefit no less materially than the companies.

Those who have assumed that the commission has been created by, for and in the interest of the corporations which it will regulate cast doubt on the motives of the Governor, indirectly charge with subservience all the legislators who voted for the measure and ignore

all the evidence in the case. In arrogating to itself the sole right of defender of the city in the traction matter the Hylan administration assumes a rôle not altogether in keeping with its past performances. Many champions there are with no axes to grind who can be counted upon to come to the aid of the city if necessary, but they are content to remain impassive until the need shall become unmistakably evident that they should intervene.

The personnel of the commission is extremely important, probably more so than some of the law's provisions. Its announcement by the Governor is awaited with interest.

Should There Be an Exhibit This Year?

IT IS the time now when the association must decide whether it will hold an exhibit this year, and a questionnaire has been sent to manufacturer members asking their views on the subject. The circular is being sent at the request of a committee of manufacturers to whom President Gadsden has referred the matter. The position of the railways in this question is understood to be that if the manufacturers desire to make an exhibit they will be pleased to have one, but they consider the matter should be determined primarily by the manufacturing companies themselves. The latter have wisely decided to obtain a consensus of opinion, and the questions asked are whether the manufacturer members are in favor of holding an exhibit at Atlantic City this year, if the company will exhibit if such an exhibition is held, and if so how much space it will require. The letter mentions as reasons why the association might dispense with an exhibit this year the depression in business conditions and the fact that the proposition presented by the representatives of the pier at Atlantic City is considered unsatisfactory.

Considerable can be said both in favor of and against the plan of holding an exhibit. In favor of the plan, the principal arguments are probably as follows. An exhibit undoubtedly would attract a larger number of delegates to the convention than if there was no exhibit. This is especially true with reference to equipment men and others who do not travel around over the country so much as the higher officers and executives. To some manufacturers, particularly those making bulky exhibits, the annual exhibition is the most economical way by which this new equipment can be shown to a large number of railway men. With the exhibits and meetings on the pier, an unequalled opportunity is afforded to the attendants at the convention to make and renew acquaintances and discuss matters relating to the industry.

Among the positive arguments against the exhibit the most important undoubtedly is the large cost of transporting the exhibits to Atlantic City and renting the space there, and while the electric railway business may be in better condition than for some years past, the present business depression affects all manufacturers engaged in general business, and this includes of course most manufacturers of electric railway apparatus. There are, of course, precedents for the omission of the exhibit, as in 1915 on account of the exhibition at the San Francisco Fair, and in 1917 and 1918 on account of the war. In this connection it is argued by some that annual exhibits were justified in the early days of the industry when the exhibits were smaller and equipment was

changing rapidly, but that an exhibit now every other year would probably answer all practical purposes. Again, with the exhibit omitted, some more central location than Atlantic City could be selected for the convention—some place, for instance, where the delegates can find much to interest them on the local railway. This would to some extent take the place of an exhibition and would actually allow the inspection of electric railway apparatus under working conditions. In such a case, manufacturer members could well assist in making the gathering a success by offering their services as guides over the property. With such a plan it is argued that the railway men would get more real information for every dollar of expense than they would if the meeting was held at Atlantic City. This plan of visiting a different city was the one followed by the association before the exhibits became so extensive that they could be housed only in a place with such facilities as are at Atlantic City. A return to the earlier policy, it is urged, even for one year, would be welcome, as it would give delegates an opportunity to study railway practice in some city of whose railway system and methods they have often heard but never had an opportunity to study at first hand.

Some of the arguments in favor of each plan have been recited so that the members can weigh them carefully before sending in their vote, if they have not already done so. In this connection the poll of the members of the Railway Business Association in regard to exhibits at the June convention in Atlantic City and the March convention in Chicago of the steam railroads is of interest. The decision of the Railway Supply Manufacturers Association to omit in 1921 its exhibit at Atlantic City was reached while the replies in this inquiry were being compiled. Of 146 Railway Business Association members expressing their sentiment by referendum, 43.2 per cent prefer holding the Million Dollar Pier and Chicago Coliseum exhibitions annually and 56.8 per cent favor holding them less often than once a year. Favoring biennial displays were 27.4 per cent; favoring triennial, 19.2 per cent. Other suggestions made up the difference. It is of interest to note also that the National Electric Light Association will not hold the usual exhibit in connection with its annual convention this year.

There is of course no question of giving up the technical meetings of the convention. The convention ought by all means to be held this year in some city, either Atlantic City or elsewhere, and there ought to be a large attendance for the discussion of the reports and papers. Even if there is no exhibition this year attendance should include as full a representation as in the past from the manufacturer companies, not only so they can tell the railway men all of their own developments during the past year but so that they can get ideas from the latter on ways to improve their equipment. Further, they can sense the thought and needs of the industry

and be in a better position to assist in future developments. Finally, the reasons for the abandonment of the June steam railroad exhibit do not hold because, broadly speaking, the electric railways are undoubtedly in better financial condition than the steam railroads, as they have passed the depth of their depression.

The Trend in Wages Is Downward

TRAINMEN'S wages bulk large in the total of operating costs. An increase of a cent or two an hour in them often may mean the difference between black and red in the income figures just as a decrease in them of a cent or two may mean the difference between red and black. It is these facts that are now driving electric railways all over the country to insist that wages shall come down as part of the necessary readjustment in evidence everywhere to bring industrial conditions back more nearly to normal.

In Albany a strike followed the pruning of wages. Other strikes for the same cause would appear to be pending. In the light of the facts, however, the resort to the strike must prove, as it has in Albany, disastrous to the men who engage that means of trying to stem the inevitable tide of downward prices everywhere. The company at Albany has had very little trouble in recruiting an entirely new force at the reduced wages offered to its old men, while companies elsewhere are reported to have closed their waiting lists, so great has become the number of applicants seeking jobs.

Most significant of all, however, is the case of the Eastern Massachusetts Street Railway. While the men on the lines of that road still in operation are talking in stentorian tones through their accredited spokesman about resisting to the very limit a proposed reduction in wages, the men on the Gloucester lines of the company, many of whom have been out of work ever since the road there shut down on June 1, 1920, are seeking their old jobs at the new scale proposed to be made to apply to the whole system. Men who are still employed may be inclined to dispute the index figures which indicate the trend of the cost of living, but men such as those at Gloucester, who are out of a job, are the real judges of what their labor will command in the open market.

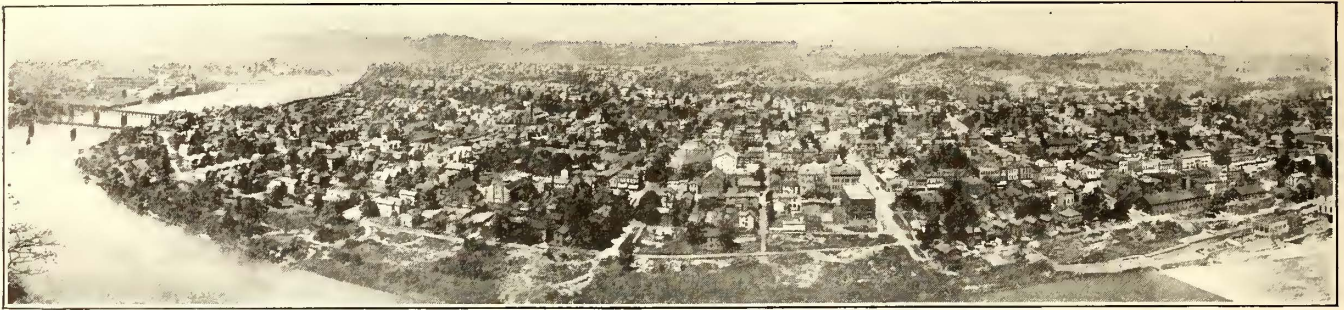
Labor, skilled and unskilled, may not be a commodity, but it is worth only what it will command in the open market. Even with increasing intelligence everywhere it is still difficult to obtain acceptance of the fact that wages are to a very large extent self-adjusting. That this is so is indicated by the instances at Albany and in Eastern Massachusetts which have just been cited. If the employer had as much to do with fixing labor prices as labor is inclined to think, then the unscrupulous employer would indeed be in a position to wield an influence most detrimental to society.

Quotation from the Federal Electric Railways Commission Report

No. 15

WE WOULD particularly urge public officials and officers of the electric railways to cooperate seriously in the protection and preservation of all corporate, financial and cost records.

Service-at-cost plans have been recently rejected by popular vote, largely on the issue of valuation, in Chicago, Denver and Minneapolis. The public, justly or unjustly, has become so suspicious of the electric railway companies that it may be expected to reject any service-at-cost or public ownership question submitted to popular vote, no matter how fairly the plan may be formulated, if it is not thoroughly convinced that the capital item has been fairly and honestly arrived at. The failure of a company to preserve its record may in the end hurt its stockholders more than it may the public.



PANORAMIC VIEW OF NEW BRIGHTON, THE HEADQUARTERS OF THE BEAVER VALLEY TRACTION COMPANY

Adjusting Fare to Length of Ride

Five-Cent Fares for Short Rides Retained by Beaver Valley Traction Company, High Zone Fares Having Been Found to Decrease the Utility of the Electric Railway—Short Zones Are Established After Traffic Surveys—Incidentally Revenues Have Increased as Railway Keeps Functioning

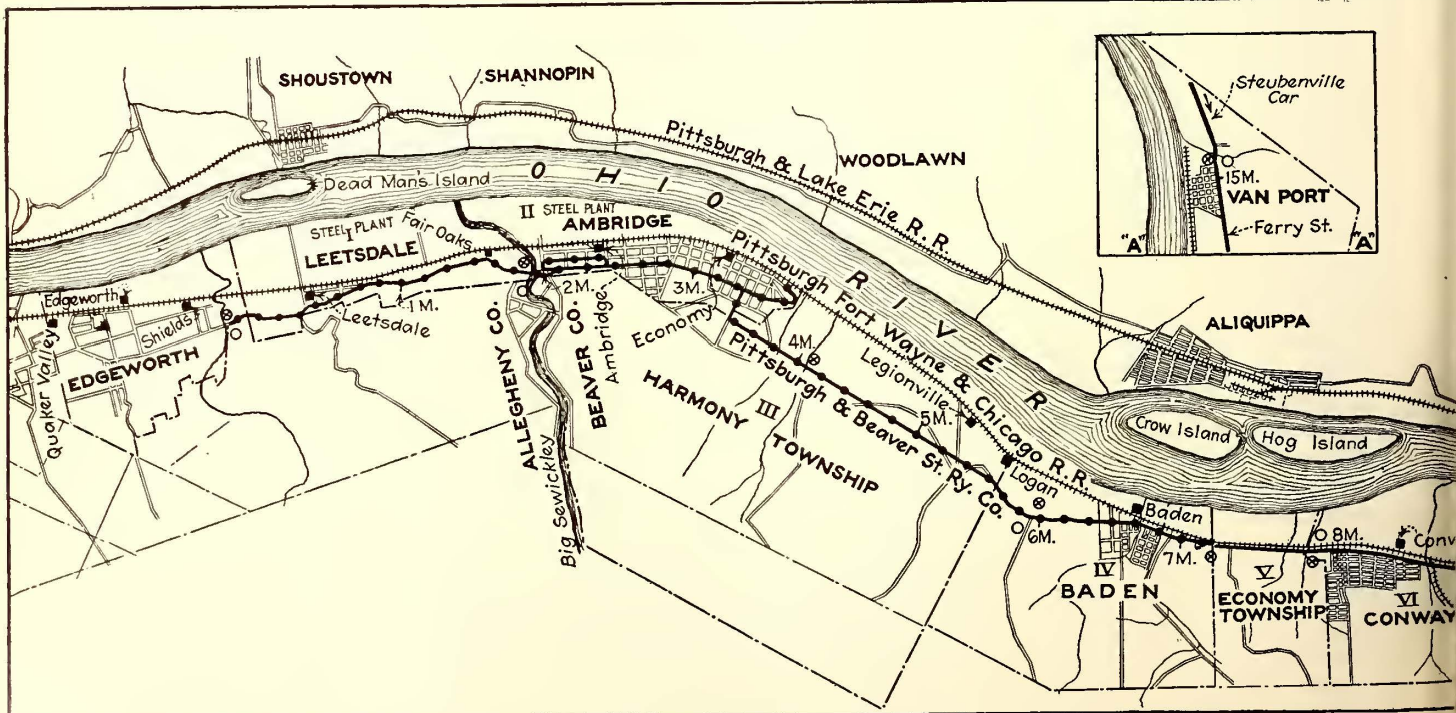
THE contradictory deductions made from data on fare increases in relation to changes in traffic have proved the necessity for studying each property and even the individual lines of each property separately in order to equate the value of the different factors that make up the total result. A study of this kind has been made available by W. H. Boyce, general manager of the Beaver Valley Traction Company, who is a decided believer in studying and meeting the needs of transportation patrons from the merchandising standpoint.

A COUNTRY SHOESTRING SYSTEM

The Beaver Valley Traction Company and its associated Pittsburgh & Beaver Street Railway are not favored by a heavy tributary population. There are 26 miles of route and 51 miles of track for a population of about 66,000. The trunk line, as shown on the

accompanying map, strings along for 19 miles through the Beaver and Ohio valleys between the boroughs of Leetsdale and College Hill, with branch-offs to Beaver and Monaca (2.69 miles and 1.5 miles respectively) and a 2.59-mile crosstown line known as the Riverview Line between New Brighton and Beaver Falls. Expansion of the towns is almost everywhere limited by rivers and hills. Even the largest towns are but twelve squares or blocks in width while the smaller communities are only four to seven squares wide. The back country is merely very poor farming land with little tributary population. The travel characteristics on such a system are naturally dependent to a large degree upon the location of the manufactories and picture houses in the district.

Except for Beaver and Baden, the district along the railway is industrial, with steel and iron production predominating and glass, brick and other clay industries also a factor. Quite a large number of the



LAYOUT OF THE BEAVER VALLEY TRACTION COMPANY AND

middle-class citizenry work in Pittsburgh and commute via the Pennsylvania and Pittsburgh & Lake Erie Railroads, whose routes are also shown on the map. As the Pennsylvania runs fifty-seven trains and the Pittsburgh & Lake Erie fifty-six trains daily, it may be guessed that the electric lines do not get much through business. Then, too, the steam rates to commuters are only \$11.90 per month for a sixty-trip ticket covering a one-way 28-mile ride. With an average of but fifty-two trips a month, this is 1,456 miles for \$11.90 or 0.82 cents per mile, a rate out of the question for single-car electric operation in this kind of territory.

Besides this practical monopoly of long-haul business by the steam railways, the electric railways have to contend with the insidious and ubiquitous private automobile which cuts into both short-haul and long-haul opportunities indifferently. Indeed, as most of the system is along the Lincoln Highway, the electric railways have the doubtful pleasure of paying for the upkeep of paving used both by the stranger and by the local man who is letting the car rider pay for his pleasure! As a rule the thoroughfares in this territory are wide and most of them are paved. The electric railways must not only maintain the usual strip of paving but in some cases are expected to pave the whole street as well.

The topographical conditions mentioned naturally tend to make most of the communities, small though they are, self-contained. Each town has its own grocers, meat shops, clothiers, churches, etc. The proximity of Pittsburgh and the diffusion of the valley population are factors which tend to keep theatrical road shows out of the Beaver Valley. Strong rivalry between the excellent picture houses in Beaver Falls and Rochester is one of the few causes of intertown travel.

Between College Hill and Vanport—9.5 miles; between Ambridge and Leetsdale; and throughout Rochester and Monaca the company is giving a ten-minute car service; on the Riverview division between Beaver Falls and New Brighton fifteen-minute service and on the remainder of the system a twenty-minute service. With the

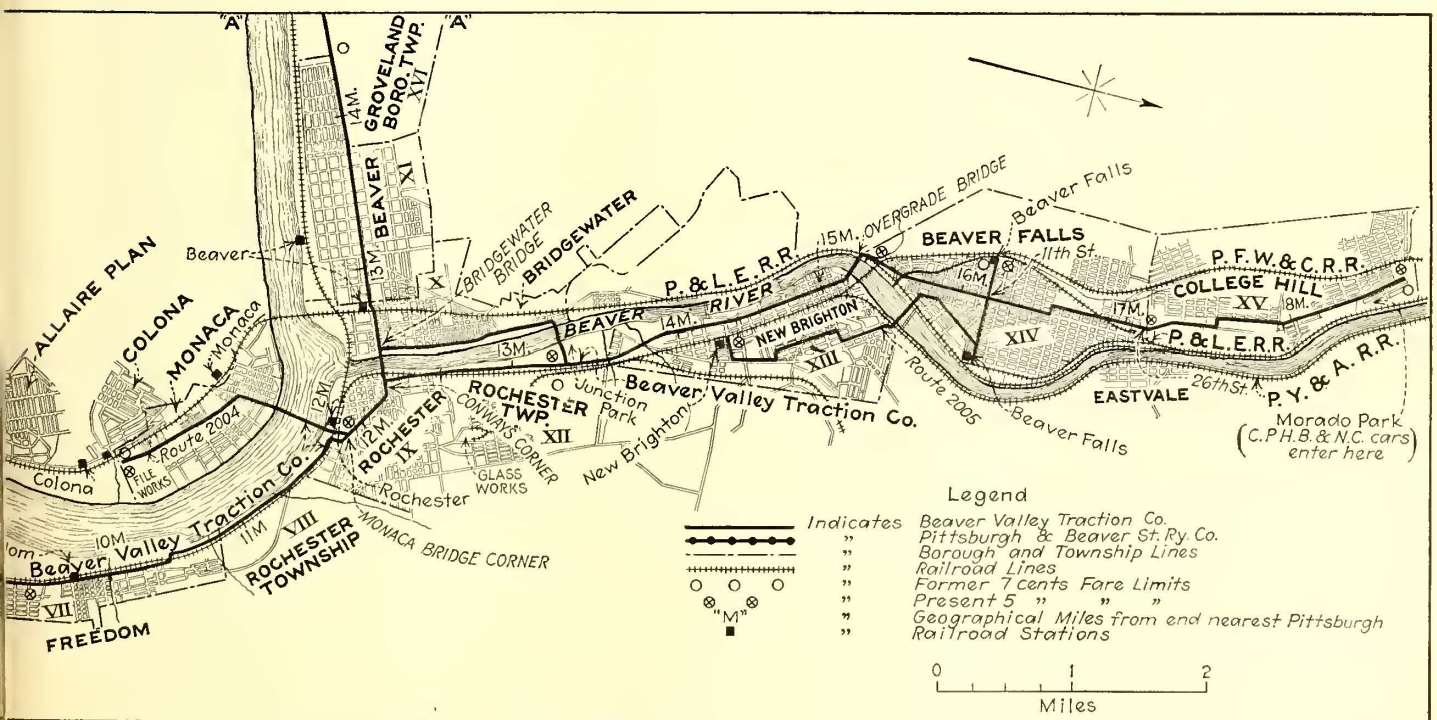
arrival of more safety cars this headway will be shortened so as to give from 50 to 100 per cent more service.

A real millstone around the neck of the management is the Pittsburgh & Beaver Street Railway, from Leetsdale to Baden, an 8.5-mile double-track route, built fourteen years ago as a link between the Beaver Valley Traction Company and Pittsburgh. Even today the total population served is within 15,000—yet at the time of construction there were only 4,000 people to cater to! A remaining gap of 1.75 miles still prevents the long-planned connection with Pittsburgh.

PASSENGER-QUIZ SURVEY PRECEDED FARE CHANGE

As the 7-cent base fare for zones up to 6 miles was not producing the revenue, Mr. Boyce determined to make a survey with the thought in mind of securing more revenue through the introduction of a lower fare for a reduced distance. During October, 1919, following notices in the local papers, traffic checkers boarded the cars to hand "on and off" slips to the passengers. The public was fully informed as to the object of this survey and co-operated in the most satisfying way. (See ELECTRIC RAILWAY JOURNAL, Nov. 8, 1919.) Checks were also made of pedestrian traffic to secure a basis for figuring on the transformation of walkers into riders.

The net result was the working out of a plan whereby the 5-cent fare was restored, but the zones were cut down to an average of 2 miles. Reference to the map will show that the fare points are not laid out to coincide with geographical miles but in accordance with the natural traffic gathering points. This change, of course, was sufficient to restore the 5-cent fare for most of the intra-community riding, and in some cases even the long rider through the thinnest territory had little more to pay. On the other hand, certain transfer privileges were withdrawn, some 7-cent zones became two or three 5-cent zones, etc. Of course, the people who had to pay more were somewhat vocal about it, but after all it was evident that the majority had no complaints





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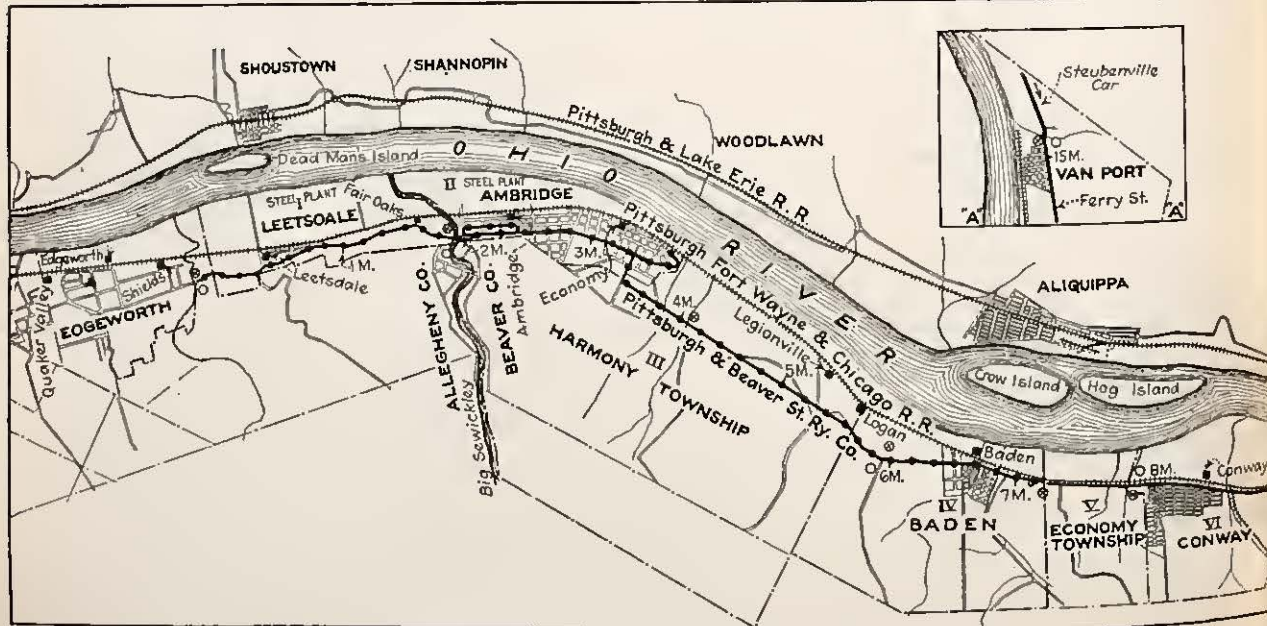
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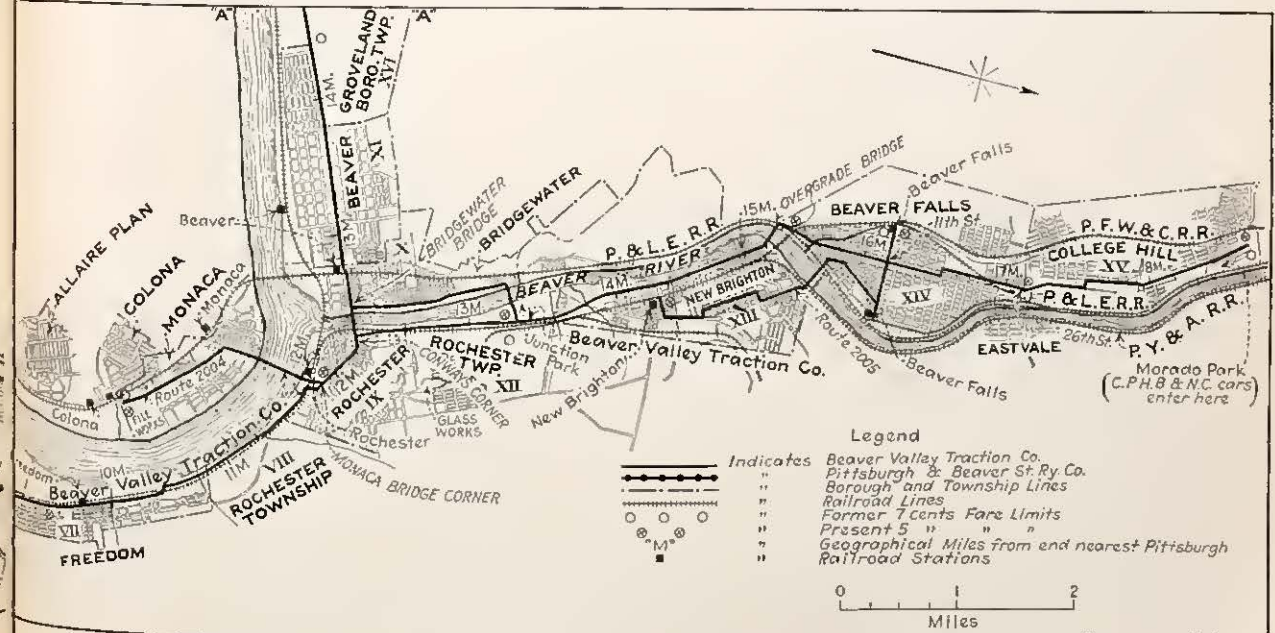
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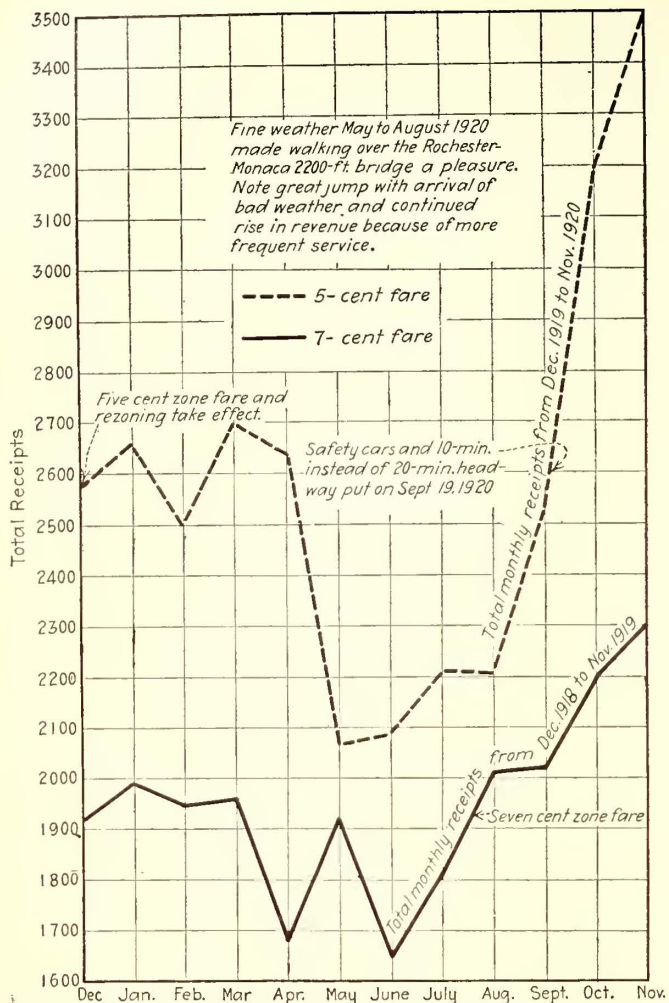
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THE PITTSBURGH & BEAVER STREET RAILWAY SYSTEMS



ROUTE 2004, SERVING MONACA. RESULT OF REPLACING 7-CENT FARE WITH TRANSFER BY 5-CENT FARE WITHOUT TRANSFER. LENGTH OF ROUTE 1.5 MILES

to make and that there was every reason why the short rider should be pleased. This schedule became effective Dec. 1, 1919. The increase in revenue was figured to be 19 per cent with no cut in patronage.

THE TELEPHONE PROVES A COMPETITOR

Now here is where the rivalry of the telephone comes in. It appears that when the increase in fare was made, those who were most unfavorably affected by it found that they could do a lot more shopping and visiting by telephone. Inquiry by the company showed that for the first three months of the fare increase (December, 1919, January and February, 1920) the telephone load throughout the district had increased about 35 per cent. On the other hand, the telephone load for March, 1920, showed a decrease of 10 per cent compared with the preceding three months' period. In short, as one class of business went up the other went down. The advent of winter probably was also a factor; but the opposing fluctuations do indicate some rivalry between the two methods of communication.

An analysis of the accompanying charts showing both monthly and twelve-month figures for the combined property indicates that the service rendered varied but little during the past five years, notwithstanding that the various fare increases did for a time create a considerable traffic loss until merchandising methods were established to sell the wares of the company in quantities that were acceptable to the public.

When this became a fact on Dec. 1, 1919, and fares were based on 5 cents per 2-mile zone business took a boom and more passengers rode than ever before. This is especially shown by the route diagrams hereafter mentioned. Then, with the careful study of developing the riding habit on certain routes and giving better service on a more frequent headway with new and up-to-date cars, the results longed for in the past with high zone fares actually became a realization.

The result of the various fare changes for the past five years is given in Table I. From this table it will be noted that in 1920 there were fifteen zones as against seven when the previous 5-cent-zone fares were in

TABLE I—STATISTICS AS TO VARIOUS FARE SCHEDULES

	8 Mos. Ended Aug. 31, 1916 5c. Cash 100/4.50 Full Fare Ticket 1/2 Fare Labor Ticket, 1/2 Fare School Ticket	Sept. 1, 1916, to Jan. 26, 1918, 5c. Cash, 21/100 Full Fare Ticket	Jan. 26, 1918, to Sept. 5, 1918, 6c. Cash	Sept. 5, 1918, to Dec. 1, 1919 7c. Cash	Dec. 1, 1919, to Dec. 31, 1920, 5c. Cash	Per Cent Increase 1920 over 1916 Plan
Rates of Fare per Zone						
Number of fare zones.....	7	7	7	7	15	.....
Avg. length of zones, miles...	3-6	3-6	3-6	3-6	2.0	.....
Car-mile statistics:						
Passenger revenue, cents.....	27.1	30.1	31.4	37.3	44.6	+64.6
Revenue zone passengers...	5.6	6.11	5.49	5.40	8.95	+59.8
Free and transfer zone pas- sengers.....	1.09	1.11	1.03	1.025	0.74	-32.1
Total zone passengers.....	6.69	7.22	6.52	6.425	9.69	+44.8
Average fare per rev. zone passenger, cents.....	4.85	4.925	5.75	6.94	4.98	+ 2.68
Average fare per total zone passenger carried, cents.	4.06	4.16	4.85	5.83	4.60	+13.30

effect. An increase of 59.8 per cent in revenue zone passengers at the expense of a 32.1 per cent decrease in free and transfer passengers indicates that the lower base fare picked up many a short-haul passenger. This perhaps is better shown by the fact that in 1916 the average fare per zone passenger carried was but 4.06 cents, while in 1920 it was 4.60 cents, a gain of 13.3 per cent. The elimination of reduced-rate tickets also had something to do with bringing about this increase. Taking the gain of 2.68 per cent in the average fare per revenue zone passenger from the 13.3 per cent would leave a gain of more than 10 per cent that could be attributed to additional business that brought a gain of 64.6 per cent in the car-mile passenger revenue.

NOTES ON TRAFFIC SURVEY THAT LED TO FIVE-CENT ZONES

As a start, the system was divided into thirty-two sections. These divisions were not made arbitrarily upon a mileage basis as their length varied from 0.25 to 2 miles, but with consideration to the actual and possible traffic movement within the most natural boundaries. Then the actual "on and off" traffic in each section was plotted as of Oct. 2, 1919. To these sections there were next applied ten different fare schedules, ranging from 3-cent zones averaging 1.5 miles each to 10-cent zones averaging 3 miles each. A summary of eight of these schemes and what could be expected from each if there was no drop in traffic follows:

Plan 1. Ten-cent zone fare with no transfers, with passenger receiving two zone checks, whereby the actual rate was three zones for 10 cents or 3 1/2 cents per zone. This plan would have decreased the revenue by approximately 4 per cent.

Plan 2. Same fare zones as Plan 1 but with 6 cents for first zone and 2 cents for each additional zone. Expected increase in revenue, 2.86 per cent.

Plan 3. Then existing fare zones, averaging 3 to 6 miles. Straight 10-cent zone fare, except that 15 cents would be charged for through passengers passing Junction Park. Fare in Riverview, Monaca and Sharon to be 5 cents without transfer.

Plan 4. Then existing fare zones, averaging 3 to 6 miles. Straight 8-cent zone fare, but with 5-cent non-transfer fare in Riverview, Monaca and Sharon; rest of routes, 8 cents per zone. Expected increase, 11.1 per cent.

Plan 5. Straight zone fare of 7.5 cents with new fare zones, averaging 2 to 3 miles. No transfers in Riverview and Monaca. Expected increase, 42.3 per cent.

Plan 6. Same as Plan 5 except for two shiftings in fare points at Beaver and Rochester. Expected increase, 44.9 per cent.

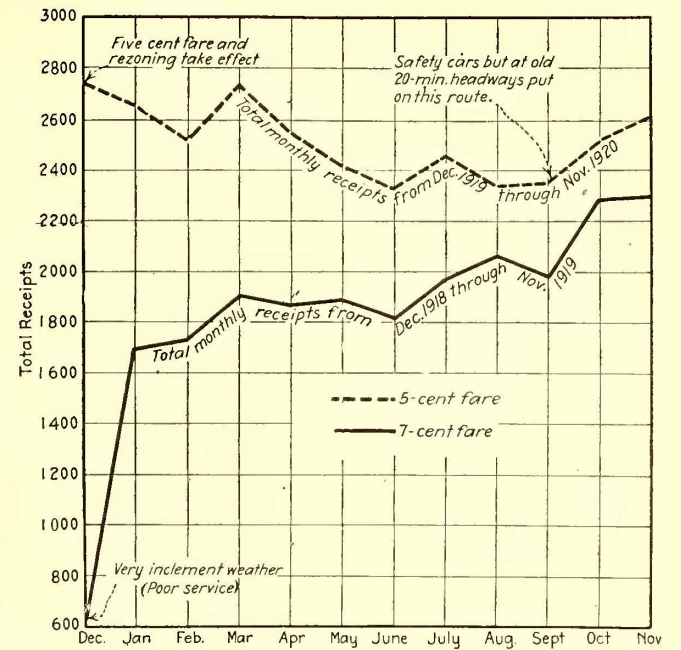
Plan 7. Five-cent zone fare with zones shortened to an average of 2 miles with transfer privileges continued. Expected increase, 12.52 per cent.

Plan 8, as proposed and adopted. Five-cent zone fare with zones averaging 2 miles as in Plan 8, but with transfers eliminated on the Monaca division and modified on the Riverview division. Expected increase, 19 per cent.

Plan 9 was a straight 10-cent fare with zones averaging 3 miles. The theoretical increase in revenue was figured to be 50 per cent.

EARLIER INCREASES SHOWED WISDOM OF KEEPING FIVE-CENT FARE ON SHORT LINES AT LEAST

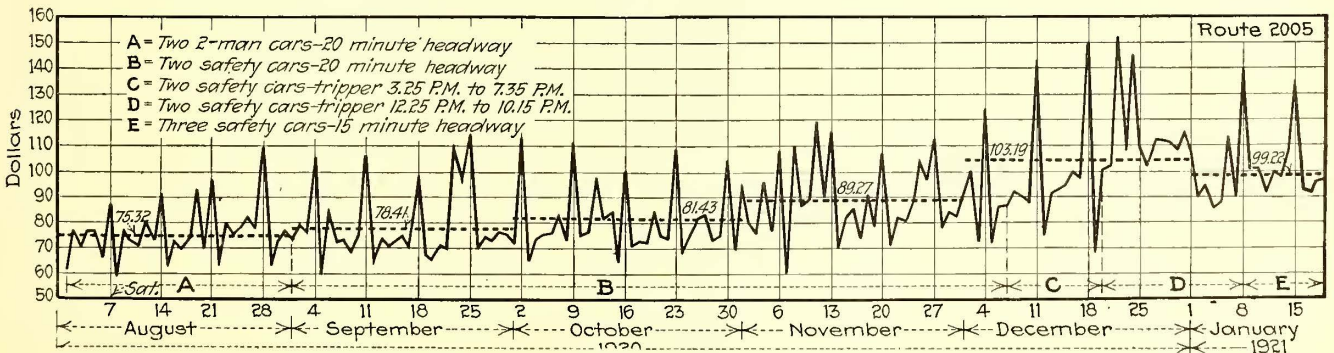
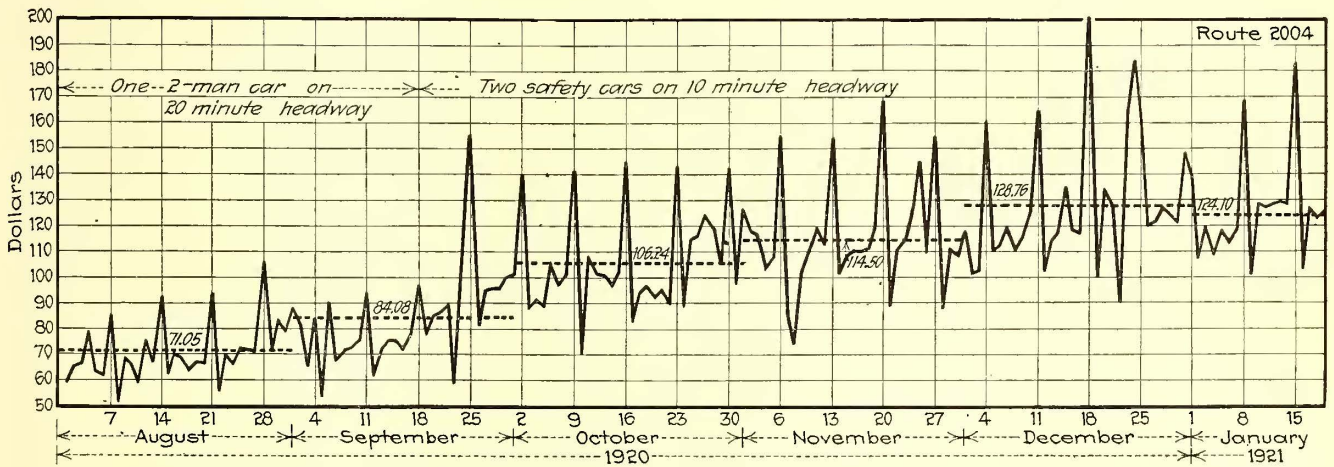
In coming to his deductions favoring short 5-cent zones, Mr. Boyce had two statistical bases to go by in addition to his intimate knowledge of the territory. The first of these bases was the traffic survey of Oct. 2, 1919, and the other the results which had followed the earlier fare increases.



RESULT OF SERVICE BETTERMENT ON ROUTE 2005, RIVERVIEW CROSTOWN LINE, 2.7 MILES IN LENGTH, CONNECTING NEW BRIGHTON AND BEAVER FALLS FOR A 5-CENT FARE, WHEREAS THE MAIN LINE FARE IS 10 CENTS

The results of the traffic survey, segregated by the nine 7-cent zones, marked on the map showed clearly how dependent the company was on the short-haul riders. Analysis showed that more than 50 per cent of the passengers rode less than what are now two 5-cent zones.

A further increase in the base rate of fare which was then 7 cents might have been disastrous, due to traffic losses, whereas a shortening of the fare zone with



DAILY RECEIPTS ON TWO SINGLE-ZONE ROUTES FROM AUG. 1, 1920, TO JAN. 19, 1921, SHOWING HOW MORE FREQUENT SERVICE INCREASES PASSENGER REVENUES

a corresponding reduction in the base rate might be advantageous in retaining the present riders and at the same time creating new traffic.

WHAT OCCURRED WITH EARLIER FARE CHANGES

The results from the earlier fare changes in the order of their occurrence follows:

First change—On Sept. 1, 1916, the labor tickets, so called, which provided a 10-cent ride for 5 cents during certain hours and the full fare tickets that had been sold in lots of 100 for \$4.50 were abolished and a new ticket was put on sale at the rate of 21 for \$1. Roughly speaking, the 4.5-cent zone fare ticket was succeeded by a 4.7-cent rate. No change was made in the cash fare, which still remained at 5 cents with free transfers, nor was any change made in the length of the fare zones. From a traffic standpoint the first month's operations compared with the previous month showed a gain in revenue zone passenger traffic of 2.22 per cent, although the revenues increased but 4.35 per cent.

Second change—On Jan. 26, 1918, the base rate of fare per zone was increased to 6 cents and all tickets abolished. No change was made in transfer privileges nor in zone lengths. For the property as a whole, the results of the first month's operation under this fare increase showed a 2.34 per cent loss in the number of revenue zone passengers carried but a gain in revenue of 14.95 per cent.

Third change—On Sept. 6, 1918, the zone base rate of fare was further increased to 7 cents. No change, however, was made in transfer privileges or zone limits. A comparison of the first month's operations with the previous month shows that again there was no appreciable change in the number of revenue zone passengers carried. The corresponding change in revenue was 10.58 per cent. Looked at in a different light, the company was carrying in September, 1918, daily an average of 25,523 revenue zone passengers at 7 cents per zone

TABLE III—FISCAL AND TRAFFIC RESULTS OF FARE CHANGES, BEAVER VALLEY TRACTION COMPANY ONLY

Daily Averages						
Date	Zone Fare	Revenue	Revenue Zone Fares	Transfer and Free Zone Fares	Total Zone Fares	Average Revenue per Car-Mile (Cents)
Aug. 1-31, 1916....	(a) 5c	\$1,033	21,445	4,807	26,252	28.9
Sept. 1-30, 1916....	(d) 5c	1,078	21,923	4,613	26,536	30.0
Per cent change....	0.0	+4.35	+2.22	-4.03	+1.08	+3.81
Dec. 26, 1917, to Jan. 25, 1918....	() 5c	\$913	18,911	2,806	21,717	.....
Jan. 26, 1918, to Feb. 25, 1918....	6c	1,049	18,468	3,203	21,671	.....
Per cent change....	+20.0	+14.95	-2.34	+14.18	-0.21	.....
Aug. 6, 1918, to Sept. 5, 1918....	6c	\$1,212	20,519	4,382	24,901	.....
Sept. 6, 1918, to Oct. 5, 1918....	7c	1,340	20,523	4,030	24,553	.....
Per cent change....	+16.66	+10.58	0.00	+12.42	+14.00	.....
Nov. 1, 1919 to Nov. 30, 1919 (c)	7c	1,637	23,420	4,380	28,800	39.8
Dec. 1, 1919, to Dec. 31, 1919 ()	() 5c	1,712	34,455	2,945	37,400	41.1
Per cent change....	-28.6	+4.58	+46.8	-30.4	+29.82	+3.27

(a) 4½-cent ticket and a two-zone labor ticket for 5 cents are also sold.
 (c) 5-zone zones—2 miles average length.
 (c) Figures include Pittsburgh & Beaver Street Railway.
 (d) Reduced rate zone tickets sold twenty-one for \$1.

passengers on the Beaver Valley Lines was 24.29 per cent and on the Pittsburgh & Beaver Lines was 27.56 per cent. Table III as well as the chart depict clearly the effect of the various fare changes as it influences traffic.

HOW FARE INCREASES AFFECT THE SHORT HAUL TRAFFIC

A specific proof of the value of adhering to the 5-cent fare as a unit for a short-distance ride when the transfer can be practically eliminated is afforded by a study of the Monaca Route 2004 and the River-view Crosstown Route 2005, which are respectively 1.5 miles and 2.7 miles long. Even on the latter line most of the riding is done within a haul of 1.25 to 1.5 miles, so that the combination of a twenty-minute headway and a more-than-nickel fare was too great a temptation to walk.

The graphs on pages 672 and 673 show daily and monthly revenues for both routes and are good indices of results obtained by reducing fares for building up short-haul traffic. Tables IV and V also give an idea of what high minimum fares mean on routes when the average length of ride is but little more than a mile.

On Route 2004—between Monaca and Rochester—where the bulk of the riding is one mile or less, the effect of the elimination of labor tickets and the 4½-cent zone ticket caused a loss of 10.52 per cent in total passengers and a 4.46 per cent in revenue. (Even a quarter of a cent increase in fare may loom big to the patron.) The change from 5-cent zones to 6-cent zones in 1918 showed a further decrease in the revenue passengers carried, but due to a 17.5 per cent increase in transfers collected, the traffic handled by the route increased 2.67 per cent and the 20 per cent increase in fare netted an increase of 10.03 per cent in revenue.

The 7-cent fare which became effective in September, 1918, caused losses in total traffic handled of 6.31 per cent, although an increase of 7.08 per cent in revenue was obtained. This loss, however, was greatest in the number of revenue zone passengers carried, which decreased 9.4 per cent. On Dec. 1, 1919, the 7-cent fare with free transfer privilege was reduced to a straight 5-cent zone fare without transfers. This reduction in fare alone stimulated riding as is shown on both charts. Monthly revenues increased from 35 to 40 per cent over the previous year, while the daily revenues showed a corresponding upward tendency from the day of the 5-cent fare. In September safety cars supplanted the

TABLE II—RESULTS OF TRAFFIC SURVEY BY ZONES

Zones.....	1	2	3	4	5	6	7	8	9	All
Passengers on.....	13,154	2,340	319	87	2					15,902
Passengers off....	5,510	7,004	2,380	591	208	136	44	25	11	15,909
Total passengers.	18,664	9,344	2,699	678	210	136	44	25	11	31,801
Total passengers boarding car within limits of Beaver Falls borough (Twenty-sixth Street to Beaver Falls-Brighton station) who:										
Rode to Beaver.....	387									
Rode from New Brighton to Beaver.....	241									

as against 21,445 prior to the first change in fares, Sept. 1, 1916. However, as there had been a 75 per cent increase in fare for a portion of the car riders in the same period the average daily receipts jumped from \$1,032.54 to \$1,339.89, or 29.8 per cent.

Fourth change—On Dec. 1, 1919, the whole fare scheme was changed as already mentioned, and the length of the zones changed to approximately 2 miles with the base fare set at 5 cents. The immediate results were below expectations. The first month's operations, December, 1919, compared on an average daily basis with November, 1919, showed a gain in revenue of 4.58 per cent. January results were below December and February was slightly better than January. March, however, showed up more nearly the anticipated gain; in other words, 15.1 per cent over the corresponding month of the previous year.

Attention is called to the figures for April, 1920, as compared with April, 1919. The 5-cent fare evidently was creating new riders. The increase in zone pas-

TABLE IV—EFFECT OF FARE INCREASES ON TRAFFIC—ROUTE 2004

Date	Daily Averages			Transfer and Free Zone Fares	Total Zone Fares	Average Revenue per Car-Mile (Cents)
	Zone Fares	Revenue	Revenue Zone Fares			
Aug. 1—31, 1916...	(a) 5c	\$60.60	1,230	655	1,885	36.04
Sept. 1—30, 1916...	(b) 5c	57.90	1,160	527	1,687	34.71
Per cent change...	.....	-4.46	-5.68	-19.58	-10.52	-3.15
Dec. 26, 1917 to Jan. 25, 1918...	(c) 5c	\$51.69	1,035	349	1,384	.....
Jan. 26, 1918 to Feb. 25, 1918...	6c	56.88	1,011	410	1,421	.....
Per cent change...	+20.0	+10.03	-2.32	+17.5	+2.67	.....
Aug. 6, 1918 to Sept. 5, 1918...	6c	\$53.05	926	486	1,412	31.82
Sept. 6, 1918 to Oct. 5, 1918...	7c	56.81	839	484	1,323	34.17
Per cent change...	+16.67	+7.08	-9.40	-0.50	-6.31	+7.37
Nov. 1—30, 1919...	7c	\$76.60	1,101	522	1,623	46.51
Dec. 1—31, 1919...	5c	83.10	1,661	77	1,670	49.86
Per cent change...	-28.6	+8.48	+50.86	-98.66	+2.89	+7.20

(a) A 4½-cent and a two-zone labor ticket for 5 cents are also accepted for fare.
 (b) Reduced rate zone tickets sold twenty-one for \$1.

two-man cars, with the headway cut in half. This improved service still further increased the traffic so that revenues in October, 1920, the first whole month of safety car operation, were 51 per cent more than the previous year. In December, 1920, the business depression became a factor, due to the industries in the territory served laying off about 27 per cent of their forces. Nevertheless the frequent service in dull times brought more traffic than the longer headways in good times.

Route 2005, although called a crosstown line, is really a roundabout route between New Brighton and Beaver Falls, starting at about the middle of New Brighton (Fourteenth Street) and running to Beaver Falls via Eleventh Street, which is the chief business street of that town.

Similar figures are also given in Table V for Route 2005—the so-called Crosstown Riverview Line. A comparison of the results on these two routes shows conclusively that as fares are increased the traffic losses very often are such that the actual results are not as anticipated. In other words, compared with the traffic handled prior to any change in fares in 1916—and that during the 7-cent fare period—the loss in traffic amounts to 29.82 per cent on Route 2004 and to 22.62 per cent on 2005, while from the revenue standpoint on Route 2004 there is a loss of 6.26 per cent, and on Route 2005 the gain is but 1.14 per cent.

The increased revenue resulting on this route is due not only to the change in fare and improved service but to the fact that with the establishment of the 2-mile

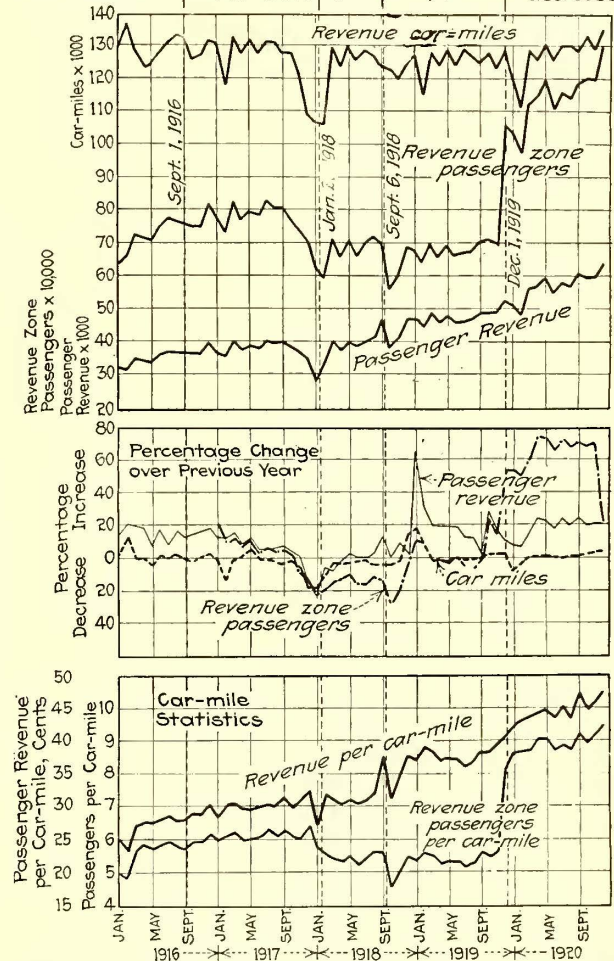
TABLE V—SHOWING EFFECT OF FARE INCREASES ON TRAFFIC—ROUTE 2005

Date	Daily Averages			Transfer and Free Zone Fares	Total Zone Fares	Average Revenue per Car-Mile (Cents)
	Zone Fares	Revenue	Revenue Zone Fares			
Aug. 1—31, 1916...	(a) 5c	\$54.32	1,103	187	1,290	18.71
Sept. 1—30, 1916...	(b) 5c	50.73	1,024	172	1,196	17.74
Per cent change...	.....	-6.60	-7.17	-8.03	-7.28	-5.17
Dec. 26, 1917 to Jan. 25, 1918...	(c) 5c	\$60.16	1,201	108	1,309	.....
Jan. 26, 1918 to Feb. 25, 1918...	6c	64.43	1,033	95	1,128	.....
Per cent change...	+20.0	+7.11	-13.98	-12.02	-13.82	.....
Aug. 6, 1918 to Sept. 5, 1918...	6c	\$57.77	981	160	1,141	19.96
Sept. 6, 1918 to Oct. 5, 1918...	7c	54.94	835	163	998	18.77
Per cent change...	+16.67	-4.91	-17.5	+1.87	-12.55	-5.96
Nov. 1—30, 1919...	7c	\$76.23	1,098	145	1,233	26.67
Dec. 1—31, 1919...	5c	84.25	1,769	77	1,840	30.59
Per cent change...	-28.6	+10.52	+61.11	-46.89	+49.2	+14.69

(a) A 4½-cent and a two-zone labor ticket for 5 cents are also accepted for fare.
 (b) Reduced rate zone tickets sold twenty-one for \$1.

5-cent zones the fare via the main line between New Brighton and Beaver Falls was made 10 cents, and but 5 cents via the roundabout or crosstown line. Thus for January, 1920, as shown on the graph, revenues had increased 56 per cent over the corresponding year, without any improvement being made in the service. This was equivalent to a gain of 95 per cent in traffic. Unfortunately this gain is not stable but decreased month by month until in June, 1920, when the gain over the preceding year was but 14 per cent. Safety car service was installed in September, 1920—with no change in headway. The effect on revenues was an increase of 4.1 per cent in September, 3.86 per cent in October and 9.62 per cent in November over the respec-

Zone Fares 5¢ cash | Zone Fares 5¢ cash | Zone | Zone Fare 5¢ | Length of Zones
 100/\$4.50 Tickets or | 21/\$1.00 full Fare | Fare | Zone Fare | decreased
 Half Fare Labor Tickets, | Ticket; some | 6¢ | 7¢
 some School Tickets | School Tickets



MONTHLY STATISTICS SHOWING EFFECT OF FIVE FARE INCREASES AS APPLIED TO THE WHOLE SYSTEM

tive preceding months. In December a tripper was added to the service during the rush hours, which further increased the average daily revenue 15.6 per cent over the month of November. To prove that holiday traffic solely was not the cause of this large increase attention is called to the fact that in January, 1921, the average daily revenue based on the first nineteen days was \$99.22. This, then, is equivalent to 11.12 per cent gain over November. However, in January three safety cars were operating on a fifteen-minute normal headway as against a base schedule of twenty minutes and fifteen minutes in the rush hour with trippers in November and December.

From the figures in Tables IV, V and VI it is evident

TABLE VI—RESULTS UNDER FIVE-CENT ZONE FARE
Daily Averages—Route 2004

Date	Zone Fare	Revenue	Revenue Zone Fares	Transfer and Free Zone Fares	Total Zone Passenger
Jan. 1920.....	5c	\$86.11	1,726	None	1,726
Jan. 1919.....	7c	62.91	918	427	1,345
Per cent change.....	..	+36.9	+88.2	.....	+28.22
Aug. 1920.....	5c	\$71.05	1,430	None	1,430
Aug. 1919.....	7c	165.27	931	518	1,449
Per cent change.....	..	+8.86	+53.7	.....	-1.27
Oct. 1920.....	5c	\$106.24	2,125	None	2,125
Oct. 1919.....	7c	70.91	1,016	492	1,508
Per cent change.....	..	+49.8	+102.2	.....	+29.0

Daily Averages—Route 2005

Jan. 1920.....	5c	\$85.80	1,716	101	1,817
Jan. 1919.....	7c	56.13	783	129	912
Per cent change.....	..	+53.0	+119.0	-21.65	+99.2
Aug. 1920.....	5c	\$75.32	1,522	229	1,751
Aug. 1919.....	7c	66.61	953	150	1,103
Per cent change.....	..	+13.08	+59.7	+52.7	+58.6
Oct. 1920.....	5c	\$81.43	1,621	64	1,685
Oct. 1919.....	7c	73.81	1,059	146	1,205
Per cent change.....	..	+10.34	+53.2	-56.2	+39.8

that for the short routes under consideration the 5-cent fare is bringing the largest amount of revenue from the largest number of patrons. The Beaver Valley 5-cent short-zone fare scheme was one that took the individual peculiarities of the different routes into consideration instead of applying some one blanket change and consequently the results have proved so gratifying. A significant phenomenon is that the losses in traffic during the various cash-rate increases occurred chiefly during the months of fair weather, and this fair weather traffic did not tend to come back. In other words, had the company gone to higher and higher cash fares its usefulness would have dwindled to the point of carrying only the compulsory maximum-distance rider.

As another example of this tendency it may be pointed out that on the Pittsburgh & Beaver Railway the winter increase, Jan. 26, 1918, from 5 cents to 6 cents, caused no diminution in traffic, whereas the summer change, Sept. 6, 1918, from 6 cents to 7 cents, caused so large a drop in traffic as to produce less revenue comparing the month before and the month after the change in rates.

rate; and when the time is ripe it will give a 10-minute through service instead of turning back half the cars at Ferry Street, Vanport.

Another interesting possibility is that of the Overgrade Bridge between New Brighton and Beaver Falls. The company charges a 2-cent toll for walking over this privately-owned bridge but contemplates a 2½-cent car rate, as this might induce some riders to go on into the next 5-cent zone.

POTENTIAL CUSTOMERS FAR OUTNUMBER THE ACTUAL RIDERS

The foregoing data have demonstrated that the development of differential short-ride fares has increased both traffic and revenue on the system as a whole, and that the increase in service on the short routes have also been a factor in the same direction. The question that remains is: How many more riders can the railway obtain eventually if fares and service are right in the eyes of the public?

To this end several checks of pedestrian and automobile traffic have been made and changes noted in addition to the fluctuations in telephone traffic as noted hereinbefore. In a check made during 1919 at various bridges the thought-provoking figures totaled in Table VII were obtained.

The traffic check on the Tenth Street bridge between Beaver Falls and New Brighton showed that the pedestrian traffic was about double and the automobile passengers about five times the number of street cars users. Naturally, not all of these are street car prospects, but it will be admitted that here is something to work on! The traffic checks on the other bridges do not show up the street railway so badly, but here, too, there are possible customers for the electric railway.

The jitney traffic over the Monaca Bridge is not really a competitor, as it is operated chiefly for the greater convenience of residents of Colona (beyond the terminus of the Monaca Line). A check of the competing Ambridge jitney service made on Friday, Sept. 12,

TABLE VII—CHECKS OF BRIDGE TRAFFIC, BEAVER VALLEY TRACTION COMPANY

	Northbound				Southbound			
	Car	Auto	Truck	Foot	Car	Auto	Truck	Foot
Tenth Street Bridge								
Thursday, Sept. 4, 6:30 a.m. to 11 p.m.....	361	1628	414	661	338	1746	371	692
Friday, Sept. 5, 6:30 a.m. to 10 p.m.....	301	1607	509	759	367	2068	530	673
Bridgewater Bridge								
Eastbound								
Wednesday, Sept. 10, 6 a.m. to 10 p.m.....	1678	1629	236	808	1599	1556	254	736
Thursday, Sept. 11, 6 a.m. to 9 p.m.....	1454	1449	245	681	1346	1468	214	711
Northbound								
Southbound								
Monaca Bridge								
Monday, Sept. 8, 6 a.m. to 10 p.m.....	609	135	658	166	667	165	608	168
Tuesday, Sept. 9, 6 a.m. to 10 p.m.....	626	168	644	152	676	151	685	146
Overgrade Bridge								
Total Pedestrians Only								
Wednesday, Sept. 10, 6 a.m. to 11 p.m.....	470							
Thursday, Sept. 11, 6 a.m. to 11 p.m.....	550							

As a matter of both fairness and good business the company is willing to split the nickel for customers who have to pass through a short terminal zone. Thus on the 0.73-mile terminal zone between Sassafras Alley, Beaver and Ferry St., Vanport, only 2½ cents is charged, although the tariff calls for 5 cents. In addition to benefiting the passenger who has already paid for one or more 5-cent zones, the company is getting out a 5-cent round-trip ticket for local traffic. This particular stretch is to be paved next year and it will then become a more attractive residential section. The management, in its usual forehanded way, is doing its share to attract new residents by means of the 2.5-cent

1919, showed 179 northbound and 192 southbound passengers between 6 a.m. and 7:25 p.m. No complaint has been made by the company concerning this competition, nor will it be necessary, for the improved service is driving them out of business.

In addition to the checks of bridge traffic noted, the management has had an eye upon traffic to and from the steam railroad stations. Frequent traffic checks are made to these points to determine what percentage of the travelers arrive at the depots by trolley. One check recently taken showed that at the Beaver Falls station the trolleys carried 38 per cent of the traffic and that at the Beaver station did 31.6 per cent of the handling.

Street Railway Rate Tariff*

**Failure to Allow Proper Base Rates of Fare Results in Practical Confiscation of Railway Property—
High Fares Mean More Money Although a Loss in Traffic — Rate of Return
Should Exceed the Mere Cost of Money in Order to Allow for
Contingencies in the Future**

BY W. H. SAWYER

President East St. Louis (Ill.) & Suburban Railway

THERE is no particular form or kind of rate schedule which should be seriously proposed for national adoption. Our standard previous to the war was a rate schedule of 5 cents, with the lowest ticket rate and the longest ride possible and still keep wheels turning. Due to this national standard most of us were facing ruin without fully appreciating the situation.

During the past three years municipal authorities have offered in most instances vigorous objection to rate schedules put forward by the railway companies, but in the final analysis their objections were based upon a human but selfish desire to secure needed service at an unfairly low price. In such instances it was necessary that the company make a fight. Few of us are by nature belligerents or looking for a fight. Many of us were criticised because we did fight openly for that which we knew to be right, but when history is written we will be given credit for having saved an essential industry.

PROPERTY HAS BEEN CONFISCATED

Actual statistics regarding the public utility industry are available to the public in complete detail—much more completely than for any other industry. These statistics prove that, on the average, street railway rates, during the war, were such that the properties were actually confiscated. Do not regard this statement as just my opinion. I state it as a fact proved by the statistics. And by “confiscated” I mean that we not only did not secure a “fair return on a fair value,” but that from a legal, technical, practical, or moral standpoint our properties as a class were actually confiscated. No street railway in the whole country had rates during the war that produced a really “fair return on a fair value.”

As a result, therefore, we emerged from the war broken down in credit, with our properties under-maintained and without the ability properly to serve. Practically every street railway man throughout this country is asking today that past confiscatory conditions be rectified, that there be at least a partial recognition of the splendid service which has been given under most adverse conditions; asking, in short, for a rate of fare and service conditions which will entitle him to the financial credit which is due him, not only to equalize the past inequalities, but primarily so that we may continue to carry forward in the future.

The necessity of establishing and maintaining this credit is of primary importance in any rate discussion. We all want to do that which should be done, but unless a rate carries with it real financial credit, as other business men interpret credit, our hands are tied and we are powerless to “carry on” and serve.

Cleveland’s pre-war charge was 3 cents; today on an actual comparative basis, making under a service-at-cost plan the same percentage return, Cleveland is charging double 3 cents or 6 cents. There is no escaping the fact that in Cleveland at least it was necessary actually to more than double the gross revenue in order to obtain the same net income, whereas, if the costs of money were to be taken into account, Cleveland stockholders should be entitled to a net income 50 per cent in excess of the percentage obtaining pre-war.

TEN-CENT BASE RATE NOT TOO HIGH

To meet the needs of the communities served a 10-cent straight fare is not too much today for the average electric railway. Instead of being kept from so charging it would be a real blessing to the communities served if the majority of the electric railways of this country were today on a 10-cent straight fare basis. Those flat-fare cities not on a straight 10-cent basis should, in my personal opinion, be on a basis of 10-cent cash fare with reduced ticket rate. With the idea in mind that investigation regarding cities now charging 10 cents was very pertinent the information bureau of the American Electric Railway Association has within the last few weeks turned over to me answers to revised questionnaire sent out to all of the 123 10-cent cities. One important question asked in the questionnaire was: “In your opinion what was the effect upon traffic of putting into effect a 10-cent fare?” Only three companies reported a decrease in traffic of over 15 per cent due to an increase in fare to 10 cents, and two out of three of those companies jumped from 5 cents direct to 10 cents. Approximately 25 per cent of the companies reported no noticeable decrease whatever. The remainder showed a decrease of from 5 to 15 per cent, and the general average showed that the decrease in traffic due to increasing fare to 10 cents was about 8 per cent, certainly under 10 per cent.

In answer to the question, “Taking everything into consideration, are you better off with a 10-cent fare than if the old rate had remained in force?” the answer was 100 per cent “Yes.” Some of them seemed to think we were asking a foolish question; they not only said “yes” but they said “certainly,” “assuredly,” “unquestionably,” “definitely,” in fact, all kinds of adjectives; there was no question in their minds. In other words, there is not a city in the country that is charging 10 cents but what needed that 10 cents and but what is getting more revenue than it would at any lower figure.

In the answer to these two questions we get indisputable evidence that a higher rate of fare does produce more revenue, thus giving a finality to all previously submitted facts; that unfair, strawman bugaboo, that a higher rate of fare will not produce more revenue,

*Abstract of paper presented before Wisconsin Electrical Association, Milwaukee, March 24, 1921.

cannot be flaunted any more. Many a company has been unfairly refused a proper increase due to this excuse being put forth by the politician to prevent fair rates being granted. Commissions have refused increase in rates because, so they said, they had grave doubts as to whether increased rates would give increased revenue.

If there are still those who maintain the evidence is either misleading or incorrect, I would ask that they await further statistics from the service-at-cost cities. When the time comes that fares are reduced in Cleveland, Cincinnati, or Youngstown, and the reduced rate of fare produces greater revenue than the higher rate of fare then we will commence to have evidence that a higher fare produces lower revenue.

Please pardon my taking so much time to prove that more money means more money, but this unfair weapon has been used against us in the past and we must not allow it to continue. Please also appreciate that I am not arguing for or against the zone system with reduced fare for reduced length of ride.

SINGLE COIN FARE AND TICKETS URGED

Assuming that some companies do not now actually need a straight 10-cent cash fare, or assuming that the day will come when the majority of the companies will not need a straight 10-cent fare, which is the preferable fare, a 10-cent cash fare with reduced rate tickets or an equivalent fare producing the same revenue in odd cents, with or without reduced ticket rates?

The return of the questionnaire by cities operated at 10 cents, either straight fare or with reduced ticket rate, brought out definitely that every executive with one exception believed from his experience that a 10-cent cash fare with reduced ticket rate was far preferable to an equivalent flat rate fare even without tickets. As a concrete example, they considered it was better for the company and the public to charge 10 cents cash, with four tickets for 30 cents, than it was to charge an equivalent straight fare, which we will assume to be 8 cents; and they, of course, considered it far preferable to charge 10 cents cash with reduced ticket rate than to charge an odd penny straight fare with less reduced ticket rate producing the same revenue. Summing up the fare situation as I glean it from the statistics and also from these questionnaires we find:

1. Zone systems are in successful operation in several places and are more satisfactory in these places to the company and to the public than a flat-fare system producing the same revenue.

2. Zone systems are objectionable to the public in most localities and the primary reason is not that the zone system proposed is inequitable or unfair *per se* but that it is believed to be discriminatory compared with existing flat-rate system under which the communities have been developed.

3. The minimum charge in any zone should not, under present conditions, be less than 5 cents.

4. Increased fare has unquestionably produced more revenue and a reduction in rates of fare will produce less revenue.

5. It is not to be expected that further substantial increases will be granted except in exceptional cases, but even with decreased operating costs the industry cannot give needed services if fares are reduced.

6. The rate of fare should not be kept unnecessarily high so as to force the car rider to pay taxes belonging

to the general public. I refer to payments by street railway companies for paving and sprinkling, payments of a percentage of their revenue to the city and to all other payments which would not be a part of the cost of service—if measured by the same standards as other business.

7. In these days of registering fare boxes and of locked box fare boxes, a reduced rate ticket or token fare is, where financially practicable, preferable to the company and to the public.

8. A 10-cent cash fare, a standard coin, with reduced rate ticket or token is preferable to odd penny cash fare, with or without reduced ticket rate, producing the same revenue.

The questionnaire also showed that these executives believed that a 10-cent cash fare with reduced rate ticket was desired by their customers in preference to the lower flat rate odd penny fare.

I have given you the consensus of opinion of the committee on rates of fare of the American Electric Railway Association; I have given you the consensus of opinion of executives with whom I have been in communication throughout the country, but the fact still remains that the American Electric Railway Association as an association has no national code as to fare schedules. Its individual members have different ideas as to how the problems should be worked out in their different localities; that is but right and meet. Different conditions prevail in different cities, and even were the conditions the same, I say again the people have a right not only to the service they desire but to pay for that service in the way they desire to pay, provided they do pay the cost of service, and by cost of service I mean not only the cost of labor and materials and taxes, but the fair cost of the money necessary in the business. The money we return to our security holders will buy no more than the same amount of money accruing to them from other business and so they naturally and rightfully expect a fair return on their street railway investment the same as from any other investment. This they have not secured in the past and they must have it in the future or with credit gone we cannot function.

RATE OF RETURN MUST EXCEED THE COST OF MONEY

Just one more phase of this credit question—that is the question of fair return to street railway security owners.

The investor in the future knows that there are plenty of other opportunities to invest money in really paying investments. He knows by experience that the big portion of street railway investments have in the past not been protected and that the properties have been confiscated. He knows that the street railway investor carried during the war a load so unfair that it would have broken down and put out of business any other but this most essential business. He knows that based on today's earnings the street railway investments as a class are undesirable. He won't be caught again—he will protect himself by investing his money elsewhere unless conditions change.

You and I have no need to worry about our jobs. Any man who can successfully operate an electric railway need have no fear of a position in other fields of industry.

So, "why worry?" The investor can take care of himself; the electric railway men can take care of themselves. Why try to save an industry the credit of which

has been allowed to become impaired? Why? Because it is our duty.

You may think you have talked until you were hoarse, written until your arms ached, worked until you were worn out in body and mind, but all the work up to the present has been to salvage existing investments, to protect and continue for the public existing service. Heroic sacrificing work has been done, an essential industry has been saved, but of what avail if allowed only to continue as at present, merely to exist.

New money is needed so that our electric railways may grow and expand to meet the needs of the civic communities which cannot grow and prosper except as the electric railways keep pace with their needs and requirements. Electric railway operators can carry on the good work to a successful completion so that electric railway investments may be sought for and thus make possible the improved service and the improved facilities urgently needed. Electric railway rates must be placed and kept on a basis that are comparative with rates to other business.

"A fair return on a fair value" is all the investor asks, but "a fair return on a fair value" as of today only will not bring real credit. Before a rate of fare is lowered some of the past deficiency in rate of return must be compensated for and there must be some surplus to allow for contingencies in the future. Then will investors have confidence in new electric railway securities.

The rate of fare on an electric railway should be such that:

1. The riding public may be given service which all things considered is satisfactory to them.
2. Fair wages, commensurate with wages in other industries, must be paid.
3. The return to the investor is such that new investors will willingly invest new money in new securities to finance additional facilities and equipment.

The Madison Design of One-Man Car*

BY DUDLEY MONTGOMERY

Vice-President Madison (Wis.) Railways

THE Madison Railways have operated standard Birney safety cars for about two years and have now developed a design of one-man car which is being used in an endeavor to prevent crowding at the front end, which has resulted in considerable delay in operation. Our experience indicates that a 26-in. aisle is the minimum that should be used if free movement of passengers in a car is to be obtained. With any narrower aisle, passengers will not attempt to pass except under necessity.

The new design of car as used in Madison is 4 in. wider and 2 ft. longer than the standard Birney car and has a double-door opening 15 in. wide divided into two passageways by a stanchion. The comparative weight of the car is 17,200 lb., as against 15,800 lb. for the standard car. Three criticisms of the new design which were advanced before construction were its additional weight, cost of heating and loss of fares due to the double-door opening. Tests show that the power consumption per 100 lb. per 100 miles varies from 0.3 kw.-hr. to 0.55 kw.-hr. If the car runs 165 miles a day and has a difference in weight of 1,400 lb., the sav-

ing for the lighter car is only about 7 kw.-hr. per day. The heat required in the new car is about 160 kw.-hr. per day of eighteen hours in severe weather. The loss of fares is negligible as the operator is not over 3 ft. from passengers entering at the exit door, and at points of heavy loading stands up to make the fare collection.

So far no criticism has been received to this design of car from the public, railroad commission, council, or railway company's employees. We do not feel that the present double-door arrangement will stop congestion at the front end of the present standard car. The widening of the 22-in. aisle is just as important. I am willing to go as far as possible to accomplish standard construction of cars, but I feel that we must have a car that can be sold to our patrons.

London Companies Organize

Outline of the Comprehensive Scheme of Organization of the London Underground and Allied Companies, with Duties of the Different Departments, Made Effective This Year

ASchematic diagram of the organization of the Underground Electric Railways of London and allied companies, effective Feb. 1, 1921, is given in the chart on page 680. The organization embraces ten companies as follows: (1) Underground Electric Railways of London, (2) Metropolitan District Railway, (3) London Electric Railway, (4) City & South London Railway, (5) Central London Railway, (6) London General Omnibus Company, (7) London & Suburban Traction Company, (8) Metropolitan Electric Tramways, (9) London United Tramways, (10) South Metropolitan Electric Tramways & Lighting Company. In the outline which follows No. 1 is referred to as the "underground company," 2, 3, 4 and 5 as the "railways," 2, 3, 4, 5 and 6 as the "common fund group," 7 as the "traction company" and 8, 9 and 10 as the "tramways." When no limitation is indicated reference is made to all companies.

There is a single chairman and managing director for the underground company, each of the companies in the common fund group and the traction company. This is the Right Hon. Lord Ashfield. There are separate and distinct chairmen for each of the companies in the tramways group. The assistant managing directors for departments A and B are, in charge of department A, Frank Pick, and in charge of department B, H. E. Blain. A general outline of the duties of the different departments shown in the chart is given below:

Department A.—In charge of an assistant managing director (Frank Pick). This department is charged with responsibility for:

- (a) The accounting, audit and statistical work (common fund companies).
- (b) The determination of fares, rates and charges.
- (c) The development and establishment of routes and services and the co-ordination of traffic facilities.
- (d) The publicity and advertising.
- (e) The purchase and supply of stores and materials and the sale of obsolete stores, spare parts and scrap.
- (f) The legal and parliamentary work.
- (g) Negotiations, arrangements and agreements (subject to any directions of the chairman).

Department B.—In charge of an assistant managing director (H. E. Blain). This department is charged with responsibility for:

- (a) The inspection, adjustment, cleaning and oiling of the rolling stock, lifts and escalators of the railways, with the supervision and control of the depots, yards and sidings.

*Paper presented before Wisconsin Electrical Association, Milwaukee, March 24, 1921.

- (b) The operation of the railways and control of stations.
- (c) The supervision and control of the motor omnibuses, with the garages and sheds.
- (d) The operation of the system of motor routes and stands.
- (e) The preparation and institution of all service and duty schedules.
- (f) The work of the chief passenger agent, including the supply and issue of tickets.
- (g) The settlement of claims arising out of accidents, all companies (and other claims as may be directed by the chairman).
- (h) The review of wages, hours, conditions of service and similar questions affecting the staffs as a whole to secure uniformity and the supervision of welfare work.
- (i) Communications with the public arising out of the operation of the companies.
- (j) The "safety first" work (all companies).

Department C (Railways).—In charge of the director of construction (railways) (Z. E. Knapp). This department is charged with responsibility for:

- (a) The generation and distribution of power, including the control and supervision of the power-house, substations and all equipment used in connection therewith.
- (b) The supervision and control of all new works, new construction and new equipment (including constructional works for the omnibus company in consultation with the chief engineer, L. G. O. C.).
- (c) The conduct of engineering research and investigation on behalf of the railways.

Department D (Omnibuses).—In charge of a chief engineer (L. G. O. C.) (G. E. Shave). This department is charged with responsibility for:

- (a) The renewal of omnibuses and the construction of new and additional omnibuses.
- (b) The overhaul and maintenance of omnibuses in the new central depot and in the coach factories.
- (c) The licensing of omnibuses and all questions arising thereout.
- (d) The central stores.
- (e) Engineering research and investigation work in connection with omnibuses.
- (f) Fuel research.

Department E (Railways).—In charge of a chief engineer (railways) (A. R. Cooper). This department is charged with responsibility for:

- (a) The maintenance and renewal of the railways and their equipment.
- (b) The maintenance and renewal of the rolling stock, lifts and escalators used upon the railways.
- (c) The maintenance and renewal of all buildings, whether for railways, tramways or motor omnibuses.

The chief engineer is also responsible to the director of construction (railways) for any new works in connection with existing railways.

Department F (Tramways).—In charge of a general manager (tramways) (C. J. Spencer). This department is charged with responsibility for all questions arising out of the maintenance and operation of the tramways as defined above under Departments A, B and C, except:

- (a) The determination of fares, rates and charges.
- (b) The co-ordination of traffic facilities.
- (c) The publicity and advertising.
- (d) The purchase and supply of stores and materials.
- (e) The parliamentary work.
- (f) The settlement of claims arising out of accidents.
- (g) The maintenance and renewal of buildings, which shall be dealt with in Department A for (a) to (e) inclusive, in Department B for (f), and in Department E for (g), in consultation and agreement with the general manager (tramways).

Department G (Common Fund Group).—In charge of a secretary and treasurer (J. C. Mitchell). This department is charged with responsibility for:

- (a) The customary secretarial work of the companies.
- (b) The financial work.
- (c) The administration of the estates and surplus property of the companies.
- (d) The insurance work of all descriptions.
- (e) The management on behalf of the companies of the superannuation, pension and other funds instituted by the companies.

Department H (Tramways Group).—In charge of a secretary and treasurer (E. Boys). This department is charged with responsibility for:

- (a) The customary secretarial work of the companies.
- (b) The financial work.
- (c) The administration of the estates and surplus property of the companies.
- (d) The insurance work, except national health and unemployment insurance dealt with by the general manager (tramways).
- (e) The management on behalf of the companies of the superannuation, pension and other funds instituted by the companies.

Note.—In order to insure co-ordination of methods, this department shall, as far as practicable, be governed by the procedure and requirements laid down for the common fund group.

The purchasing agent in New York for the properties mentioned remains the National Railway Appliance Company, New York.

A pamphlet has been issued giving the duties of the various departments in detail.

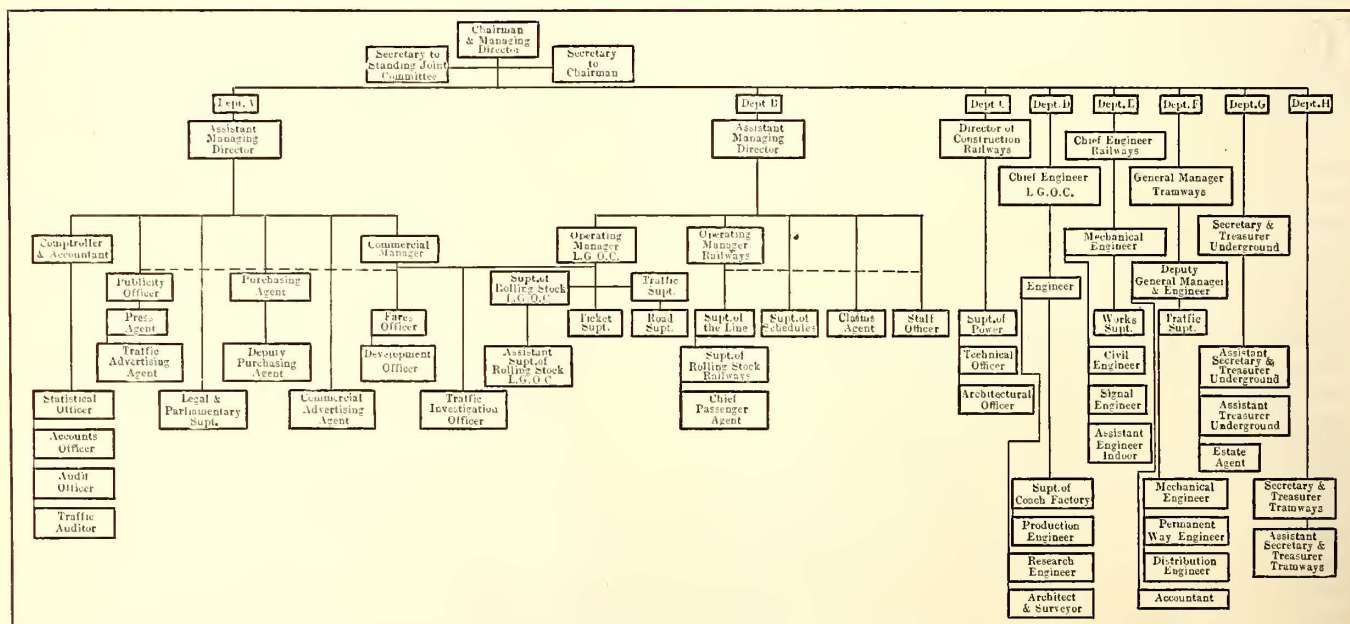
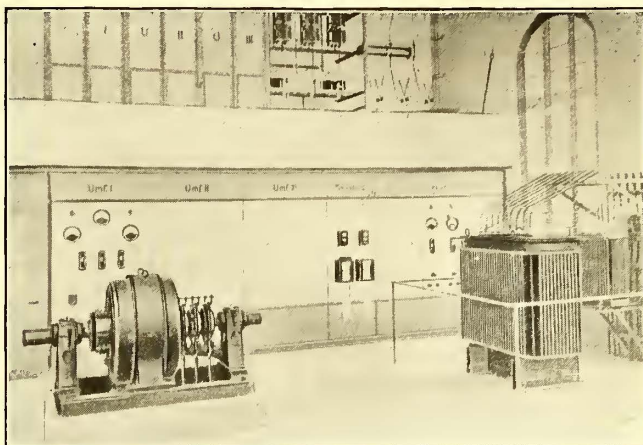


CHART OF ORGANIZATION OF UNDERGROUND ELECTRIC RAILWAYS COMPANY OF LONDON AND AFFILIATED RAILWAY, TRAMWAY AND BUS COMPANIES



RIEHEN AUTOMATIC SUBSTATION, NEAR BASEL



INTERIOR VIEW IN RIEHEN AUTOMATIC SUBSTATION

Automatic Substation in Switzerland

Manufacturers of Electrical Apparatus Have Devised Control to Secure Simplicity, Reliability in Operation and Accessibility for Repair—Devices Differ from Those in Use in This Country, One Feature Being the Provision for Starting and Stopping by Hand and by Time Clock

IN VIEW of the wide application in this country of automatic control of electric railway substation apparatus the readers of the *ELECTRIC RAILWAY JOURNAL* will be interested in developments in the same line abroad. Brown, Boveri & Company of Baden, Switzerland, have installed an equipment of this kind at Riehen near Basel, in a substation which supplies 600-volt power to the electric railway line between Basel and Lorrach, and will later feed certain projected tramway lines. The devices used differ considerably from those usual in this country and they are covered by patents. One salient difference is the provision for starting and stopping by hand and time clock, the control taking care of all operating conditions otherwise.

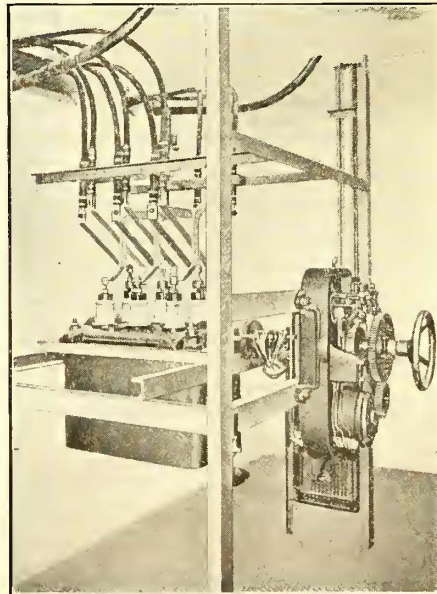
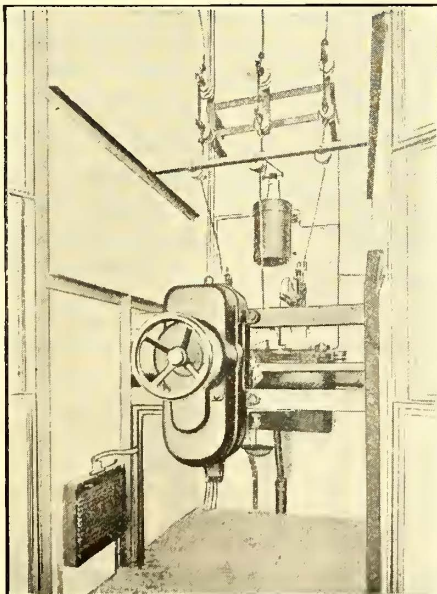
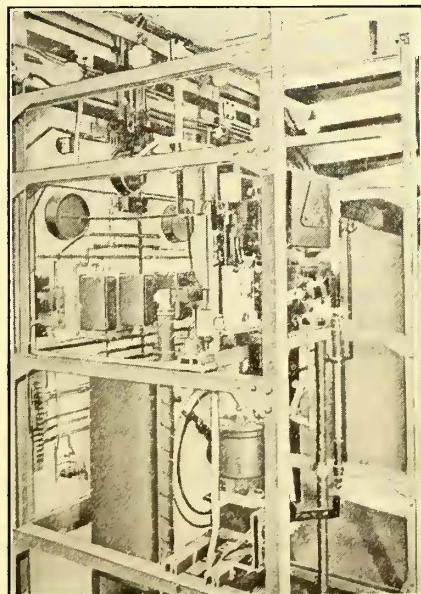
The Riehen substation is part of the Basel Electricity Works system, and it was built before the decision was

reached to put in automatic equipment. It contains a 250-kw., six-phase, 50-cycle rotary converter equipped with a speed-limit device, transformer, regulative reactance coil, starting switch and field rheostats. Provision was made in the design for two additional rotaries of at least 250-kw. capacity each.

This substation secures its power supply from the Augst plant at 6,300 volts.

TIME SWITCH IS USED MORNING AND EVENING

The essential parts of the automatic control equipment are as follows: Time switch for cutting equipment in or out at a predetermined time; transformer and starting switches; switch-operating devices; relays of various kinds, namely, overload, time-limit, polarized, no-voltage, feeder; over-speed centrifugal switch,



LEFT, SWITCH CELL FOR ONE ROTARY CONVERTER. CENTER, REMOTE-CONTROL MOTOR-OPERATED MECHANISM FOR TRANSFORMER SWITCH. RIGHT, REMOTE-CONTROL MOTOR-OPERATED MECHANISM FOR MAIN ROTARY SWITCH

auxiliary battery and, of course, the usual circuit breakers, etc. Essentially these devices are built along standard lines. The operating devices for the heavy switches are motor-driven, solenoid operation being used where sufficiently powerful.

For the operation of the relays and electrical switchgear, special auxiliary sources are required as follows:

A small single-phase transformer connected to the primary winding of the main transformer. To this are connected the operating devices of the alternating current switchgear, the voltage coils of the time-circuit relays and the no-voltage relays.

A small portable storage battery is used for tripping the main switch supplying current to the rotary as well as energizing the coil of the polarized relay during the starting period. The feeder switches have a no-voltage release. The energy for operating the direct current contactors is obtained from the rotary itself. For the first start in the morning and for the shutting

down in the evening a simple time switch is used by means of which, in starting, the "in" bus is put under pressure, and this in turn energizes the relays in a fixed sequence and causes the closing of the corresponding switches.

The release mechanism of the main switch is connected across the bus system, which after the functioning of the release system is connected to the battery voltage.

HOW THE APPARATUS FUNCTIONS

The switching sequence for cutting in and out, and for the resumption of service after a direct current or alternating current disturbance (see circuit diagram for reference numbers) is as follows:

Time switch 11 closes (or hand switch 10 is closed), putting the "in" busbar 14 under pressure. After about three seconds, time-limit relay R_1 connects to this busbar the motor-operating mechanism of the main switch M_1 .

Transformer switch 1 then closes, closing auxiliary contacts C_2 and opening C_1 and C_9 .

With the contacts C_2 , C_3 and C_4 closed the starting circuit of the motor-mechanism M_2 is closed and the starting switch is brought to the starting (right-hand) position.

In this position of the starting switch the time-limit relay R_2 is put under pressure through contacts C_5 , and closes its own contacts in a maximum of about 100 seconds. In about thirty seconds the rotary has reached synchronous speed. Should the polarity be incorrect, shortly before the machine comes into synchronism, the polarized relay R_3 opens up the excitation circuit of the rotary. Time-limit relay immediately resets itself. Thus the time-limit relay R_2 closes its contacts only when the rotary polarity is correct; *i.e.*, when the polarized relay R_3 remains permanently closed during the time required by the setting of the time relay (fifty to 100 seconds). Then the contacts of relay R_2 close the "running" contacts of the motor mechanism M_2 .

If the transformer circuit breaker is opened due to a heavy overload, having been tripped by means of the series overload time-limit release R , the breaker goes back to its no-voltage position, closing C_1 and C_9 .

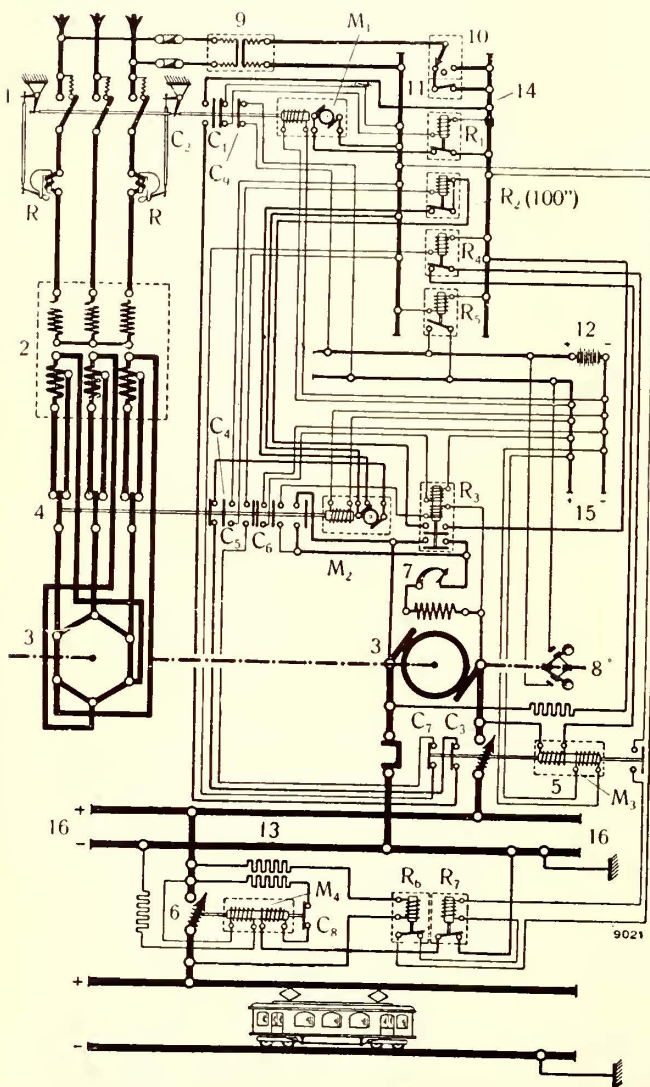
The closing of C_6 connects the storage battery 12 to the "out" bus 15, and automatic breaker 5 is opened by the release magnet. As there is no voltage on the direct current busbars, assuming that no other rotaries are connected to the system, the feeder breaker opens. If other rotaries are involved a reverse-current relay trips the feeder breaker.

The closing of C_7 operates time-limit relay R_4 , after about three seconds, and the switching-in process is repeated.

A somewhat different arrangement for the overload time-limit release R is to have it operate in connection with a ratchet relay which, after opening up three times within a short period, will open the transformer switches, leaving them in the open position and locking the circuit out.

When the supply of power to the substation is interrupted, the no-voltage release relay R_5 trips all of the switches and shuts down the entire station until normal line voltage is resumed.

The effect of heavy direct current overload or short-circuit is to open automatic feeder breaker 6 and finally the machine automatic breaker 5 will come out due to overload release. The latter will then be reclosed through contacts C_8 after the operation of relay R_4 in about



CONNECTION DIAGRAM FOR SWISS AUTOMATIC SUBSTATION

- 1. Transformer primary switch
- 2. Transformer
- 3. Synchronous converter
- 4. Starting switch
- 5. Machine automatic breaker
- 6. Feeder automatic breaker
- 7. Field rheostat
- 8. Overspeed centrifugal switch
- 9. Auxiliary transformer
- 10. Hand switch
- 11. Time switch
- 12. Auxiliary battery
- 13. Resistor
- 14. Busbar "in"
- 15. Busbar "out"
- 16. Station busbar
- R = Overload relay
- R_1, R_2, R_4, R_7 = Time limit relays
- R_3 = Polarized relay
- R_5 = No-voltage relay
- R_6 = Feeder relay
- C_1-C_9 = Contacts
- M_1, M_2 = Motor-switch operating device
- M_3, M_4 = Solenoid-switch operating device

three seconds. The feeder automatic breaker "switches in" when the contacts of feeder relays R_a and R_r close, *i.e.*, when the feeder resistance comes in.

The contacts of time clock 11, which are closed during the daytime, are opened during the evening for a predetermined period. This causes no-voltage relay R_s to operate, putting pressure on busbar 15. Switches 1, 4, 5 and 6 then come out.

SOME DETAILS OF THE EQUIPMENT

Polarized relay R_a is a direct-current relay with two current coils having the same number of ampere-turns, electrically separate. It has two contacts which close when the armature is attracted. One coil is connected to the auxiliary battery 12 and the other to the terminals of the rotary. One contact connects the field circuit of the converter while the second connects the pressure coil of the time-limit relay R_s to the bus 14, or disconnects it. As soon as the starting switch 4 comes in it connects the first coil to the direct-current battery circuit and the second coil to the alternating-current circuit of the rotary field. When the converter approaches synchronism and its "slip" approaches zero the frequency of the alternating current impressed upon the

field diminishes and the current in the field changes to direct current when the machine is at synchronism. This may or may not be in the proper direction, but if it is not the resultant field in the relay is zero and the armature drops for about half a second, permitting it to "slip a pole," repeating the operation if necessary, which in general is not.

As previously explained, the cutting in of the feeder switch depends on the feeder resistance, *i.e.*, the resistance in the outgoing line cannot be less than a certain amount. The control of the "switching in" of the feeder resistance is obtained by shunting feeder switch 6 by feeder relay R_a . If the feeder resistance is less than a certain value, a current flows through the current coil of relay R_a limited by a series resistance 13, which current attracts the armature of the direct-current relay. By the attraction of armature R_a the coil of relay R_r is disconnected and its contacts and the starting circuit of contactor M_1 are not closed. As soon as the feeder resistance permits "switching in," the contacts of relay R_a close and relay R_r switches in the feeder breaker after a fixed time. This arrangement prevents cutting in the feeder circuit during so-called oscillating short circuits.

Reorganizing After a Strike

Intensive Training Campaign of Trainmen Carried On in Denver Subsequent to Strike Results in Very Prompt Restoration of Service Reliability and Efficiency—Auditorium Meetings Brought to the Attention of Men by Means of Large Posters and Mimeographed Notices Which Were Given Out at the Division Offices

IRREGULARITY of service, inefficiency of trainmen and all manner of trouble are the aftermath faced by a company which undertakes a complete new organization in the transportation department after an unworthy strike. It is often a matter of a year or more before the transportation department will be functioning normally and the trainmen equipped with the proper knowledge of rules, respect for discipline and understanding of what goes to make up good service. The efforts of the Denver (Col.) Tramway to overcome the deficiency of a new transportation organization through an intensive training campaign as directed by Edward A. West, general superintendent, will therefore be of general interest.

On Aug. 1, 1920, the employees of the Denver company went on strike. The company was successful in replacing the strikers with new employees, but the majority of them were inexperienced in street railway work. Because of the dearth of instructors and the urgent need of placing cars in service as rapidly as possible, it was impossible to give these men the usual thorough instruction which is had under normal conditions. The result was the common one under such circumstances, that the company was operating cars with a force of men who were not familiar with many of the details of their work. Conductors were able to collect fares and give the motorman signals, but were unable to make out trip sheets properly and did not understand the transfer system. They were not thoroughly familiar with the city and were therefore unable to direct passengers properly or issue and collect transfers readily. Motormen were able to operate cars as long as nothing went wrong, but in doing so they were abusing the

motors and equipment. They did not know how to keep the car on the line in case of trouble and were not familiar with the danger points requiring special operating precaution. Furthermore, trainmen were unable to co-operate with one another because of ignorance as to how this was done or the need for it, and many delays and unreliable service resulted.

It was evident that individual instruction of the entire force would be slow and expensive, and the management therefore decided to give the men intensive instruction in groups, thus economizing the time of the instructors to a great extent and making it possible to reach the entire force in a much shorter length of time.

The subjects to be presented to the trainmen fell into two divisions, requiring different methods of instruction. The first of these divisions included all of those subjects which could be presented to the men in purely lecture form and readily impressed on their minds without resorting to "quizzing." The second division included those subjects of a more highly technical nature which could not be made clear without more or less individual instruction accompanied by examinations and opportunity for the men to ask questions.

All of the subjects in the first division were presented at general meetings of all trainmen in the Tramway Building Auditorium, the speaker presenting his subject only twice on the one day. For the convenience of the men, these meetings were divided into two sections, one in the morning at 10:30 and the other in the evening at 7:30, thus giving practically all men an opportunity to attend.

The subjects of the second division were presented to small groups of trainmen at the several division

headquarters and each class was conducted several times at each division. Schedules were so arranged that there were three times of meeting during the day: 10:30 to 11:30 a.m. for night men; 2:30 to 3:30 p.m. for split run men and a small proportion of night and day men, and 7:30 to 8:30 p.m. for day men. Special times were set for a small number of "matinee" men, unable to attend at any of the above periods. Each class, when started, continued to attend at the same time every day until the complete course was covered. Each man was required to take an examination after having completed the entire course of the division meetings.

The arrangement of meetings and subject matter covered is indicated in the following program:

AUDITORIUM MEETINGS		
Date	Subject	Speaker
Sept. 16	Day, night and split boards.....	J. L. Adams
	Accident reports.....	S. G. Shaw
Oct. 6 and 11	Transfers.....	F. W. Werner
Oct. 25.....	The instruction of new men.....	W. L. Abernathy
	The supervisory staff.....	B. V. Polkinghorne
Oct. 29.....	Naming and numbering streets.....	F. W. Werner
Nov. 5.....	The treatment of passengers.....	J. L. Adams
Nov. 18.....	Organization and discipline.....	E. A. West
Dec. 2.....	The prevention of accidents.....	H. S. Robertson
Dec. 9.....	Relation between employer and employed.....	E. Stenger
Dec. 16.....	Fire runs.....	Fire Chief Healy
	The traffic ordinance.....	Traffic Sergeant Hunt

DIVISION MEETINGS FOR CONDUCTORS		
Subject	Instructor	
Trip sheets and turn-ins.....	G. H. Brinker	
Schedule speeds and running times.....	H. J. Kuster	
Dispatching.....	B. Busch	
Transfers.....	G. H. Brinker	
Drill on rule book.....	W. L. Abernathy	
Examination.....		

DIVISION MEETINGS FOR MOTORMEN		
Subject	Instructor	
Schedule speeds and running times.....	H. J. Kuster	
Dispatching.....	B. Busch	
Equipment.....	N. R. Love	
Handling controller and brake; emergency repairs.....	A. J. Singer	
Speed over special trackwork; dangerous crossings, inter-sections and hills; electric switches.....	A. J. Singer	
Drill on Rule Book.....	W. L. Abernathy	
Examination.....		

Auditorium meetings were brought to the attention of the men by means of large posters, one for each division, and also by means of mimeographed notices which were given out at the division offices. In order to secure maximum attendance, each division superintendent detailed a man to see each trainman on his division and find out which meetings he would attend. This was very helpful in boosting the attendance at the early meetings, but was found to be unnecessary after the men's interest had been aroused.

The division meetings were supplemented by printed material covering the same ground as the meeting. These were handed to the men at the close of each meeting and covered the subject matter for the next meeting. A few days before his meeting, a list was sent to each man of the meetings which he was scheduled to attend, showing the subjects of each meeting, the time, date, place and instructor. At the time of sending these notices out, a roll-call sheet was prepared in quadruplicate, showing the name and number of each man and the meeting with time, place, date and instructor for each class, thus giving a square for each meeting for each man. The original was used by the instructors, the first copy held in case of loss of the original, the second copy used as a record sheet in the office, and the third copy sent to the division superintendent.

A large card was made out for each trainman showing his name, number and division and occupation (motorman or conductor). Assignments were recorded on this card in red. When a man attended a division meeting the date and his grade for the meeting were shown in black, opposite the proper meeting number. Auditorium

meetings were shown by stamping the date of the meeting at the bottom of the card with a crown dater. The back was used for road instructions given the man.

As the auditorium meetings were not repeated, the misses were not followed up. If a man missed one of the division meetings, however, he received an assignment to another meeting and a notice was sent to him to this effect. The new assignment was shown on his record card. A copy of the notice to the man was placed in a tickler file to come out on the day after the assigned meeting. In many cases where a man had missed a number of meetings, he was notified to report to the man in charge of schedules and make arrangements for attending. Every man had at least two opportunities to attend, and a large number had more than two opportunities. Notice of each miss was sent to the division superintendent interested.

The men were paid for auditorium meetings at the rate of 50 cents per meeting. Division meetings were paid for at the regular rate of the man, for one hour. The reason for this was, when the original plans were made, the day and night split board was in effect, and it was thought that it would be necessary to relieve each man during his time on duty, paying him for the entire time as if he were working. Shortly after the classes were started these runs were discontinued and a straight nine-hour board was put into effect. The result of this was that a large percentage of the men attended the meetings before or after going on duty.

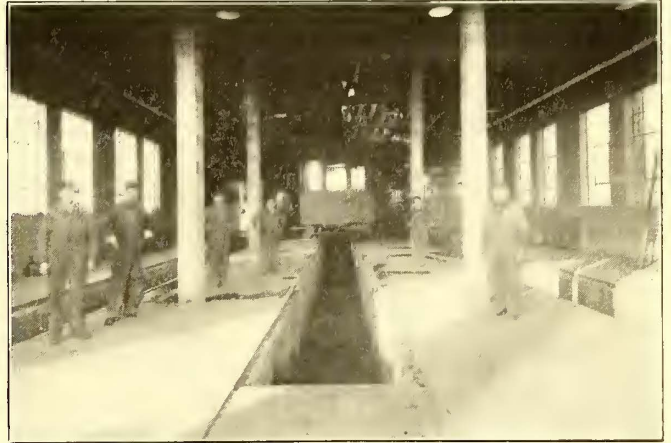
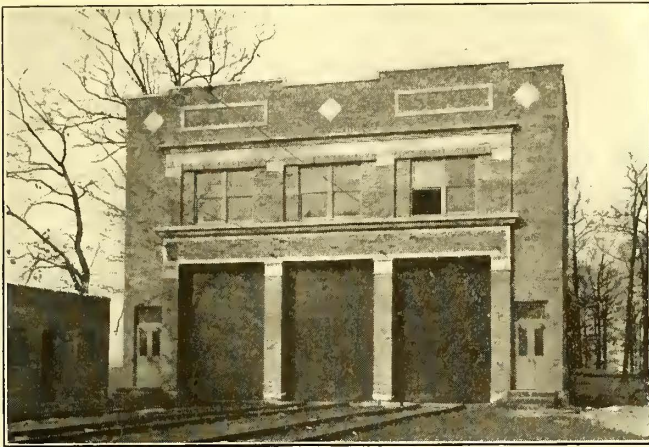
The measure of success gained by the officials in securing attendance at these meetings is given in the following table:

Total number of division meetings.....	293
Total attendance at division meetings.....	4 184
Average attendance per meeting.....	14.3
Total attendance by men who left company.....	283
Total attendance by men still with the company.....	3,901
Number of men who finished meetings and examination.....	512
Number of men who missed examination.....	139
Number of men who missed examination and one meeting.....	36
Number of men who missed examination and two meetings.....	73
Number of men who missed examination and three or more meetings.....	170
Average number of meetings attended by each man.....	4.2
Percentage attendance.....	76.5

Total number of auditorium meetings.....	10
Total attendance.....	3 540
Average attendance at each meeting.....	354
Total attendance by men who have left company.....	272
Total attendance by men still with company.....	3,268
Average number of meetings attended by each man.....	3.5
Percentage attendance.....	35

The final results of this instruction work are impossible of exact measurement, because other conditions than the instruction program in force at the same time helped to improve the service. The final measure of the results is of course the increase in revenue due to the increased efficiency of the men. Just prior to the time at which the instruction work was started, the total revenue from city lines was approximately \$2,000 per day less than for the same period in 1919. During the early part of January, 1921, just after the completion of the instruction work, this difference had dropped to approximately \$750 per day, or an increase in the general trend of revenue of approximately \$1,250.

Part of this improvement is undoubtedly due to the operation of a greater number of cars, but it is also due in great measure to higher operating speeds and greater reliability of service, which are in turn at least partially attributable to the instruction work. The cost of the instruction campaign was not in excess of \$5,500. At a conservative estimate that it resulted in an increase in revenue of only \$200 per day, the cost was paid for in the course of less than one month's operation.



AT LEFT, FRONT OF NEW CARHOUSE IN MASSILLON, OHIO. AT RIGHT, CONCRETE FLOOR AND OPEN TYPE PITS FACILITATE INSPECTION WORK

New Car House in Massillon Occupied

Northern Ohio Traction & Light Company Moves Into New Brick Carhouse in Massillon, Replacing the Main Street House, Which Was Destroyed by Fire

THE old carhouse of the Northern Ohio Traction & Light Company on Main Street in Massillon was abandoned a short time ago when the occupancy of the new house, built just off the Canton-Massillon Road, was completed. The new carhouse, a brick building with stone trimmings, will care for twenty-two city cars, a snowplow and a work train. It contains a repair shop, with a supply building adjoining, where facilities are provided for making only the lighter car repairs. The main building is 63 ft. wide by 120 ft. long and two stories high.

On the first story open or intercommunicating type pits extending practically the full length of the building facilitate inspection, repairing and cleaning of cars. The tracks over these pits are supported on steel columns incased in concrete. The upper floor, supported by center columns of the same type, contains the dispatcher's office, a trainmen's club-room, separate lockers for the mechanics and trainmen and complete shower baths. The clubroom, containing comfortable chairs, pool tables, books and magazines, is an exceptionally attractive place.

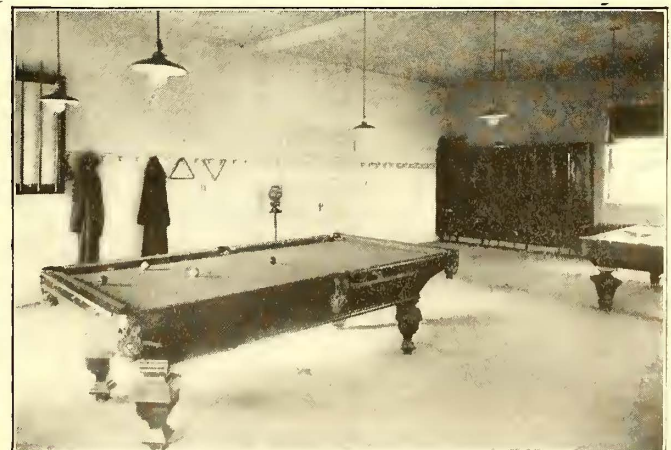
The floors of the building are concrete. It is heated with a vapor heating system.

The carhouse which was damaged by fire some years ago will soon be completely wrecked. The property faces a frontage of 60 ft., with a depth of 420 ft. The new location was selected in order to release for sale this more valuable city property.

There are about 200 ft. of switches in and around the carhouse. As the demands for more trackage increase additions will be made to the yard in the rear of the building. One of the company's substations, itself an attractive building, is located on the same property only a short distance from the carhouse.

Work of F. A. E. S. Is Progressing

A RECENT statement by the executive secretary of the Federated American Engineering Societies, L. W. Wallace, says that permanent headquarters have been established at 719 Fifteenth Street, N. W., Washington, D. C., where there will be a conference room for those engineers who may desire to use the headquarters as a meeting place. Mr. Wallace will be permanently located at this office in the near future. The statement also mentioned recent activity in a number of states regarding the licensing of engineers. While the F. A. E. S. has not initiated any such legislation nor urged its passage, it has taken the position that it desires to be instrumental in securing the passage of bills that will



AT LEFT, A CORNER OF THE DISPATCHER'S OFFICE ON THE SECOND FLOOR. AT RIGHT, TRAINMEN'S CLUBROOM ON THE SECOND FLOOR, MASSILLON CARHOUSE

not be detrimental to public interests and to the engineering profession. The field work of the committee on elimination of waste in industry, to which reference has already been made in this paper, will be completed by April 15, and it is expected that the final report will be published some time in June.

The next meeting of the executive board of the Federated American Engineering Societies is to be held in Philadelphia on April 16. The dinner in the evening will be addressed by President Hoover, and it is expected there will be a large attendance of engineers.

New Apprenticeship System of French Railroad

The Paris-Orleans System, Which Will Soon Have an Extensive Electrified Mileage, Has in Use a Comprehensive Plan for Training Mechanics

IN RECENT issues of the *Revue Générale des Chemins de Fer* and the *Génie Civil* some interesting detail is given of the apprenticeship system which is in use by the Paris-Orleans Railway. While this is a steam road, the principles which it has developed have wide application.

The courses of instruction are designed to give apprentices both practical and theoretical training. The students are admitted between the ages of fourteen and seventeen years on the basis of a simple examination, including medical inspection. On admission, apprentices sign a contract which is countersigned by the parents, under which they agree to remain until their military service begins. The breaking of the contract involves forfeiture of the right to a cash reward on completion of the course.

Each year about 400 students are admitted, and they remain to the end to a very satisfactory extent.

The fundamental principles followed in the course are these: (1) The apprentice is developed in the shop, where his work is followed as in a school. (2) He is paid enough to hold him, and he is given sufficient practical work partially to offset his wages and at the same time to interest him. (3) His theoretical instruction, for which about six hours per week are reserved, consists principally of showing why and how the work must be done in a particular way. It comprises courses in French, arithmetic, geometry, physics, mechanics, drawing and technology.

APPRENTICES ARE PLACED IN SPECIAL SHOPS

The apprentice is not placed alone in the midst of regular workmen, but is given special equipment in a separate but real shop. He learns his trade through productive work; making, in the Orleans shop, complete locomotive repairs, for example. Experience shows that the apprentices can become as skillful in this way as if they had been retained in the regular shops.

Unless it is absolutely impossible to do so, the apprentices are grouped in the shop under the surveillance of an instructor, who can effectively direct ten to twelve young men. As far as possible the same instructor gives the practical and theoretical instruction.

The railway gives two general varieties of instruction, that at the depot shops and that at the main shops. The first is designed principally to produce workmen capable of becoming traveling locomotive inspectors and locomotive repair foremen, while the other is to train specialists in the various branches of shop work.

In the courses one-half a day is devoted to theoretical work (six hours per week) and instructive shop exercises (eighteen hours per week), the remainder of the day being spent in routine work. In the first year the young men are occupied at the bench-vise, on machine tools, at the forge and in the boiler shop. In the second year they are grouped in special sections supervised by selected workmen, to whom they serve as assistants. In the third year they work under the direction of instructors but without special workmen.

The foundry and forge apprentices pass a year in one or the other of two special schools, where they follow a practical course and cover fundamentals of descriptive geometry, tracing of drawings, manual work of the foundry on one hand, or one on theoretical rules of the art of modern forging, rules of welding and actual forge work for the other.

The theoretical instruction in the general course covers three years, although the program is for two years only, the second year being taken up with review of the first-year courses.

A supervisor has oversight of the apprentices throughout courses, and competition is fostered by the giving of prizes for excellence in passing examinations. Graduates from the courses receive diplomas and leather-bound records of the results of their examinations.

The young men are paid at the start from 1½ to 1¾ francs per day, according to age, and the compensation is increased gradually until they reach as much as or even more than the regular workmen are paid, as their skill and capacity increase.

THE "SECOND DEGREE" COURSE

Young men who in their first year are deemed to be capable of profiting by a higher type of instruction than that given the apprentices are admitted to a three-year complementary course. About one-thirtieth of the new men, or 7 to 8 per cent of the total number of apprentices are admitted to this course each year. This course is covered by a special contract. It covers more advanced principles of mathematics, the elements of mechanics and physics sufficient for the understanding of the operation of the machines and the purposes underlying shop operation, a course in steam machinery and in the repair of the complete equipment, and is topped off by a course in industrial design, some fundamentals of electricity, chemistry and political economy. These courses are conducted by correspondence with experts at the company headquarters at Orleans. An examination is held each month.

The "second degree" apprentices are counted upon to assure a supply of recruits for positions as inspectors, foremen, underdepot chiefs, etc.

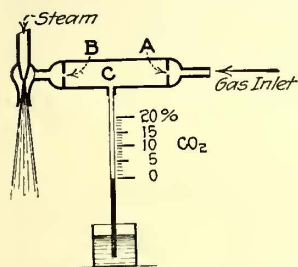
As to the financial results of the apprenticeship system, these are difficult to demonstrate. Apprentices receive annually a total of about 3,500,000 francs, and the general expense is about 100,000 francs. In addition, machines which are repaired by apprentices are out of commission somewhat longer than when they are repaired in the regular way. The first year the apprentices undoubtedly cost more than they return, but the reverse is true during the second and third years. On the whole the 1,200 apprentices appear approximately to produce enough to compensate for the cost of operating the plan. In addition there is the improvement in recruiting facilities and in the development of better characteristics in the personnel.

Improved CO₂ Recording Equipment

Added and Improved Features Make CO₂ Recorder More Valuable for Preventing Inefficient Boiler Operation—
Remarkably Quick Action, Greater Accessibility and Simplicity of Parts Among Advantages

THE Uehling Instrument Company has introduced a new model CO₂ recording equipment, known as style "U," which embodies important improvements over the superseded model. Chief among its advantages are remarkably quick action, greater accessibility and simplicity of parts and the economy of combining in one machine means for determining CO₂ simultaneously from any number of boilers up to six.

A single-unit Uehling CO₂ equipment for one boiler consists of three principal parts, namely, a CO₂ meter proper, a recorder and an auxiliary boiler front indicator. The function of the meter, which is placed wherever most convenient, is to actuate the boiler front indicator and the recorder in the engineer's office.



THE CHAMBER OF THE CO₂ METER, ILLUSTRATING THE PRINCIPLE INVOLVED IN ITS OPERATION

The flue gas is analyzed—that is, the CO₂ is extracted—in the meter. The principle involved in the operation of this machine depends upon the change in pressure caused by a change in volume

in a stream of gas flowing through two apertures. Referring to the diagram, gas is drawn continuously by the action of an aspirator through aperture A into the chamber C and out through aperture B. A reduction of the gas volume between the two apertures caused by the absorption of the CO₂ content causes a change of pressure or tension in chamber C, which is transmitted to the recorder and indicator calibrated in per cent CO₂.

The CO₂ meter consists essentially of a cylindrical regulator on which is mounted the analyzing mechanism. This regulator maintains constant the suction created by the aspirator, thereby eliminating all changes in pressure between the two apertures except those caused by absorption within the chamber. It is the latter changes in pressure which the indicator and recorder register.

Suction in the chamber actuates the recorder and indicator continuously and almost instantaneously. The only appreciable lag was formerly in the travel of the gas from the boiler to the instrument. In the new model the gas travel is hastened by utilizing the main aspirator's exhaust in an auxiliary aspirator to draw the gas from the boiler up to the absorption chamber, while the main aspirator simply draws the gas sample through the absorption chamber. The preliminary filter, which removes soot and dirt from the sample before it reaches the intermediate and final filters on the machine, has been redesigned so that the filter chamber can be conveniently cleaned without interrupting the operation of the apparatus. This method of flue gas analysis employs no chemicals, but substitutes for them a convenient dry absorbent carton, readily removed and replaced.

Multiple equipments combine in a single outfit means for measuring the percentage of CO₂ from one up to six boilers independently. This apparatus is designed on the unit plan and may be added to from time to time.

For instance, a plant having initially an equipment of less than six units can easily have attached additional units, until the total is six, as new boilers are installed.

Mechanical Sanders for Safety Cars

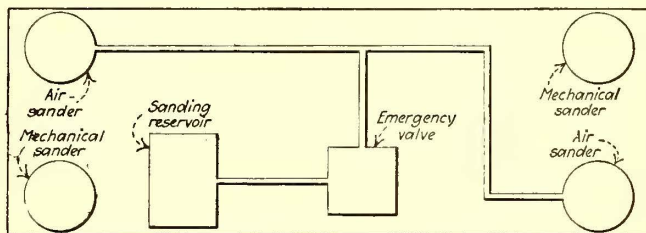
Two Air Sanders Used on Safety Cars of Trenton & Mercer County Traction Company Being Replaced with Mechanical Sanders in Interest of Safety and Economy

BY HERBERT E. KROUSE

Master Mechanic Trenton & Mercer County Traction Company, Trenton, N. J.

ON THE sixty Birney safety cars which the Trenton & Mercer County Traction Company is operating the sanding equipment originally consisted of four sand hoppers with air sanders, all of which were in operation whenever an emergency application of the brakes took place. This caused an exceptionally large amount of sand to be used, which the company's officials felt could be somewhat reduced. Results of trials made in Trenton have shown that, while the air sanding feature which is incorporated in the M-28 brake valve has many good points, still a mechanical sander which will operate with a slight continuous foot pressure seems preferable.

The excessive amount of sand used with air-operated sanders, the labor necessary for drying the sand and filling the sand boxes, the added duty put on the air compressor, the lack of sand where the air fails and



ARRANGEMENT OF SANDING EQUIPMENT FOR SAFETY CARS

the rather high maintenance of the brake valve which is used to operate the air sander combined to make it desirable to change this part of the equipment. The accompanying diagram shows the arrangement which is now being used. One air sander on each end of the car has been removed and foot-operated mechanical sanders, manufactured by the Nichols-Intern Company, have been substituted. In regular service this would give but one sand box delivering sand to the rail instead of two.

The two remaining air sanders are disconnected from the brake valve, but still retain their connection with the emergency valve. This assures the delivery of sand to the rail during an emergency application from either the brake valve or the controller handle, and insures that but two sanders are working instead of four. The hinged air lever is no longer a necessity and this change should materially increase the life of the lever and reduce the maintenance cost.

From results so far obtained, we believe that by carrying out this change we shall be able to effect a very large saving over our present cost for maintaining the sanding equipment on our safety cars and in all other items bearing a relation to this one there will be a corresponding saving.

Boiler Inspectors Meet in Detroit

THE first annual meeting of the National Board of Boiler and Pressure Vessel Inspectors brought together at the Hotel Statler in Detroit recently a group of about sixty men, including members of the board itself, members of the boiler code committee of the American Society of Mechanical Engineers and other interested persons.

The first day was devoted to addresses. Dr. D. S. Jacobus, acting chairman of the boiler code committee, told of the development of the code, emphasizing the fact that no action had been taken without consideration of the interests of all involved in the questions under discussion. Charles E. Gordon, chairman of the American Uniform Boiler Law Society, told how the first boiler code committee came to be appointed by Colonel E. B. Meier, then president of the A. S. M. E.; how the society had reached the limit of its functions in the formulation and interpretation of the code; how the Uniform Boiler Law Society had been organized to promulgate the code, and how the National Board of Boiler and Pressure Vessel Inspectors had been organized at the instigation of the American Uniform Boiler Law Society.

Some of the other speakers were E. R. Fish, vice-president Heine Safety Boiler Company; F. R. Low, editor of *Power*, and J. G. McCabe, commissioner of the city of Detroit and chief inspector of boilers for the State of Michigan.

On the second day the members of the board took part in the deliberations of the boiler code committee, the meeting of which was held at Detroit in order to give the committee the advantage of conference with men from all over the country who are enforcing the code. Joseph F. Scott, inspector from New Jersey, is to continue as chairman of the National Board, and C. O. Myers of Ohio as secretary-treasurer. The objects of the Board of Boiler and Pressure Vessel Inspectors as stated in the constitution adopted are as follows: To promote uniform boiler laws; to secure uniform approval of specific designs of boilers and other pressure vessels, as well as appurtenances and devices used in connection with their safe operation; to promote one uniform code of rules, one standard stamp to be placed upon all boilers constructed in accordance with the requirements of that code, and one standard of qualification and examination for inspectors who are to enforce the requirements of said code, and to compile official statistics.



FOUNDATION READY FOR THE LAYING OF THE TRACKS

Track Construction During Severe Weather

ACCOMPANYING photographs show different stages of the work of double tracking a line in Fort Wayne, Ind., by the Indiana Service Corporation. This work was done on Clinton Street, between Main and Lewis Streets, a distance of five blocks. The work was completed in a little less than a month's time at a cost of approximately \$50,000. During the construction the temperature of the weather was below freezing for a considerable part of the time and in one of the accompanying illustrations the substructure may be seen covered with manure to keep the new construction from freezing.

Previous to the double tracking of this line there was a single track on this street, but the congestion of traffic on Calhoun Street, which is one block west of Clinton Street, and is the main traffic street of the city, was so great that some change was imperative. It was accordingly decided to double track the line through Clinton Street and run the cars both ways on this street instead of into the city as was done previously. The city authorities insisted that the Indiana Service Corporation complete the work within one month, and the work was done in this time by working both day and night shifts.



AT LEFT, TIES IN PLACE AND TRACK CONSTRUCTION STARTED. SUB-BASE COVERED WITH MANURE TO PREVENT FREEZING. AT RIGHT, TRACKS IN PLACE AND CONCRETE BEING POURED

Letters to the Editors

Accident Reduction Versus Excessive Concentration Upon Fare Collection

NEW YORK CITY, March 25, 1921.

To the Editors:

A recent analysis of damage and injury claims and suits against street railways showed that the primary cause of one class of accidents is that more attention is devoted by the conductor to the collection of fares than to the safety, comfort and convenience of his passengers.

It is all very well to endeavor to impress the car operatives with the importance of "safety first," but the relation of fare collection to this must not be overlooked. While the now almost universally used "closed step and door," especially of the type used in the one-man car, have, if properly used, a great tendency to lessen "step accidents," they introduce danger of accident if carelessly operated. This is due to the fact that there have been laid on the car operatives, especially on the conductors or fare-takers, other duties which engage their attention to the exclusion of care which should be exercised for the safety, comfort and convenience of the passengers.

The "prompt and accurate" collection of fares is made a fetish by many street railway companies, although modern fare-collection practice renders it no longer necessary for the conductor to concentrate his whole attention on that one point.

On one property investigated, not 10 per cent of the conductors paid more than perfunctory attention to the opening and closing of the steps and door. A complete analysis of the situation on this road and on others plainly proved that the trifling saving in fares effected by the strict attention required of the conductor in completely collecting them was but a small fraction of the resulting cost of the accidents, the unfortunate effect of the "near accidents" and the accompanying irritating incidents. While "safety first" was well propagated among the carmen, there was lacking the incentive that existed with reference to the collection of fares. The fare-taker was held personally accountable for proved failure to collect the full amount and number of fares and consequently manifested a strong interest in this portion of his duties.

This matter was brought strongly to the attention of the writer many years ago when he was operating a street railway on which there was not only the usual rush traffic at morning, noon and night, but which had, during the summer season, tremendous rush traffic during whole days due to excursionists and other pleasure seekers. This was complicated, at that time, by the use of open cars and by the fact that the conductor personally collected fares by passing through the car or on the side-board of the open cars. After analysis of the situation the stress on the carmen regarding fare collection was reduced and more emphasis was laid upon accident prevention, with a full explanation to the carmen as to the reasons therefor. The results were carefully watched and, as far as possible, tabulated. The first results were not especially encouraging as regards

fare collection, but the results as to the lessening of accidents were so good that the proof of the efficiency of the change was noticeable. After the elimination of the carmen who dishonestly took advantage of the concession, the number of accidents was permanently reduced more than two-thirds.

This matter is certainly worth the consideration of many street railway managers, as it is found that few of them have properly considered this aspect of the case.

"MANAGER."

"Present Value" in the Galveston Case

CHICAGO, April 1, 1921.

To the Editors:

In your issue of March 19, page 571, there is a summary of a court decision entitled "Present Value Theory Rejected." The title is misleading, for the court sustained the present value theory, and actually added 33½ per cent to the original cost to get the prospective reproduction cost, from which accrued depreciation was deducted.

H. P. GILLETTE.

[EDITOR'S NOTE.—The thought back of the caption written was that the special master's proposed plan of recognizing present value in the Galveston case was rejected. Mr. Gillette is correct, however, in his statement that the court did not reject, but rather followed, the present value theory as the correct basis, as described in the article, although the court took a somewhat novel method of arriving at the figure to use.]

Car Development in Boston

IN THE March, 1921, issue of *Stone & Webster Journal* appears an interesting account of the development of the urban transportation system in and around Boston, Mass., from the time that coaches and omnibuses were first operated. It seems that the first omnibus in Boston, the "Governor Brooks," started running in 1833, over a route from the Winnisimmet Ferry at the foot of Hanover Street to Roxbury. The fare was 12½ cents and it took an hour and a quarter to make the trip. The bus was drawn by four horses and had seats for eighteen passengers outside and six inside, making a total of twenty-four.

The first horse railway in Massachusetts is said to have been from Harvard College, Cambridge, to Union Square, Somerville, about 1½ miles. The equipment was a dilapidated steam railroad coach, to which a pair of horses was hitched. There is a wide disagreement as to the date of the brief career of this horse railway. In 1852 the first charter was granted to a horse railroad. This was to what was known at that time as the Dorchester & Roxbury Railroad. The first horse-drawn street car was run over Boston streets on March 26, 1856. Electric cars were first operated on Feb. 16, 1889.

The original horse cars were 16 ft. long, with a seating capacity of twenty. The first cars with electric equipment seated thirty-four passengers and cost \$3,500. In 1905 the semi-convertible car was introduced. This was 48 ft. 2.5 in. over all and had seats for fifty-two passengers and cost from \$10,000 to \$12,000. In 1917 the center-entrance, 6,000 type car was first put on the streets. This car is 48 ft. 2.5 in. over all, seats fifty-eight and cost \$15,000. The Cambridge subway cars are 69 ft. 2.5 in. over all, seat seventy-two and cost \$24,000 each.

Association News

Audit Nearing Completion

PRESIDENT GADSDEN was in New York last week. In speaking of the association affairs, he said that the financial audit, which is being made under the direction of M. R. Boylan, Public Service Railway, is nearing completion. The check-up indicates that the loss due to misappropriation of funds will exceed the amount originally given out. At the present time this is estimated at from \$60,000 to \$70,000.

No definite action has been taken on the selection of a permanent secretary. One suggestion, made by several members of the association representing large interests, is that the position of secretary be not filled immediately. Several names for the position of secretary have been mentioned.

The next meeting of the executive committee will be held on April 15.

Convention Committees

TWO additional committees, one on convention location and one on exhibits, have recently been appointed to assist in perfecting plans for the 1921 convention.

The personnel of the committee on location consists of J. G. Barry, General Electric Company, New York, chairman; D. B. Dean, Kuhlman Car Company, Cleveland, Ohio; F. C. J. Dell, National Railway Appliance Company, New York; H. B. Flowers, United Railways & Electric Company, Baltimore, Md.; F. H. Gale, General Electric Company, Schenectady, N. Y.; B. A. Hege-man, Jr., National Railway Appliance Company, New York; C. L. Henry, Indianapolis & Cincinnati Traction Company, Indianapolis, Ind.; J. B. Kilburn, Hale & Kilburn, New York; W. H. Sawyer, East St. Louis & Suburban Railway, East St. Louis, Ill.; J. N. Shannahan, Newport News & Hampton Railway Gas & Electric Company, Hampton, Va.; H. D. Shute, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., and J. J. Stanley, Cleveland Railway, Cleveland, Ohio.

The committee on exhibits is made up as follows: J. C. McQuiston, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., chairman; F. C. J. Dell, National Railway Appliance Co., New York; F. H. Gale, General Electric Company, Schenectady, N. Y.; S. D. Hutchins, Westinghouse Traction Brake Company, Columbus, Ohio; E. B. Meissner, St. Louis Car Company; W. J. Pine, Railway Utility Company, Chicago, Ill.; E. C. Price, Indianapolis Switch & Frog Company, Cleveland, Ohio; A. M. Robinson, J. G. Brill Company, Philadelphia, Pa.; W. L. Schaeffer, National Tube Company, Pittsburgh, Pa., and L. W. Shugg, General Electric Company, Schenectady, N. Y.

The exhibit committee has sent to manufacturer members through acting Secretary Welsh four questions concerning the holding of an exhibit at the 1921 convention. It is hoped to determine in advance if possible the attitude of the manufacturers on this matter due to present depressed business conditions and the unsatisfactory proposition offered by the pier representatives at Atlantic City. The questions are based on

a charge for exhibit space of 60 cents per square foot, the same as last year. Each member is requested to say if he favors holding an exhibit at Atlantic City, whether or not he will exhibit, and approximately how much space he will use. Answers are requested by April 12 due to the fact that the matter must be definitely decided at the coming executive committee meeting, to be held on April 15.

Delegates to Annual Meeting of Chamber of Commerce

ACTING SECRETARY J. W. WELSH of the American Association has just announced the names of the national councillor and alternate and the delegates and alternates for the annual convention of the Chamber of Commerce of the United States, to be held in Washington, D. C., April 27 to 29. The list follows:

National councillor, Lucius S. Storrs, president the Connecticut Company, New Haven, Conn.; alternate, J. H. Hanna, vice-president Capital Traction Company, Washington, D. C. Delegates, J. P. Barnes, president Louisville (Ky.) Railway; W. A. Draper, vice-president Cincinnati (Ohio) Traction Company; P. H. Gadsden, vice-president United Gas Improvement Company, Philadelphia, Pa.; John H. Pardee, president J. G. White Management Corporation, New York, N. Y.; W. H. Sawyer, vice-president E. W. Clark & Company Management Corporation, Columbus, Ohio; Thomas S. Wheelwright, president Virginia Railway & Power Company, Richmond, Va. Alternate delegates, H. W. Blake, editor *ELECTRIC RAILWAY JOURNAL*, New York, N. Y.; F. R. Coates, president Toledo Railways & Light Company, Toledo, Ohio; D. B. Dean, manager Kuhlman plant the J. G. Brill Company, Cleveland, Ohio; M. B. Lambert, manager railway department, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.; Charles C. Peirce, manager railway department, General Electric Company, Boston, Mass.

Way Committee Meets

AMEETING of the Engineering Association committee on way matters was held at association headquarters on April 6. All day and evening was spent in technical discussion of standardization of special trackwork, joint welding and allied topics. The results of a large amount of detail work by sub-committees were presented and it was evident that real progress has been made in the difficult work of standardizing frogs, cross-overs, turnouts, etc. Some recommendations as to standards were adopted and a tentative program was laid out for the next meeting, to be held May 18, with provision for necessary sub-committee meetings in the meantime. The committeemen present were: R. C. Cram, Brooklyn Rapid Transit Company, chairman; H. A. Abell, New York State Railways, Rochester; Victor Angerer, Wm. Wharton, Jr., & Company, Easton, Pa.; S. Clay Baker, East St. Louis & Suburban Railway, East St. Louis, Ill.; W. R. Dunham, Jr., the Connecticut Company, New Haven; E. B. Entwisle, the Lorain Steel Company, Johnstown, Pa.; Howard H. George, Public Service Railway, Newark, N. J.; E. M. T. Ryder, Third Avenue Railway, New York, N. Y., and James Budd and F. A. Weymouth, representing C. A. Alden, Bethlehem Steel Company, Steelton, Pa., who was kept away by illness. A telegram of sympathy was

sent Mr. Alden by the committee. S. W. Dannatt, Rail Welding & Bonding Company, New York, N. Y., was also present by invitation.

Co-operation and Responsibility

THE following letter was written by H. M. Atkinson, chairman of the board of directors of the Georgia Railway & Power Company, Atlanta, Georgia, to W. D. Mahon, president of the Amalgamated Association of Street and Electric Railway Employees of America, subsequent to the appearance of Mr. Mahon's article in the Feb. 12 issue of the *ELECTRIC RAILWAY JOURNAL*.

Mr. Mahon has written to Mr. Atkinson that he will answer his letter in the near future. Meanwhile this original letter is printed in the *ELECTRIC RAILWAY JOURNAL* with the consent of Mr. Atkinson and Mr. Mahon. The letter follows:

GEORGIA RAILWAY & POWER COMPANY
OFFICE OF THE CHAIRMAN

ATLANTA, Feb. 24, 1921.

MY DEAR MR. MAHON: Your article on the street railway problem which appears in the Feb. 12 issue of the *ELECTRIC RAILWAY JOURNAL* is very interesting. Your statement appeals to me because I am especially interested in the problem, and also because you state the points clearly and simply. In the main I agree with everything you say.

There is one phase of the service-at-cost plan that you do not deal with. This particular phase is the one that has given me most trouble in trying to bring myself to accept the plan. To put it briefly, the question I wish to ask is, how are you going to prevent expenditures, and therefore rates, from spiraling upward in "vicious circles"? It seems to me that this problem must be solved in each case where the plan is adopted. I have general ideas of my own how this could be accomplished, but I am very anxious to have your views. Personally, I doubt whether a supervisory commission or commissioner will solve this question satisfactorily.

In some way the incentive to efficiency must be retained. If all hope of gain, or perhaps a better way to put it is reward, from efficiency is removed, capital cannot be obtained, nor will men of proper skill and ability be obtainable. No matter what our beliefs or theories may be, if the incentive of gain or reward is removed business will die.

The problem the Federal Labor Board is struggling with in Chicago at the present moment is, in a nutshell, nothing but what I have tried to state above. The labor organizations tell the roads if they are losing money to go to the Interstate Commerce Commission and get higher rates. But the rates already are all the "traffic will bear." No matter how much we may protest against it, there is no avoiding the economic law that wages as well as rates must and will come down or go up relatively to the decrease or increase in the purchasing power of the dollar. The value of the services of every individual worker, including you and me, is subject to that law.

Why isn't the present Cummins-Esch law in its general application a service-at-cost plan?

Referring to your idea of co-operation between the public (consumers), the owners and the operators, I agree with you thoroughly. But it has not been worked out practically, so far as my observation goes. If or-

ganized labor can be induced to assume completely its just share of responsibility for production to the extent of guaranteeing it with responsibility, I imagine that nearly all the opposition to the "closed shop" on the part of employers will disappear. It is my opinion that the weakness of organized labor is that it does not come out frankly and accept this responsibility. It cannot be avoided in the end, and the fact that it does not accept such responsibility is the source of nearly all the trouble. What I mean is that if organized labor seeks partnership it must assume the responsibility of a partner. It must accept the unavoidable fact that the only source for the payment of wages is production.

I have been hoping for a long time to see you again. I would like to discuss this subject and others with you.

H. M. ATKINSON,
Chairman of the Board.

Controversies Over Car Insurance Eliminated

A NEW form of insurance policy covering rolling stock has this year been negotiated with the insurance companies by T. A. Ferneding, vice-president and general manager Dayton, Springfield & Xenia Railway, Dayton, Ohio. The usual form of policy covers all cars at 100 per cent of their combined value and is known as a blanket policy. In case of loss by fire, when the company has a policy of this kind, there are two positions the insurance companies may take which tend to defer settlement.

If the insurance company establishes on investigation that the insurance carried on all cars was less than 100 per cent of their value, the railway company becomes a "co-insurer" to the extent of the percentage of total value not covered. On the other hand, if the insurance company takes the position that the cars are overinsured, and therefore refuses to pay the full loss on that basis, then the railway company is in the position of having paid premiums on the excess insurance to no avail.

In the new form of policy each car is listed by number with a stipulated value determined by two people and agreed upon in advance by the railway company and the insurance company. This list of car numbers and corresponding values is attached to the policy and made a part thereof. If the value of a particular car is established at \$15,000 it is insured at \$15,000, and in case of loss the railway company simply makes claim for the loss of certain cars listed by number, and their value is a fixed amount upon which there can be no controversy. The values placed upon the cars are adjusted each year to provide for changing market conditions and deterioration of equipment. Mr. Ferneding thinks that this arrangement will eliminate a lot of unpleasant negotiation and properly insure the railway company against loss or excess premiums.

Congress has increased the annual appropriation for the United States Forest Products Laboratory, located at Madison, Wis., by the sum of \$100,000. This will enable the laboratory to extend its researches in the field of wood preservation, etc., many of which are of great value to the electric railway industry. Carlile P. Winslow, director of the laboratory, has issued an expression of appreciation of the active indorsement of the laboratory by its many friends.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION
PERSONAL MENTION

Toledo Problems Pressing

Rerouting, Wages and Power All Claim Attention Under Service-at-Cost
—Will Check Costs

Toledo has a great deal to think about as a result of the submission of a rerouting plan, suggested wage reductions by the Community Traction Company, and negotiations looking toward the establishment of a proper power rate for the traction company.

FOUR PLANS FOR REROUTING

At a meeting of the board of control Commissioner Wilfred E. Cann presented four suggestions for rerouting which were approved and handed over to the Council for action. One of these would result in the rescinding of a 12-mile speed law and permit speeding up of all cars so as to obtain a 9-mile an hour average rather than 8 as now.

The wage contracts of platform employees and electrical workers expired at midnight on March 31 and at that time no agreement had been reached. It was agreed, however, to maintain the status quo until April 8.

The present wage scale for platform men is 60 cents for those who have been with the company for six months, 56 cents for those in employ three months, and 54 cents for those beginning. The scale suggested by the company and turned down by the men provided for a cut of 2 cents an hour for the old employees and rates of 54 and 50 cents an hour for the other classes. The cost of living in Toledo was shown to have dropped 15 per cent since the 1920 contract was drawn.

It has developed that the Community Traction Company took up as an obligation with the railway property approximately \$50,000 of last year's taxes on the railway. Commissioner Cann and the board are attempting to spread this amount over a long period so that operating costs will not be loaded too heavily the first few months. The company also took to itself paving obligations of \$185,000 and it is the feeling of the board that this item should be placed in capital account in some way.

POWER ENGINEERS CONFER

The power matter was taken up at a conference attended by Law Director Martin; Commissioner Cann; B. V. Phillips, consulting engineer, Cleveland; Henry Riggs, valuation engineer, Ann Arbor; David Friday, accountant, Ann Arbor; members of the street railway board, Frank Coates, president of the traction company, and Ferd Derge, assistant general manager of the Toledo Railways & Light Company.

The Acme Power Company plant, a Doherty enterprise, not a public utility, supplies 90 per cent of the traction power. If Henry L. Doherty will give permission David Friday and B. V. Phillips will check the costs right back to the coal pile. Then negotiations for a fair rate will begin with arbitration as the final step in the event of failure to agree.

Taxpayer Attacks Cincinnati Service at Cost

Forfeiture by the Cincinnati (Ohio) Traction Company of its fifty-year franchise, granted by the Rogers law in 1896, was demanded by Attorney Albert S. Alcorn in a taxpayer's suit filed in Common Pleas Court on March 29. The Cincinnati Street Railway, from which the Traction Company leases its lines and rights, also is made a defendant. The suit charges that the Traction Company has violated its franchise in that more than 5 cents is charged for a ride in violation of the provisions of the Rogers law. Attorney Alcorn, explaining this provision, said that he believed the revision ordinance, known as the service-at-cost plan, was unconstitutional. The Rogers law, he explained, provides for a decrease in fare only.

The plea asserts also that the companies have decreased the percentage tax on gross earnings which they were required by the terms of the fifty-year franchise to pay to the city. Refusal to pay car license fees required by the Rogers law also is charged in the suit.

Other charges in the suit against the companies are that they have sold steel rails and other commodities to individuals and corporations, thus defrauding the city out of \$400,000.

Attorney Alcorn says that on Feb. 17 he requested City Solicitor Saul Zielonka to file suit. This he supplemented with additional reasons to the solicitor on Feb. 21 and March 7, but Mr. Zielonka has refused to bring action so he filed it himself as a taxpayer. Mr. Alcorn declares that the Cincinnati Traction Company is an Ohio corporation organized "for the purpose of furnishing a corporate name in which to lease from the Cincinnati Street Railway its lines of street railway in the City of Cincinnati, under what is known as the Rogers fifty-year franchise law."

Elsewhere in this issue reference is made to the resignation of C. P. Taft as first vice-president and director of the Ohio Traction Company and to the withdrawal of W. C. Culkins as City Street Railway Director to become executive secretary of Cincinnati Chamber of Commerce.

Another Solution Offered

Representatives of City of New Orleans Advance New Plan with \$35,000,000 Valuation Figure

A rift has finally been made in the clouds of uncertainty that have hovered over the prospective settlement of the troubles of the New Orleans Railway & Light Company. At a meeting on March 30 of the Mayor, the Commissioners of the Commission Council and the members of the citizens' advisory committee a tentative plan was submitted by the representatives of the city looking to possible solution of existing entanglements.

Under the plan it is proposed that:

1. A valuation of \$35,000,000 be placed on the entire property of the New Orleans Railway & Light Company, divided as follows:

New Orleans railway proper . . .	\$20,000,000
Electric light and power plant . .	8,000,000
Gas plant	7,000,000
Total	\$35,000,000

Upon this valuation it is estimated by the Mayor and the Commission Council that the returns must be \$2,150,000, allowing 7 per cent upon \$5,000,000 of new money which it is estimated will be needed for rehabilitation.

REDUCED FARES SUGGESTED

2. The rate of fare after April 21, 1921, when the 8-cent fare expires by limitation, must not exceed 7½ cents; with reductions every six months thereafter of one-half cent until a "normal" level is reached.

3. The rates for gas and electricity must be cut proportionately and recommendations made for the acquisition of the gas plant at the valuation of \$7,000,000.

4. Allowances must be made for proper reserves for replacements.

5. No distribution of undivided profits of the company shall be permitted without approval of the Commission Council.

6. No future issues of securities shall be permitted without the consent and approval of the Commission Council.

In anticipation of the probable purchase of the gas plant an ordinance is now being prepared by the City Attorney for submission to the Constitutional Convention, giving the city permission to issue bonds against any public utility.

Reports dissenting from the conclusions reached by the general committee have been filed with Judge Foster, of the federal court, by Walter B. Spencer, Leigh Carroll and Robley D. Stearns.

More Wage Cuts Proposed

Employees of Rochester, Syracuse and Utica Lines Solicited to Accept 1918 Rates

Proposals have been made by the New York State Railways for wage cuts of as much as 25 per cent on May 1 among trainmen employed on the lines of the company in Rochester, Syracuse, Utica and other cities. The proposed cuts are: City lines, from 60 cents an hour to 45; interurban, 62 to 47; third rail, 65½ to 50½.

In his letter to the men through Chairman Noon, President Hamilton of the New York State Railways says:

After a most careful consideration of all interests involved the public, the employees and the company, and inasmuch as all authentic statistics show that the cost of living today has reached a point below where it was in July, 1919, and the general tendency indicates a further reduction in the price of clothing, foodstuffs and other commodities which go to make up living expenses, we feel that the wages as fixed by the National War Labor Board for motormen and conductors under date of July 31, 1918, would be fair to all parties interested under this contract.

The working conditions under the present contract are an accumulation of years and have become so cumbersome and burdensome that it is impossible for the company working under them to furnish the best service to the public, and for that reason it has decided upon the changes set forth in the revised agreement submitted herewith.

This company has increased the rate of wages to its employees 126.41 per cent over that paid at the beginning of the world war, while the increase in gross revenue has been only 37.65 per cent. On account of this condition the company was obliged to forego the payment of a return to its stockholders, never having previously paid a fair return to the people whose money is invested in this property.

This condition cannot continue, not alone from the fact of the non-payment of dividends, but that the credit of the company must be restored and maintained at any cost if it is to meet the capital expenditures necessary to perform its first and principal duty, viz: Service to the communities through which it operates.

I feel that in view of the importance of this subject a meeting of the representatives of the employees and the officials of the company should be held at the earliest possible moment, and would suggest April 4, 1921, in my office at Rochester, if convenient to the officers of the Amalgamated Association, at which time the whole matter can be discussed.

I want the employees to feel that the company will exercise the same spirit of fairness that has been displayed in the past, and after a full and frank discussion of the whole matter we believe an adjustment can be reached which will be fair to the employees, to the public and to the company.

President Hamilton's letter does not specify the working conditions which have become "so burdensome and cumbersome."

These are the roads whose employees are asked to go back to where they were prior to May 1 of last year and accept practically the wage scales put in effect by decision of the war labor board in 1918:

New York State Railways, Syracuse, Rochester, Utica and connecting lines owned by the same company.

Rochester & Syracuse Railroad, connecting the two cities and serving communities between.

Auburn & Syracuse Electric Railroad, connecting the two cities and also covering the local lines in the city of Auburn and to Owasco lake.

Empire State Railroad Corporation, connecting Syracuse with Oswego, and

including the Oswego city lines, and the Auburn & Northern, an 8-mile route connecting with the Rochester & Syracuse at Port Byron and with the Auburn & Syracuse at Auburn.

The Syracuse Northern (the South Bay road).

Prospects appeared to be bright for the settlement of the wage matter in conference after the first meeting on April 4. Definite findings, however, are not expected to be reached for a week. Meanwhile little information is expected to be available to the public. Mr. Hamilton is quoted to the effect that if an agreement can not be reached in conference then points in dispute will be arbitrated. The matter most of course be submitted to the men for final vote.

Schenectady Company Would Cut Wages

The new wage scale proposed by the Schenectady (N. Y.) Railway makes a reduction of 25 per cent from the present scale of 60 cents an hour. The new rate, which is to go in effect on May 1, is the same as the men were receiving a year ago.

The company was able to grant an increase about a year ago when the Common Council waived franchise rights temporarily allowing the company to petition the Public Service Commission for an increase from 6 to 7 cents in local fares and other increases on interurban lines.

There is an arbitration clause in the present agreement. Under the provisions of the contract the company had to present the draft of the new agreement thirty days before the old agreement expired.

Indiana Line Unable to Make Improvements

The railroad committee of the City Council of Evansville, Ind., has reported to the Council that Frank J. Haas, vice-president and general manager of the Southern Indiana Gas & Electric Light Company, has refused to extend the Howell line as requested by the committee. Mr. Haas said that the proposed extension would cost the company \$30,000 or more and that the company could not afford at this time to make the improvement.

The company has also notified the Board of Public Works of Evansville that it will not make street improvements as requested by the board. Mr. Haas contends that the improvement of the portion of the streets between the rails does not benefit the railway and that the property owners along the street should pay for it. Mayor Bosse would "throw the tracks off the street and put in a bus line." The Mayor is said to have announced that he had received a letter from Glenn Van Auken, of the Public Service Commission, in which he advised that the City Council pass an ordinance demanding the company meet certain requirements of service.

Railway Versus Motor Bus

Canadian Commission Hears Experts on Relative Reliability for Use Between Toronto and Hamilton

James E. Richards, manager of the London & Port Stanley Railway, in giving evidence before the Ontario (Sutherland) Hydro-Radial Commission at Toronto the last week in March, as to the practicability of the proposed high-speed line between Hamilton and Toronto, submitted the following figures showing the growth of traffic:

Year	Number of Passengers	Amount of Freight
1917.....	726,799	\$147,826
1918.....	842,641	143,608
1919.....	958,587	188,187
1920.....	1,002,034	210,239

At the time of electrification of the line it was estimated that the business could be done with four motor cars and five trailers; the railway was now using seven motor cars and ten trailers.

Mr. Richards stated that 97½ per cent of the business was competitive and could be handled by the Canadian Pacific, Grand Trunk, Michigan Central, Wabash and Pere Marquette steam roads, and in reply to a question stated that the business came to the electric railway because of service.

The total earnings now were \$25,-781 per mile, of which \$11,017 were passenger receipts.

On the following days, March 30 and 31, Walter Jackson, consulting engineer, Mount Vernon, N. Y., testified. He stated that the cost of motor bus transportation was just about double that of electric cars operated over routes of reasonably dense traffic. For long-haul freight service the cost of common-carrier motor trucking was just about twice as much as many operators imagined. Even in the comparatively dense traffic district of New England there had been many failures. Mr. Jackson submitted figures showing that a 5-ton truck going 80 to 100 miles a day costs to operate about 60 cents per mile, or \$60 a day, including the cost of warehouses, business solicitation, etc.

A motor bus company could not possibly carry passengers at the proposed hydro-radial rate of 2¼ cents per mile; it was an impossible rate no matter how much business was secured. Besides it could not possibly meet the schedule of a rapid transit line.

On Friday Charles A. Cheval, auditor of the International Railway, operating between Buffalo and Niagara Falls and other points, was a witness. The new 17-mile high-speed line between these cities cost \$225,000 a mile, of which \$180,000 was for right-of-way and structures, while power equipment and general cost amounted to \$45,000 a mile. The new line enabled the company to cut thirty minutes off the time run, reducing it to one hour.

T. H. Stoffel, of the Westinghouse Company, stated that American express companies were doing away with motor trucks in smaller towns and replacing them with horse-drawn trucks.

Reports on Abandoned Lines

Massachusetts Utilities Department Not in Favor of State Ownership— Recommends Local Subsidy

In reply to a set of questions relating to abandoned electric railway lines propounded to it by the State Legislature, the Massachusetts Department of Public Utilities has submitted a report the most striking feature of which is a firm stand in favor of "home rule" by local communities as regards the financial support or subsidy of weak lines and against a general policy of state ownership or aid, and secondly the abolition of the commutation tax and charges for highway maintenance.

370 MILES ABANDONED

The department considered it impossible to pass a properly considered specific judgment on the first question which asked for a determination as to what lines, whether now in operation or not, are necessary for the public welfare and convenience.

The report begins with a recapitulation of the discontinued lines in the Commonwealth. It shows that a total of seventeen electric railways have abandoned operation of 371.27 miles of track.

Referring to their abandoned lines the department states that some of them ought never to have been built, some ran to parks and other places no longer popular and some of them paralleled near-by railroad lines and were never a vital factor in transportation. The majority of the lines, however, were valuable arteries of travel and in many cases auto buses have been substituted for them. In the opinion of the department the value of these lines from the standpoint of the economic and social welfare of the public is a local question, best left for individual settlement to the communities most directly concerned.

The problem, however, involves not only the lines already abandoned, but the possibility that the future may see still further suspensions. This in the opinion of the department is the more serious part of the problem.

However, an optimistic note is sounded in the statement that the critical condition of the railways is largely, though by no means wholly, due to the war, and that it is not unlikely that very far-reaching economic changes may take place in the near future which will relieve the situation of some of its most acute phases.

EXTENSION OF EMERGENCY ACT RECOMMENDED

The principal legislation recommended is an act to enlarge and extend the emergency war-time statute which permits cities and towns in Massachusetts to contribute to the support of street railway lines. In this connection, the department states:

We are aware of no reason why any community should not, if it deems it necessary for its welfare and convenience after careful consideration of the question, restore or prevent the discontinuance of

street railway lines in its limits, either by acquiring such lines and running them as a public venture or by contributing toward their support from taxes. The question undoubtedly presents difficulties, but we cannot agree with one of the speakers who urged at a hearing on this matter that its complexity is a reason why the Commonwealth should assume jurisdiction over and responsibility for all the street railway lines in Massachusetts.

If a street railway serves one particular community alone, the question of the discontinuance of its lines in that locality seems to us a question best dealt with by the particular people served. At any rate, we feel clear that this method should be given a fair trial before any more extensive experimentation be made in the direction of the Commonwealth's assumption of obligation.

This seems to us to afford not only the best measure of the necessity of such lines, but also the best machinery for meeting the situation in each locality. We believe, moreover, that the assumption of local burdens, rather than their abandonment, tends best toward the development of democratic institutions.

Other legislation was recommended dealing with cases where several communities may be involved, and one or more refuse to agree to the plan. A proposed act was also submitted, intended to abolish all charges for construction, maintenance or repairs to highways or bridges, and to abolish the commutation tax at present paid by the street railways.

Little Change in Albany Strike Situation

The strike of the employees of the United Traction Company, Albany, N. Y., entered upon its tenth week on April 2. The company has not yet opened all its lines and no move has been made by the men to bring the situation to a close, except the court proceedings to compel arbitration. The notice of appeal filed on April 2 in the Rensselaer county clerk's office by attorneys for the company from the order of Justice Howard to try the arbitration case on April 4 is expected to prolong the litigation.

In the meantime the company is going ahead hiring more permanent employees and the former places of the employees now on strike are gradually being filled.

The jitney situation still remains undecided, no action having been taken by the municipal authorities of Albany and Troy. The Supreme Court through Justice Hinman has stated its attitude as to the further operation of these vehicles in competition with the United Traction Company, declaring that their continued running without municipal consent or authority from the Public Service Commission is a violation of the penal law.

Officers of the railway conferred on April 2 with Mayor Watt and Corporation Counsel McManus regarding action intended to be taken by the city against the jitneys in view of the court's decision. It is understood the traction company is ready to supply additional affidavits for the purpose of enjoining other jitney owners and drivers from operating.

Chew as You Ride.—The Twin City Rapid Transit Company, Minneapolis, Minn., is testing candy and gum slot machines on four interurban cars.

Mr. Allen Arbitrator

Union Officials Reject Proposal of Cleveland Railway for Wage Reduction and Other Changes

Negotiations looking toward a 20 per cent reduction in pay for motormen and conductors on May 1 are now on between the Cleveland Railway and officers of the local union.

On Feb. 1 the Cleveland Railway made a 10 per cent reduction in pay for all officers and employees except the trainmen, with whom there is an agreement that does not expire until May 1. At that time John J. Stanley, president of the company, issued bulletins to the trainmen informing them that he would cut their pay 20 per cent on May 1 and also seek elimination of the war-time emergency allowances regarding overtime, spread of runs, etc.

Cleveland motormen and conductors now get 70 cents an hour for the first three months service, 73 cents an hour for the next nine months and 75 cents an hour after the first year.

In a formal demand on the union Mr. Stanley announces a cut in wages to 55 cents an hour for the first three months, 58 cents an hour for the next nine months and 60 cents an hour after the first year. This was the pre-war standard of wages. Mr. Stanley also demands the setting aside of the article in the company's agreement with the union making certain allowances for overtime, spread of runs, etc. He likewise insists upon the elimination of Sec. 1, of the agreement providing that all trainmen employees of the company must join the union and making provision for having the company collect union dues.

Officials of the union have refused to meet Mr. Stanley's demands. Instead, they have suggested that the matter be arbitrated by the street railway committee of the City Council.

In reply to this Mr. Stanley has informed the union that the present agreement provides a method for arbitration of the dispute. This calls for appointment by the company of an arbitrator, appointment by the men of an arbitrator, these two to select the third, or failing, to have the third man named by Federal Judge Westenhaver.

Mr. Stanley has named as his arbitrator C. Loomis Allen, vice-president and general manager of the Syracuse & Suburban Railway.

Since the developments just noted the conductors and motormen have offered to accept a reduction in pay of 6 cents an hour starting May 1. This offer was made to Mr. Stanley, by officials of the union late on April 4 during the course of negotiations over Mr. Stanley's demand for a wage reduction of 20 per cent. Mr. Stanley rejected the men's offer, insisting that all his demands be arbitrated in accordance with the contract between the company and the union. His demands are:

1. Reduction in basic pay of approximately 20 per cent to a maximum of 60 cents an hour.

2. Abolition of additional pay for Sunday, night and other difficult runs.

3. Abolition of the closed shop agreement.

A year ago the men refused to arbitrate the question of the closed shop and a strike resulted.

Officials of the union made their offer of a wage reduction of 6 cents an hour after Mr. Stanley had turned down an offer to accept a reduction of 3, 4, and 5 cents an hour. The officials of the union in making the offer explained that they would have to have the offer ratified by members of the union as they have so far received no authorization from members to make any offers.

A mass meeting of the members of the union has been called for April 13.

D. U. R. Defeated Again

Plea of Private Line for Service-at-Cost Fails to Impress Voters—Vote Very Heavy

With the preliminary reports received relative to the votes cast on the April 4 election on the two ordinances affecting the railway situation in Detroit, the Detroit United Railway's Service-at-Cost ordinance appears to have been defeated while the city ordinance providing for the purchase by the city of certain Detroit United Railway lines was carried by a large majority.

The first reports showed that the municipal ordinance appeared to be receiving support in every district of the city, none of the early precincts heard from opposing the plan to purchase the lines from the company. Based upon the first count of about one-tenth of the votes cast, coming from widely scattered precincts throughout the city, the company's ordinance appears to have been defeated by a vote of two to one.

Official figures announced on April 5 showed that every municipal question submitted to the voters at the election Monday had carried by a large majority. The piecemeal purchase plan carried by 65½ per cent vote, while the service-at-cost ordinance failed to obtain more than 35½ per cent affirmative vote. The vote on the service-at-cost ordinance was 52,918 for and 92,036 against. On the purchase ordinance the figures were, 96,539 for and 50,704 against.

Before the election on the service-at-cost ordinance, Elliott G. Stevenson, attorney for the Detroit United Railway, stated that the company has from the first conceded that the company's service-at-cost ordinance would require a 60 per cent affirmative vote. The question as to whether or not the three-fifths majority of the votes cast would be required to carry the ordinance was raised by the chairman of the election commission. It was pointed out that there was no expenditure of money involved and the question was raised as to whether the ordinance could be interpreted as a franchise. If it is a franchise then the 60 per cent majority is required.

Members of the commission stated that they believed that the Detroit United Railway had not asked for a

ruling on the question. A decision by the Attorney General's Department was sought by the Chairman of the Election Commission. The Corporation Counsel declared that a 60 per cent majority would be necessary to carry the measure.

Large London Workshops

Both the London underground electric railway companies and the London General Omnibus Company are erecting large workshops for heavy repairs and overhaul on what has hitherto been market-garden land near Octon Town Station in the western outskirts of the metropolis. The policy is one of concentration and economy instead of having the work done as at present in a great number of smaller shops scattered over the London area. The railway companies' shops and yards will occupy about 64 acres, while the omnibus company has about twenty-six acres. The former set of shops and equipment will cost about £20,000, but large economies in operation are expected. It is hoped these shops will be ready early next year, while those of the omnibus company are to be finished in July next.

News Notes

Fire Started to Hide Crime.—The ticket office of the Niagara, St. Catharines and Toronto Railway, Niagara Falls, Ont., was recently gutted by fire. Two youths formerly employed as ticket agents have been placed under arrest charged with the theft of \$1,000 of the company's funds, and they are alleged to have confessed that they robbed the company and then set fire to the ticket office to hide the crime.

Utility Rate Bill Opposed.—W. H. Johnson, vice-president of the Philadelphia (Pa.) Electric Company, has expressed disapproval of bills introduced in Pennsylvania giving the Public Service Commission power to suspend rates pending decisions. This and other matters of current interest were touched upon by Mr. Johnson at the Eastern Geographical section meeting of the Pennsylvania Electrical Association in Philadelphia on Feb. 24.

Home Rule Bill Lost.—The Oklahoma House in the closing days of the session killed on final roll call House Bill No. 178 which proposed to confer upon cities and towns jurisdiction over rates charged by public utilities. Had the bill passed it would have deprived the Corporation Commission of its control over rates for gas, electricity, water, telephones and street railway service, and would have turned this power over to the various city councils, city commissions and town boards of the state.

Another British Tidal-Power Scheme.—A report is now being prepared in Great Britain on a scheme to utilize the tides at Walney Island to supply electrical energy to the Barrow district of Lancashire, with its great industrial development. As with the similar project for the River Severn, even if all engineering difficulties were overcome, the cost of the enterprise would, conservative authorities think, be likely to prove prohibitive.

\$4,000,000 Bridge Proposed.—Governor Warren T. McCray of Indiana has signed a bill authorizing the Governor to appoint a commission to co-operate with a similar commission to be created by the State Legislature of the state of Kentucky, the two commissioners to work out plans for the building of a bridge over the Ohio River at Evansville, Ind. The proposed bridge will be used for traction lines and railroads.

Wage Agreement Renewed Unchanged.—The employees of the Trenton & Mercer County Traction Corporation, Trenton, N. J., will receive the same wages for the coming year as have been paid. This is provided in the new working agreement between the men and company signed on April 2. Employees of cars where two men are used receive 50 cents an hour, while operators of one-man cars are paid 55 cents. The men have asked the company to change the "tripper" schedules.

Program of Meeting

International Railway Congress

Announcement has been made that the ninth congress of the International Railway Association will be held in Rome, Italy, from April 19 to May 1, 1922. Section VIII is that of electric traction. Seven papers will be presented on this subject, the topics being divided up among the different countries. The names and titles of the speakers follow:

Holland and Great Britain—J. W. W. Van Loenen Martinet, chief of electric traction for the Netherlands State Railways. Utrecht.

Belgium—Ernest Gerard, General honorary secretary to the Minister of Railroads, Marine, Posts and Telegraph in Belgium; Manager of the National Light Railway of Belgium, Brussels.

Denmark, Sweden and Norway—Mr. Ofverholm, chief of the Electro-Technical Bureau of the Swedish State Railways, Stockholm.

Italy—Alfredo Donati, engineer, chief of the special Electrification Commission for the General Management of the Italian State Railroads, Rome.

Switzerland—Emile Huber, chief of electrification of the Swiss Federal Railways, Berne.

America—George Gibbs, chief engineer of electric traction, Long Island Railroad, New York.

Other countries—Mr. Sabouret, chief engineer of technical service of the Orleans Railroad, Paris.

Financial and Corporate

Omaha Must Have More

Revenues Must be Increased or Expenses Decreased if Receivership Is to Be Avoided

The Omaha & Council Bluffs Street Railway, Omaha, Neb., is face to face with the necessity of reducing wages or increasing the rate of fare. The whole situation will be unfolded before the State Railway Commission, at Omaha, Neb., beginning May 2. Considerable interest is manifested in this forthcoming hearing at which the company will place its facts and figures on the table, feeling confident at this time that the real status of its financial affairs will result in the needed relief.

The case harks back to May, 1918, when the company first applied to the commission for an increase of fare, from 5 cents to 6 cents. The case involved many ramifications, such as a demand by the men for increased wages and a threatened strike. The commission, on Aug. 10, 1919, issued a temporary order, allowing the company to charge a 7-cent rate, with four tickets for 25 cents. This fare has been in effect since that date. In connection with that order, the commission directed the company to prepare a physical valuation report. This has been completed and will be introduced on the opening day of the hearing this month.

MANAGER FEARFUL FOR FUTURE

R. A. Leussler, vice-president and general manager of the company, points out that in 1920 his company lacked \$31,586 of earning enough to pay the 5 per cent preferred stock dividend, and he added that no common stock dividends have been paid by the company for three years. In 1919 the earnings yielded \$16,000 over the payment of preferred stock dividends. He further stated that the net earnings in 1920 were \$48,816 less than in 1919.

During August, 1919, the wages of motormen and conductors were increased 10 cents an hour and during November of the same year another increase of 2 cents was allowed making a total of 12 cents an hour increase to the men since the fall of 1919. The present scale of wages is from 53 to 57 cents an hour.

"It is no secret," said General Manager Leussler, "that the company must increase its income or decrease operating expenses. We are going before the State Railway Commission on April 25 and let that body determine what is necessary. We must have an increase or go into the hands of a receiver. It is for the commission to say what the rate of fare should be."

The company states that it paid

\$2.90 per ton for coal during 1915 and that it paid \$6.90 per ton in 1920. The total amount of taxes paid by the company last year was \$427,861. It is further noted by the company that fares of 10 cents are being paid in 112 cities.

The City Council of Omaha has directed W. C. Lambert, corporation counsel, to represent the city at the hearing before the State Railway Commission and to engage necessary expert assistance.

\$18.11 per Share Earned by North American Companies

Excellent results are shown in the thirty-first annual report of the North American Companies for the calendar year 1920 in spite of the difficult conditions under which all public utilities have operated in the last few years.

Gross earnings of the various companies amounted to \$39,611,162, an increase of 30.64 per cent over 1919; balance for depreciation, common dividends and surplus was \$5,396,288, an increase of 17.81 per cent, equivalent to \$18.11 per share of North American stock before reserve, as compared with \$15.38 in 1919.

A significant feature of the 1920 report is the small proportion, about 13 per cent, of net income of subsidiaries derived from electric railways operation. More than 71 per cent of net was derived from electric and heating, and the balance from coal and gas operations. This showing and the fact that the companies' entire investment in the United Railway, St. Louis, is carried on its books at \$1 dispel any impression which may have prevailed that railway operation is the principal source of subsidiary net earnings.

Growth of the railway business of the Milwaukee Electric Railway & Light Company during the year is indicated by increases of 5.67 per cent, 13.34 per cent, and 13.86 per cent respectively in revenue passengers, car miles operated and car hours. During the year the Milwaukee Electric Railway & Light Company leased from the Wisconsin General Railway ninety-nine new city cars and forty one-man safety cars. The lease was assigned to the Fidelity Trust Company, Philadelphia, as trustee and the latter issued \$1,090,000 of ten-year 8 per cent sinking fund equipment trust gold certificates, payment of the par value and dividends of which have been guaranteed by the railway and light company.

Under orders of the Railroad Commission of Wisconsin the ticket rate of fare within the single fare area of the city of Milwaukee was increased in June, and in October rates for electric and heating service were also increased.

Merger Actively Urged

Conference of Railway Representatives with Public Utility Members Suggested at Washington

In the hope that some plan may be evolved for the voluntary merging of the two railways in the District of Columbia, the Commissioners of the District have suggested that two representatives of the Capital Traction Company and two representative of the Washington Railway & Electric Company be appointed to meet with the Public Utilities Commission in an effort to determine how the companies may be consolidated.

ENABLING LEGISLATION DRAWN

It was revealed that the District commissioners practically have agreed to urge Congress to pass the Wood bill which would make the merger compulsory. That bill would substitute for the present tax of 4 per cent on the gross receipts of the railways an excess profits tax of 50 per cent of the net earnings in excess of a 6 per cent return on the amount at which the property is valued. This would have the effect of relieving the Washington Railway & Electric Company from the payment of any taxes since its earnings probably would not exceed 6 per cent. The Capital Traction Company earns 10 per cent on its valuation.

The Wood bill also provides that the railways are to be merged before the Potomac Electric Power Company is taken over. The bill further relieves the railways from the payment of the salaries of crossing policemen and relieves them of the payment of certain paving charges.

These matters were discussed on April 4 at a conference at the capitol attended by members of the Senate and House committees on the District of Columbia, by the District commissioners and by representatives of the railways.

W. C. Kutz, chairman of the Public Utilities Commission, declared that the commission is opposed to the merger of the Washington Railway & Electric Company and the Potomac Electric Power Company unless it merely is a preliminary step toward the consolidation of the two railways. He expressed the opinion that a merger must be brought about if the railway fare is to be less than 8 cents.

MR. HAM SEES FARE REDUCTION

William F. Ham, president of the Washington Railway & Electric Company and of the Potomac Electric Power Company, declared it would be possible to reduce fares to 7 cents if the power company and the Washington Railway & Electric Company merge and the power company is allowed to charge 10 cents a kilowatt hour for electricity. Mr. Ham also contended that it is an injustice to the railways to require them to pay the salaries of crossing policemen and to pay for paving between tracks and for 2 ft. on each side of the outer rail.

Municipal Railway Falling Behind

\$237,797 Lost by City Road on Basis of Comparison of Charges Borne by Private Company

The Municipal Railway, San Francisco, in its annual report for the year ended June 30, 1920, issued recently, shows interesting results. Although it earned \$43,000 per mile of revenue track, or more than any year since Exposition Days in 1915, the cost of operation ate it all and more, so that actually operations for the year were conducted at a loss.

NET earnings from operations, according to the method of book-keeping used on the municipal lines, actually showed a deficit of \$6,350. If the comparison charges required by the charter, as shown in the table, are considered as being proper for a basis of comparison with privately owned companies that have to pay such taxes, the loss for the year would amount to \$237,797. There was, however, a surplus of \$100,110 on operation during previous years, so that the deficit under this basis of comparison would be but \$137,687.

Incidentally it might be said that the Municipal Railway, with earnings from operation of \$43,000 per mile of revenue track on a single-track basis, is exceeded by only one other strictly over-

head trolley system in the country that operated on a 5-cent flat fare basis for the year ended June 30, 1920. Some other companies operating on a 5-cent fare basis were the United Railroads, San Francisco, with earnings of \$32,700 per mile, the Brooklyn City Railroad with \$46,000, the Louisville Railway with \$28,000 and the Southern Boulevard Street Railway (New York) with \$31,420 per mile of track.

STATISTICAL INFORMATION—MUNICIPAL RAILWAY OF SAN FRANCISCO

Year Ended June 30:	1920	1919	Per Cent Change
Track owned and operated (miles).....	57.97	58.23	0.436
Track owned and operated conjointly with United R.R. (miles).....	5.15	5.15	.....
Carhouse tracks and sidings and unused spurs (miles).....	4.00	3.95	1.265
Total (miles).....	67.12	67.33	0.312
Average total miles of single track operated at end of year.....	63.12	63.38	0.410
Revenue car-miles.....	7,182,475	.....	.....
Revenue bus-miles.....	236,797	.....	.....
Total revenue miles.....	7,419,272	7,212,763	2.86
Revenue car-hours.....	.....	.....	.....
Revenue bus-hours.....	.....	.....	.....
Total revenue hours.....	795,578	779,746	2.03
Revenue passengers on cars and buses:			
Five-cent cash.....	53,645,764	47,524,125	12.90
Five-cent government ticket.....	66,904	69,262	3.41
Two and one-half cent school ticket.....	639,894	597,483	7.10
Two cent revenue transfers.....	600,296	856,166	29.80
Total revenue passengers.....	54,952,858	49,047,036	12.10
Free transfer passengers.....	10,757,504	9,836,127	9.34
Free passengers, employes, police, firemen, etc.....	458,884	458,090	0.17
Total car and bus riders.....	66,169,246	59,341,243	11.50

INCOME STATEMENT OF SAN FRANCISCO MUNICIPAL RAILWAY

Year Ended June 30:	1920	1919	Per Cent Change
Revenue from transportation.....	\$2,702,289	\$2,391,176	13.00
Revenue from other railway operations.....	10,147	10,222	0.73
Total railway operating revenue.....	\$2,712,436	\$2,401,398	12.96
Ways and structures.....	102,130	63,331	61.30
Equipment.....	186,947	147,446	26.75
Power.....	348,383	327,687	6.32
Conducting transportation.....	1,293,309	1,045,704	23.70
Traffic.....	666	264	153.00
General and miscellaneous.....	94,432	70,612	33.70
General and miscellaneous (comparison charges).....	4,912*	10,904	55.00
Depreciation (14 per cent of passenger revenue).....	378,429	334,867	13.00
Accident reserve (4 per cent of passenger revenue).....	108,122	95,676	13.02
Total operating expenses.....	\$2,517,330	\$2,096,491	20.03
Net operating revenue.....	195,106	304,907	56.30
Taxes (comparison charges required by charter):			
State franchise (5.25 per cent operating revenue).....	142,488	126,155	12.95
Municipal franchise (3 per cent passenger revenue).....	81,092	71,757	13.00
Municipal car license (\$15 per car).....	2,955	2,955	.....
Federal taxes (1 per cent net income).....	.....	.....	.....
Total taxes.....	\$226,535	\$200,867	12.85
Operating income.....	31,429	104,040	129.8
Non-operating income.....	27,405	22,248	23.15
Gross income.....	4,024	126,288	103.2
Bond interest.....	233,773	243,093	3.84
Net income transferred to profit and loss.....	237,797	116,805	103.7
Surplus at beginning of year.....	100,111	216,916	77.4
Surplus at close of year.....	137,686	100,111	237.80

* Nothing allowed for legal and office expense.

The appended tables really speak for themselves, but in order to determine what became of all the money earned comparative figures are printed from the report of the United Railroads, San Francisco, for the same period.

Banks in Indiana Boom Utilities

The Fletcher American National Bank, Indianapolis, Ind., has been running a series of advertisements in the newspapers telling facts about the city and emphasizing the importance of utility companies in community life. The theory of the bank offering these advertisements is that anything that is good for the city is good for the banking business.

The advertising has attracted considerable attention, but no more than a series published by the First & Hamilton National Bank of Ft. Wayne,

COMPARISON OF OPERATIONS—YEAR ENDED JUNE 30, 1920

	United Railroads of San Francisco					Municipal Railway of San Francisco				
	Actual	Per C.-M. Cents	Per C.-H.	Per Cent of Operating Revenue	Per Cent of Operating Expense	Actual	Per C.-M. Cents	Per C.-H.	Per Cent of Operating Revenue	Per Cent of Operating Expense
Passenger revenue.....	\$8,938,987	34.85	\$3.08	99.30	.....	\$2,702,289	36.41	3.399	99.63	.....
Revenue from other railway operations.....	63,124	.34	.02	0.70	.....	10,147	.14	.013	.37	.....
Total operating revenue.....	\$9,002,111	35.19	\$3.10	100.0	.....	\$2,712,436	36.550	3.412	100.00	.....
Way and structures.....	423,853	1.651	\$0.145	4.69	6.62	\$102,130	1.374	\$0.128	3.76	4.06
Equipment.....	548,955	2.140	.189	6.09	8.58	186,947	2.520	.235	6.90	7.44
Depreciation.....	(a)	.....	.....	.....	.....	378,429	5.099	.476	13.98	15.08
Total maintenance.....	\$972,808	3.791	\$0.334	10.78	15.20	\$667,506	8.993	\$0.839	24.64	26.58
Power.....	1,357,225	5.300	.467	15.05	21.20	348,383	4.700	.438	12.86	13.87
Conducting transportation.....	3,471,854	13.550	1.194	38.55	54.20	1,293,309	17.420	1.628	47.65	51.40
Traffic.....	.....	.....	.....	.....	.....	666	.009	.001	.03	.02
General and miscellaneous.....	.....	.....	.....	.....	.....	202,554	2.730	.254	7.49	8.06
Add general miscellaneous comparison charge.....	.....	.....	.....	.....	.....	4,912	0.066	.006	0.16	0.19
Total general and miscellaneous.....	\$695,874	2.720	\$0.240	7.72	10.87	\$207,466	2.796	\$0.260	7.65	8.25
Credit transportation for investment.....	94,463	0.368	.032	1.05	1.47	.....	.....	.....	.....	.....
Total operating expenses.....	\$6,403,298	25.000	\$2.205	71.18	100.00	\$2,517,330	33.918	3.166	92.83	100.00
Net operating revenue.....	2,598,813	10.190	.895	28.82	40.60	195,106	2.632	.246	7.17	7.76
Taxes.....	513,200	2.005	.176	5.17	8.02	226,535	3.058	.284	8.36	9.02
Net earnings.....	\$2,085,613	8.185	\$0.719	23.65	32.58	\$31,429	0.426	\$0.038	1.19	1.26
Revenue miles.....	25,610,023	.....	8.84	.....	.....	7,419,272	.....	9.32	.....	.....
Revenue hours.....	2,906,503	.....	.....	.....	.....	795,578	.....	.....	.....	.....

(a) Included in two previous maintenance accounts.

Ind. This bank has recently printed a series of twenty advertisements under the heading, "For Greater Ft. Wayne." Mr. Warden, president of the bank, commenting on the "ad," said that the bank believes that it is essential to the growth of Ft. Wayne that people not only take a pride in their public utilities but that they understand better that these utilities must have an adequate return on the investment in order to operate soundly.

Reports of Clark Properties Summarized

Corporations under the E. W. Clark management, Philadelphia, Pa., have reported for the year ended 1920. The Commonwealth Power, Railway & Light Company, controlling properties in the Central West, shows a balance of \$797,738 available for renewal, dividend requirements, etc. This is 40 per cent less than the balance of the company for 1919. This decrease is attributed to the increase in wages and to the advance in the cost of coal. Among the other companies reporting are the Bangor Railway & Electric Company, Nashville Railway & Light Company, East St. Louis & Suburban Company, Portland Railway, Light & Power Company and the Cumberland County Power & Light Company. The results of operation of these companies are shown in the accompanying table.

The most appreciable increase in balance was shown in the report of the East St. Louis & Suburban Company where the surplus for 1920 was greater by 5,000 per cent than that of 1919. On the other hand the Commonwealth System showed the greatest decrease in balance. In the case of this company the change amounted to 40 per cent.

Allowances for depreciation were increased materially in the cases of three companies. The Bangor Railway allowed \$66,742 for depreciation for 1920 against \$58,590 for 1919. The East St. Louis & Suburban Railway allotted \$359,417 for depreciation in 1920 against \$274,139 for the twelve months of 1919. The Portland Company included in its expenses for 1920 \$242,002 for depreciation as contrasted with \$257,727 for the same period a year ago.

Actual Worth Valuation

Governor Miller Says Franchise and Going Value Will Not Be Allowed in Readjustment

Frederick L. Cranford, chairman of the Transit Committee of the Brooklyn Chamber of Commerce, has received a letter from Governor Miller of New York in which he states the actual value of the property of the traction companies in New York, and not their franchises and going value, will be considered in any plan of reorganization undertaken by the Transit Commission to be appointed under the traction bill signed recently.

The Brooklyn Chamber of Commerce, through Chairman Cranford, sent Governor Miller a letter on March 16, in which the statement was made that although through the Governor's action the railway matter would be treated as an economic problem apprehension in the minds of the public revolved about three points:

1. The personnel of the commission which it is proposed to create;
2. The possibility of an increase in the present rate of fare;
3. The valuation of the property of the railway companies.

On the valuation matter the chamber said:

Respecting the basis for the valuation of any physical property of the companies which is to be considered in any plan for a unified system it is our belief that the property thus acquired should be confined to that useful and needed for the operation of the lines in such a system and should not embrace any property of lines whose utility has been superseded; it is assumed that the appraisal will be based on the condition of the property as of the date it is acquired, and its first cost and not upon inflated values.

The Chamber of Commerce then asked the Governor to clear up these points as they could not be explained in the traction bill. In reply the Governor wrote to Mr. Cranford on March 30 in part as follows:

All the bill does, which is said to be so radical, is to prevent obstruction to the efficient exercise of those powers.

I can assure you that nothing but fitness will be considered in the selection of the commission.

I trust that only such properties will be included in any plan of reorganization as are and will continue to be needed in the public service, and that all properties will be valued at their real worth for such serv-

ice. No rule could safely be prescribed by statute. The cost of production rule would undoubtedly be unjust to the public at the present time.

The statute excludes franchise and going values. There is no injustice in that, because bankrupt properties can hardly possess such values. The question is what are these properties fairly worth in their present condition for the purpose of reorganization and rehabilitation. It will not require as much time to decide that question as it would to go into the last detail of values, which is ordinarily done in rate cases. As you say the question is one to be decided upon business principles by men of judgment.

The consideration to security holders for the concessions required of them will be a security with an assured fair return in place of one with uncertain or no return. Necessarily, therefore, the rate of fare will be an important element of any settlement and cannot be determined in advance thereof, certainly not in advance of the deposit by the companies of the necessary consents to clothe the commission with ample power to put into effect whatever plan may be determined upon.

The task before the commission is not an easy one. I feel confident that it can be done if approached with resolution, courage and the determination to do exact justice. There must be no such haggling over terms as has attended prior negotiations. The commission must first decide what is just and fair and then insist upon that, no more no less.

Jitneys Collect \$350,000 a Year in Seattle

According to a report to Mayor Hugh M. Caldwell by David W. Henderson, superintendent of the Seattle Municipal Street Railway, jitney buses have flourished in Seattle since fares on the railway went up to 8½ cents. A one-day check indicates the jitneys are taking nearly \$350,000 a year in revenues from the municipal railway. The report is based on a check made by the railway department Jan. 26, compared with a similar check made Oct. 14 last year.

The summary, covering all the jitney routes except the Rainier Valley line, which was omitted because the city does not operate that traction line, shows 1,659 trips were made by buses Jan. 26, as against 1,482 Oct. 14; that 9,522 passengers were hauled Jan. 26, as against 7,877 Oct. 14. This represents an increase of 177 in number of trips, or 11.9 per cent, and an increase of 1,645 in the number of passengers, or 20.9 per cent. At 10 cents each the Jan. 26 receipts of the jitney operators were \$952.20, or approximately \$347,553 a year.

	Commonwealth Power, Railway & Light Co. System			Bangor Railway & Electric Company			Nashville Railway & Light Company		
	1920	1919	Increase or Decrease, per Cent	1920	1919	Increase or Decrease, per Cent	1920	1919	Increase or Decrease, per Cent
Gross earnings.....	\$31,285,981	\$25,964,899	20.5	\$1,262,779	\$1,094,675	15.4	\$3,675,209	\$3,224,384	14.0
Operating expenses and taxes.....	22,390,298	17,029,303	31.5	800,777	656,598	22.0	2,979,332	2,436,296	22.3
Net earnings.....	\$8,895,683	\$8,935,596	-0.4	\$462,002	\$438,077	5.5	\$695,877	\$788,088	-11.7
Interest, etc.....	7,020,765	6,516,468	7.7	263,707	253,111	4.2	479,326	475,146	0.9
Balance.....	\$1,874,918	\$2,419,128	22.5	\$198,295	\$184,966	7.2	\$216,551	\$312,942	-30.8
Pfd. stock div.....	1,077,180	1,077,180	....	105,000	105,000	....	125,000	125,000	....
Balance.....	\$797,738	\$1,341,948	-40.6	\$93,295	\$79,966	16.7	\$91,551	\$187,942	-51.3
	East St. Louis & Suburban Company System *			Portland (Ore.) Railway, Light & Power Company			Cumberland County (Me.) Power & Light Company		
	1920	1919	Increase or Decrease, per Cent	1920	1919	Increase or Decrease, per Cent	1920	1919	Increase or Decrease, per Cent
Gross earnings.....	\$4,368,922	\$3,213,152	36.0	\$9,564,615	\$8,591,001	11.3	\$3,114,008	\$2,768,600	12.5
Operating expenses and taxes.....	3,318,196	2,539,504	30.7	6,509,505	5,491,493	18.5	2,142,834	1,813,934	18.1
Net earnings.....	\$1,050,726	\$673,648	56.0	\$3,055,110	\$3,099,508	-1.4	\$971,174	\$954,666	1.7
Interest, etc.....	651,775	6,156,468	-2.4	2,268,267	2,269,972	-0.1	667,483	672,252	-0.7
Balance.....	\$398,951	\$6,125	....	\$786,843	\$829,536	-5.1	\$303,691	\$282,414	7.5

* Not including Alton Granite & St. Louis Traction Company and Alton Gas & Electric Company.

Ohio Interurban Road Suspends

Inability to make enough money to pay its power bills has caused the Sandusky, Norwalk & Mansfield Electric Railway, Norwalk, Ohio, to discontinue service. The road stopped operating at midnight on March 25. The line owed the Cleveland & Southwestern Railway \$9,000 for power furnished during the past six months. State Representative C. G. Taylor has been receiver for the Sandusky, Norwalk & Mansfield line ever since 1913.

Cessation of service on the line has left a score of small communities without any traction service and hundreds of people have to go 5 and 6 miles to reach a steam railroad. The road also carried many school children each day. Scores of customers, including a cooperative farmers elevator and a foundry at North Fairfield have been left without electrical energy by the cutting off of power. The farmers hope, however, that a new syndicate will be formed to resume service on the line.

High wages to trainmen did not cause the road's financial difficulties as the conductors and motormen have been receiving only 35 cents an hour, compared with 66 cents an hour paid by electric interurbans in adjoining territory.

Receiver Taylor made every effort to operate successfully but without result. He said that when the line was built it was financed by the issuance of \$800,000 of bonds, with \$800,000 of the stock given as a bonus. He adds that so far as he has been able to ascertain less than \$400,000 in cash found its way into the property. The line operated 33 miles of track.

2,000,000 Passengers a Year on Municipal Line at Present Rate

The Street Railway Commission of Detroit, Mich., has announced revenues of approximately \$9,939 on the operating municipal ownership lines in Detroit for the month of March when 198,789 passengers were carried. This compares with \$7,832 for February. The March passenger rate is in excess of 2,000,000 passengers per year. Figured on a daily basis, the average daily revenue during the last half of March showed an increase of 14 per cent over February traffic.

The Board of Assessors has been asked by the Street Railway Commission to place the municipal lines on the tax rolls this year, and it is the contention of the commission to tax the municipal ownership lines by the same method of valuation used in the case of the Detroit United Railway.

The figures relative to the Detroit United Railway earnings since last December have not been given out by the company. Following the annual meeting of the company in February, it was announced that the figures would be made public about April 10, which would be after the election at which the service-at-cost ordinance was to voted upon.

According to a statement by Corporation Counsel Wilcox the audit of the company's account up to December, by special city accountants, shows that the amount of income used to meet the increase in pay of the platform men for which the charging of additional fare was permitted, had dropped from \$156,000 to \$120,000 from July to December. This is held by city officials to indicate the extent of the cut in service made by the company.

Financial News Notes

Receiver Makes Interest Payments.—By authority of the federal court E. Stenger, receiver for the Denver (Col.) Tramway, has paid interest obligations and sinking fund requirements amounting to \$196,650 which became due on March 1 and April 1, 1921, on four of the company's bond issues.

Court Sanctions Interest Payment.—Fearing that the taking over of city street railway lines at Lima would interfere with the operation of the Ohio Electric system, Receiver B. F. Jones secured an order from federal court at Toledo granting permission to pay \$8,750 interest due April 1 on \$350,000 of second mortgage bonds held in trust by the Fidelity & Trust Company, Buffalo, N. Y.

Toledo Deficit Exceeds \$100,000.—The deficit in operating expenses and consequent drain on the stabilizing fund at Toledo, Ohio, have reached above the \$100,000 mark now. The next report of the Community Traction Company will be issued on April 11. Many improvements suggested by Commissioner McCann and increased industrial activity in the city are counted on to change this condition.

Additional Rapid Transit Bonds Authorized.—The Board of Rapid Transit Commissioners of Cincinnati, Ohio, has approved a bond issue of \$1,500,000 at 5 per cent interest, maturing in fifty years, with a twenty-five-year optional redemption. The issuance of these bonds will bring the total of bond issues for the rapid transit work up to \$4,000,000, of which \$2,500,000 already has been issued.

Bonds Extended at Increased Interest.—The \$500,000 of Portland Lighting & Power Company, Portland, Me., first mortgage 4½ per cent bonds due April 1, 1921, have been extended to April 1, 1931, at 7 per cent. The Cumberland County Power & Light Company now owns the Portland Lighting & Power Company. Sufficient of the Cumberland County first and refunding 5 per cent bonds due 1945 are set aside and held for the retirement of these bonds, but under present financial conditions it is quite impossible to sell long-term 5 per cent bonds except at considerable

sacrifice. Consequently the Cumberland company decided to extend the time of payment. A cash bonus of \$15 on each \$1,000 in bonds will be paid to each holder agreeing to the extension.

Hull Loses Trolley Service.—The last car of the Eastern Massachusetts Street Railway to operate in the little town of Hull made its final trip on April 4. The trustees operating the company had notified the town officials that failure to appropriate the necessary \$4,000 to meet the operating deficit would result in suspension of railway service. The town fathers evidently had made other arrangements which seemed to them preferable, for they withheld the desired appropriation, and the day following the cessation of railway service, a line of auto buses commenced to operate over the former railway route.

Certificate of Stock Increase Filed.—The Interstate Public Service Company, which recently took over the utilities corporations in New Albany and Jeffersonville, Ind., including the electric lines to Louisville, has filed in the office of the Secretary of State, Indianapolis, a notice of the increase in the capital stock of the company from \$8,000,000 to \$15,000,000. Of the stock \$10,000,000 is common and \$5,000,000 preferred. Companies which have been taken over by the interstate company are the Louisville & Southern Indiana Traction Company, the Louisville & Northern Railway & Light Company, the United Gas & Electric Company of New Albany and Jeffersonville, and the New Albany Water Company. The filing of the certificate is a formality in connection with the deal referred to at length previously in the *ELECTRIC RAILWAY JOURNAL*.

Cities Service to Double Common Stock.—At the annual meeting of Cities Service Company, New York, N. Y., on April 26, stockholders will be asked to approve an increase in the authorized amount of the common stock of the company from \$50,000,000 to \$100,000,000, the purpose of the increase being to provide additional common stock for regular stock dividends on the common stock, conversion of outstanding debentures and for other future corporate requirements. Cities Service Company has outstanding \$29,192,592 principal amount of convertible debentures, these debentures being convertible partly into Cities Service Company preferred stock and partly into Cities Service Company common stock. In addition, Cities Service Company is now paying stock dividends at the rate of 15 per cent a year in common stock at par on the common stock. Of the present authorized \$50,000,000 common stock of the company, \$47,985,798 had been issued up to March 10, 1921. In addition to other routine business, stockholders will be asked to authorize, or approve, the action of the directors in making a new contract with Henry L. Doherty & Company as fiscal and operating agents of Cities Service Company, the present contract expiring on May 1, 1921. The annual report of the company for 1920 will be ready April 15.

Traffic and Transportation

Jitneys Off Railway Streets

Kansas City, Mo., Finally Gets Around to a Measure of Reasonable Regulation

A forward step toward such adjustment and regulation of transportation facilities as will best serve the entire community has been taken by Kansas City, Mo., in the passage of an ordinance confining jitneys to streets upon which there are no regularly operated electric railway lines.

The ordinance uses the term "street cars." Following is the paragraph containing the prohibition:

Section 1. No person, firm or corporation shall drive, run or operate any "jitney" upon or along any street, avenue or roadway within the limits of Kansas City, Mo., upon which there is located a street car track or tracks upon and over which street cars are regularly operated; provided, nothing herein contained shall be construed as prohibiting any "jitney" from crossing any such street, avenue or roadway.

Under other ordinances jitneys must operate only over routes prescribed by a "jitney inspector," a city official. New routes, away from street car lines, are therefore being designated by the inspector and assigned to the various jitney operators; routes of existing jitney lines are readjusted where possible.

The jitney men's association has announced that it will oppose the ordinance by legal steps. Injunction proceedings were brought before a court of the county at Independence, Mo., on March 26 to restrain city officials from enforcing the prohibitory ordinance. The temporary restraining order was issued, returnable on April 2.

Although jitneys have been kept off some of the streets in the down town congested district they have not been regulated in outlying districts. The result is that jitneys have customarily paralleled street car lines and sniped passengers. At first the jitney service was run catch-as-catch-can, but the operators have now been organized for several years and they are preparing to present a united front against the new ordinance and against other regulatory measures.

The jitney association has regulations for the control of its members, enforced by fines and other penalties. These regulations are such as might be imposed by ordinance, though some of them are apparently outside the province of city control. A court is maintained of members before whom offending operators are brought for trial. A jitney patron, another jitney operator, or any person may bring charges against an operator. If the charges are sustained the operator is fined; or, in serious cases, his membership is canceled. Discourteous treatment of patrons, careless driving, vio-

lation of traffic rules and similar matters are covered in these hearings.

The possession of a regular revenue enables the association to pursue certain lines of investigation toward improvement of operating factors. One inquiry conducted has resulted in the design of a standard coach body and chassis with a capacity of 15 passengers on 1½-ton chassis. Several coaches made to these specifications have been built to the order of the operators. The ultimate result of standardization efforts was expressed by a jitney association official as follows:

The operators who can afford the new coaches will buy them; the association will see to it that the owners of these coaches have the favored opportunity on routes. They will get more business because they can give better service. Earning more they will attract the attention of investors, through whom as well as through purchases by other jitney operators the number of standard coaches in service will steadily increase. The next development will be the combining of interests by a few jitney operators; and then will come the consolidation of all the interests under one corporation.

Much publicity is being given to the difficulty encountered by the jitney inspector in selecting routes that will not be objected to by property owners. This situation is being used to advantage to indicate the bitterness of the "fight against jitneys" and the predicament into which the new ordinance has plunged the association.

In a further development of the "location" program there is a reported plan of the jitney inspector to route some jitneys through "Petticoat Lane," or Eleventh Street, the chief shopping thoroughfare in the midst of the retail district—the only downtown east-west street without car tracks. There is only one street north and south in the congested business district without car tracks, Baltimore Avenue, and this street is now a jitney route. Opposition to making of Petticoat Lane a jitney thoroughfare is expected from merchants and public. This hostility is expected to demonstrate further any weaknesses of the new ordinance.

Ten-Cent Fare Suspended

Pending inquiry into the reasonableness of the proposed 10-cent fare on the Princeton line of the New Jersey & Pennsylvania Traction Company the Board of Public Utility Commissioners has issued an order suspending the increase until July 12. The company in submitting the petition for the increase intended that the 10-cent fare should go into effect April 12. The first hearing on the company's application will be held at the State House on April 19. The commission recently replaced a short time ago refused the company permission to increase the fare 1 cent in each zone.

Increased Fare Continued

City of Columbus Insists, However, that \$750,000 a Year Be Spent for Improvements

The Columbus Railway, Power & Light Company, Columbus, Ohio, has not as yet taken action looking to the acceptance of the extension of the present rate of fare voted by Council a few weeks ago. Council passed an ordinance authorizing extension of the present rate over the period of the blanket franchise, expiring April 3, 1926, thus amending the section under which the company was authorized to charge a fare of 6 cents cash, or 5 tickets for a quarter, for the period ending in April, 1922, after which the rate was to be reduced to 5 cents cash, or six tickets for a quarter.

6-CENT FARE NECESSARY TO RESTORE CREDIT

The 6-cent fare was extended in response to the company's showing that under the old rate of eight tickets for a quarter it could not restore its credit, make any of the improvements demanded by the Council, or even continue the existing schedule of service. The restoration of normal conditions in the affairs of the company was shown to be impossible if the fare were to be reduced in 1922, for eastern bond houses had agreed to finance required improvements and extensions only if the Council agreed to extend the period of the increased fare.

In return for the authority to continue the present fare during the life of the blanket franchise, the Council asks the company to guarantee that it will expend not less than \$750,000 a year for service improvements, extensions, betterments and additional trackage. It is this guarantee which has not yet received the sanction of the company's directors.

PAVING PROGRAM HELD UP

Charles L. Kurtz, president of the company, has been in Mexico for a number of weeks and has just returned. He declared, since his return, that the board of directors are to hold a meeting within a few days to consider the ordinance, and to arrange to meet the conditions of the extension of fare if it could be done.

Much of the work required of the company consists of new paving of Columbus streets and laying of new lines. Paving programs contemplated by the city are being held up pending the company's report of its ability to finance the improvements demanded of it, and to effect such financing its officials must show the security companies that the company's revenues will be adequate to secure any indebtedness which it may incur.

By the terms of the ordinance passed recently the Council will determine whether the company lives up to any agreement which may be reached as to the amount to be expended during the remaining years of the franchise.

Anomaly in Cleveland Suburban Fare Case

Less than 10 per cent of the car riders of Lakewood, Ohio, are now paying a 6-cent fare for their rides to and from Cleveland, although that is the rate the Cleveland riders all must pay, in addition to a cent for a transfer.

At the request of city officials of Lakewood the Common Pleas Court of Cuyahoga County has issued an injunction restraining the Cleveland Railway from demanding a 6-cent fare in Lakewood because the city of Lakewood has a franchise calling for a 5-cent fare.

Up to the time the Lakewood officials obtained the injunction more than 90 per cent of the Lakewood car riders were voluntarily paying the 6-cent fare. The date for a hearing on a permanent injunction has not as yet been fixed by the court.

Car riders who board cars inside the city limits of Cleveland and ask for Lakewood transfers must pay a 6-cent fare, plus 1 cent for a transfer. The court made this amendment to its ruling because some local Cleveland riders were taking advantage of the situation and riding for 5 cents by merely asking for a Lakewood transfer. Lakewood riders, on payment of the 5-cent fare, may transfer to the Cleveland lines without paying a cent for a transfer.

The City Council of Cleveland is threatening to require the railway to cut service to Lakewood, but the Cleveland Railway insists that it will have to obey the court's order and its franchise terms, allowing Lakewoodites to ride for less than Cleveland car riders pay, despite a much longer haul.

Subway Suggested for Seattle

As a result of a study of the transportation problem confronting the city of Seattle, Wash., and of the suggestion of a possible solution of the matter through the construction of a system of elevated railroads and subways, City Engineer A. H. Dimock has submitted to the Mayor and City Council a report covering the subject. The report is signed by Engineer Dimock, Major Carl H. Reeves, Superintendent of Public Utilities, and D. W. Henderson, Superintendent of Railways. The proposed rapid transit plans are not submitted for immediate action, but merely to start discussion and planning on the subject. The project is one of "purely academic interest" at this time, according to Mayor Hugh M. Caldwell.

The plan, in brief, provides for the concentration of traffic from several surface routes in the Third Avenue subway, and to provide stations where passengers may be transferred from surface cars to the trains. Six stations are proposed at advantageous locations. Trains would be operated from these stations on surface routes set apart for their special use. The possible use of motor buses is considered in the plans.

The report states that a possible

saving of \$1,200,000 over the present plan of operating entirely on the surface may be effected by the proposed system.

Short Skirts Do More than Attract Attention

While the reformers may go about pranting and objecting to the short skirts, the Jacksonville (Fla.) Traction Company has found that the new style dresses have their place in finance. Anyway, the railway at Jacksonville is strong for the "knee-high models." They prevent accidents. There's your reason.

J. S. Harrison, claim agent for the company, announces that the accident figures for 1914 showed 180 accidents in which women figured while boarding or alighting from cars. With the gradual raising of the fair one's skirts has come the same gradual lowering of the number of women-accidents, through the succeeding years until 1920 when, Mr. Harrison reports, there were only seventy-three accidents in which women were involved.

The heel of the shoe catching in the skirts used to be the principal cause of accidents to women, according to Mr. Harrison's figures, but with short skirts at the "height of fashion" there "ain't no such" accidents—except once in awhile where the fair one has turned her back on Dame Fashion. No longer do the ladies have to watch their step. It is the men that may now be found doing that—watching the ladies step.

Expect Increased Rates to Be Sustained

The private bills committee of the Ontario Legislature has approved a bill prepared by the Public Utilities Commission of the city of Port Arthur, allowing the commission to collect a fare commensurate with the cost of service provided the matter is subject to a vote of the ratepayers of the city of Port Arthur and approved by the Ontario Railway & Municipal Board.

The first step in this matter dates back to September, 1920, when the fares were increased to 7 cents cash or four tickets for 25 cents, notwithstanding the statutory limit specified was a 5-cent fare. Soon after placing the new rate into effect the Ontario Railway & Municipal Board declared the rate was illegal and ordered the commission to revert to the old fare.

An appeal was taken to the courts and while the matter was pending the commission prepared the bill mentioned previously. Under this appeal the Public Utilities Commission is continuing to charge the increased fare. It is expected that the Provincial Legislature will pass the bill and that it will become a law with the assent of the Lieutenant Governor in Council some time during June of this year. This will enable the commission to decide upon a rate of fare commensurate with the cost of operation and submit same to a vote of the ratepayers.

Unfair Bus Competition Prevented in Toledo

The City Council at Toledo, Ohio, has passed the bus regulatory measure, but the indemnity bond amounts and license fees were trimmed down by an amendment to the original bill.

The ordinance now requires that buses carrying up to ten passengers must post a \$5,000 indemnity bond; those with a capacity of ten to twenty passengers a bond of \$7,500; and those above twenty-passenger capacity a bond of \$10,000. The license fees for these three classes of buses are \$50, \$75, and \$100, respectively. The drivers license is \$1. Originally the ordinance carried amounts from two to three times greater than these. Street Railway Commissioner Wilfred E. Cann and other railway officials believe that the regulation will help to remove some of the ruthless competition of the buses with the railway. The buses have been taking away more than \$700 a day from the railway where pavements are good and hauls conducive to short trips.

Improved Traffic Control Proposed for Chicago

Inspired by traffic control methods which they investigated in several Western cities on a recent tour members of the local transportation committee of the Chicago City Council on March 31 voted to recommend their adoption locally.

Experiments will be made at six intersections in the down-town district with a semaphore system similar to that used in Los Angeles. A survey of down-town streets will be made with a view to designating their use for heavy vehicles or automobiles, and also for the possibility of eliminating left-hand turns. It is likely also that certain portions of the space under Michigan Boulevard where it is elevated will be set aside for parking of automobiles, to keep them off the crowded streets.

The local transportation committee also studied results under municipal operation of the electric railway lines in Seattle and San Francisco. It will report on this in the near future.

Jersey Jitney Bill Repassed

Governor Edwards of New Jersey on April 4 vetoed the Elliott bill, placing jitney buses under control of the State Public Utility Commission. He said:

I am opposed to the measure for the reason that I think the matter of regulation of a local conveyance such as jitneys should be left with the local authority which, in my judgment, is better informed and better equipped to handle the problem. To delegate this work to the utility commissioners would be to increase the work of an already over-burdened board.

The measure placed under the jurisdiction of the utility board all auto buses or jitneys, the routes of which parallel upon the same street the line of any street railway or any other utilities, thus giving to the commission control of all jitneys in the state.

The bill has since been repassed by both houses over the Governor's veto.

So the Public May Know

Cards bearing the names of conductors are being displayed prominently in all the cars of the Monongahela Valley Traction Company, Fairmont, W. Va. An officer of the company explains:

Courteous treatment always causes a desire on the part of the traveling public to know the names of the crew. There are many occasions when patrons come to us with praise for a conductor, but they do not know his name and do not remember his number. Because of this failure we are unable to let the conductor know that he is being appreciated. On the other hand, the company sometimes has in its employ conductors who are not courteous or who do not give good service. The cards will provide patrons names of these men so they can be reported.

Transportation News Notes

Increases Asked in New Castle.—The Sharon & New Castle Street Railway, New Castle, Pa., has filed a new tariff of rates with the Public Service Commission naming one way and commutation fares between Hubbard, New Bedford and New Castle.

Wheeling Work Divided Up.—Starting with the last week of February every crew working for the Wheeling (W. Va.) Traction Company, with the exception of the men on the Wheeling and Steubenville division, is being worked on six days a week. The company in this way is able to keep its extra crews employed by dividing up the work.

More Trailers for London.—Sanction has been given by the Ministry of Transport to the use of trailer cars on twenty-two additional routes of the London County Council Tramways. This is a material concession, as hitherto trailers have been allowed on only a very few routes. The capacity for coping with the morning and evening rushes of traffic will be very much enhanced.

Police and Firemen Ride Free.—Mandate has recently been served on the Seattle & Rainier Valley Railway to let policemen and firemen ride free, and to refund all fares collected from them. Service was made by Sheriff Matt Starwich, for Thomas J. L. Kennedy, assistant corporation counsel. The action was taken when the Supreme Court denied the company's motion for a rehearing in the case, which the Supreme Court decided in favor of the city.

Five-Cent Fare Continued.—The City Council of Akron, Ohio, under suspension of rules, on March 29 passed an emergency ordinance renewing the 5-cent cash fare ordinance for the Northern Ohio Traction & Light Company, which expired April 1. The 5-cent fare will be continued on city lines until July 1. The negotiations between the company and the city looking toward

relief for the railway through an increase in fare have been reviewed previously in the *ELECTRIC RAILWAY JOURNAL*.

Skip Stops Go at Des Moines.—Des Moines has abandoned the skip stop after three years. Without previous announcement the Des Moines City Railway, through F. C. Chambers and Homer A. Miller, decided to restore the old system the day the change was advertised. There has been almost constant complaint against the practice ever since it was adopted and with the competition being furnished by the buses, which stop upon signal from a passenger, regardless of his location, the receivers for the railway thought it best to do away with the plan.

Southern Company Seeks Increased Rates.—The Columbia Railway, Gas & Electric Company, Columbia, S. C., has applied to the State Railroad Commission for permission to increase fares between Columbia and Camp Jackson. The company is asking for a rate of 2 cents a mile which would mean a 14-cent fare instead of the present 10-cent rate. In its petition the company claims that the returns do not meet the operating costs. The railway is also planning to discontinue the privilege of free transfers. In the city of Columbia the present fare is 7 cents.

Commission Inspector Reports on Crowding.—H. C. Eddy, with a corps of inspectors from the Board of Utility Commissioners of New Jersey, recently investigated the service of the Trenton & Mercer County Traction Corporation and in a special report announced that the one-man cars were overcrowded, and that cars with a capacity of fifty passengers frequently carried as many as seventy-seven people. The inspectors state that the overcrowding of the cars disarranges schedules and decreases safety. It is suggested that the inspectors of the railway should be so distributed as better to handle the crowds. Lack of co-operation on the part of a number of platform men is considered another obstacle. A recommendation has been made that patrons of the railway be required to have the exact fare ready when they board the cars or be made to pay 10 cents for a ride.

Six-Cent Fare Continued.—The Public Service Commission of Indiana has issued an order allowing the Public Utilities Company, operating the city lines at Evansville, to continue the 6-cent fare. In doing this, the commission said that an examination of the company's operating statement for the last three months of 1920 indicates the present fares "have not been sufficient to yield a reasonable return on the value of the property over and above the necessary operating expenses." The 6-cent fare went into effect in Evansville when prices were at the peak as a temporary measure and has been extended from time to time by the commission. When the hearing was held which resulted in the granting of a 6-cent fare, the company contended that

it was realizing only a negligible return on its investment over and above operating expenses. The city attorney of Evansville contended that the company placed the value of its property too high. The company introduced as evidence the valuation by a private engineering firm, hired by the company. While the fare remains at 6 cents, patrons can buy twenty checks for \$1.

Commission's Rate Power Contested.—The question of the right of the Interstate Commerce Commission to direct the Fonda, Johnstown & Gloversville Railroad, Gloversville, N. Y., to charge 3.6 cents a mile on its electric line between Schenectady and Gloversville was raised on a hearing before Public Service Commissioner Frank Irvine of the Second District recently. The commission had previously issued an order requiring the company to show cause why it is charging 3.6 cents. The company filed its answer at the hearing. It alleged that it is a corporation acting as an interstate and intrastate carrier over which the Interstate Commerce Commission has exercised control and that it is subject to Federal legislation regulating interstate traffic. The company is charging the 3.6-cent rate, it says, because it understands that it is compelled to do so by virtue of the mandatory provisions of the Interstate Commerce Commission's order directing the recent 3.6-cent rate generally for intrastate travel. The company says it is willing to conform to the law and desires a final determination and it suggested that for its protection, the Interstate Commerce Commission be made a party to the show-cause order.

Minneapolis Service Improved Greatly.—Report by the city inspector is to the effect that service by the Minneapolis (Minn.) Street Railway has practically reached the 1917 standard, the maximum of the company's history. In December 403,329 passengers were carried and in January, 1921, 401,772. Despite the decline in passengers the improvement in service continued. Inspector Eugene S. Lund's report reads: The average number of revenue passengers carried on weekdays in July, 1920, was 370,382, as compared with 401,772 in January, 1921, the report shows. The car miles operated in July were 42,986, as compared with 52,621 in January. The average revenue passengers carried per car mile in July was 8.61, while in January it was reduced to 7.64. The number of cars operated in the late rush period in July was 416, as compared with 558 in January. The trips in the rush hours in July were 749 and in January 1,075. President Horace Lowry said: "Passengers are primarily interested in two factors. They expect a seat in the non-rush period and loading that is not excessive in the rush hours. Today we are giving that service. The difference today, compared with the service of 1917, is that we are giving service in the rush hours equal to that of 1917, while in the non-rush hour periods we are using no excessive equipment, but are giving passengers seats."

Legal Notes

INDIANA—*Automobile Occupant with Knowledge of Intoxicated Condition of Driver Held Contributorily Negligent.*

Where the driver and occupants of an automobile colliding with a train had been drinking intoxicating liquors, a member of the party, who knew of the intoxicated condition of the driver in time before the crossing was reached to have left the automobile and avoided injury, was guilty of contributory negligence. [Kirmse vs. Chicago T. H. & S. E. Railway, 127 Northeastern Rep., 837.]

INDIANA—*Motorist Crossing Tracks Without Looking Held Guilty of Contributorily Negligence.*

Where a motorist, knowing that street cars were liable to pass at any time, did not look for cars after he passed a building flush with the corner, and had an opportunity to see down the tracks, he must be deemed guilty of contributory negligence, provided he could have seen the approaching car in time to have stopped his vehicle or avoid the accident. [Union Traction Company of Indiana vs. Moneyhun Company, 127 Northeastern Rep., 443.]

MISSOURI—*Error to Exclude Testimony of Claim Agent that None of Defendant's Employees Knew of an Alleged Assault.*

In an action against a street railway company for an alleged assault by a conductor, the court erred in not permitting the defendant to prove by its claim agent, who investigated the case, that the crews on all cars operated on the line where the assault was alleged to have taken place were examined by the witness, and that none of them knew anything of the alleged occurrence. [Brown vs. United Railways of St. Louis, 222 Southwestern Rep., 890.]

NEBRASKA—*Conductor Need Not Warn Passenger that Car Has Not Stopped, or of Danger in Attempting to Alight.*

Where a street car is reducing speed for the purpose of stopping and discharging a passenger, in response to a signal, it is not the duty of the conductor to warn the passenger, who has proceeded to the rear platform with the apparent purpose of being in readiness to alight, that the car has not stopped, or of danger in attempting to alight, unless there is something in the appearance or conduct of the passenger which should reasonably give the conductor notice that the passenger is to some degree helpless or intends from carelessness to alight while the car is still

moving. [McCoy vs. Omaha & C. B. Street Railway, 117 Northwestern Rep., 791.]

NEW YORK—*Negligence of Borrower of Automobile Not Imputable to Owner When Car Was Damaged Through Negligence of Railway Company.*

Where an automobile was lent for use and was damaged through negligence of both the borrower and the company, the owner of the car, on the principle of liability of joint tort-feasors, can nevertheless recover for damage from the street railway company, the negligence of the borrower not being imputed to the owner. [Fischer vs. International Railway, 182 New York Supp., 313.]

NEW YORK—*Removal of Subway Kiosks at Company's Expense Not Compelled.*

The location by a traction company of subway kiosks on the sidewalks of the street under a certificate issued by the Board of Rapid Transit Railroad Commissioners effected a contract between the city and the company, the consent of local authorities having control of streets being obtained, so that when the street was later widened the city could not compel the company to bear the cost of removing the kiosks from the roadway. [City of New York vs. Hudson & Manhattan Railroad, 128 Northeastern Rep., 152.]

NEW YORK—*New York City Not Authorized to Operate Bus or Stage Lines.*

There is no statutory authority for the operation of bus or stage lines by the city of New York on its streets, and such action is forbidden by the charter, except by grant or franchise. Even if the street car service is in a permanent condition of inadequacy the city cannot undertake such a service under the plea of an "emergency," which is a sudden or unexpected occurrence or condition calling for immediate action. A railway company may enjoin such operation. [Brooklyn City R.R. vs. Whalen, 182 New York Supp., 283.]

NEW YORK—*Public Service Commission Held to Have Jurisdiction to Fix Rates Within City Limits of Railroad.*

Under the Public Service Commissions Law the commission has jurisdiction to authorize a railroad organized under the General Railroad Law of 1850 and using private right-of-way acquired under the present Railroad Law across streets in the city of New York to charge a higher rate of fare within the city limits than that prescribed by an ordinance giving the city's consent to the use of streets, since the fixing of such rates was within police power of the state, and since it had fixed the rate to be charged, the city was precluded from making the charging of a specified rate a condition to its consent to use of streets by the railroad. [People ex rel. N. Y. & B. Railway vs. Public

Service Commission, First District of New York, et al., 183 New York Supp., 473.]

NEW YORK—*Passenger Has Burden of Proving Carrier's Negligence When Adjustable Seat Collapsed.*

Despite the doctrine of *res ipsa loquitur*, which may be relied on as raising presumption of negligence, a passenger on a car injured when an adjustable seat collapsed has the burden of establishing negligence, for otherwise the carrier would be an insurer. [Slomka vs. Nassau Electric Railway, 182 New York Supp., 156.]

PENNSYLVANIA—*Husband Not Agent of Wife in Procuring Her Signature to Release.*

That a wife stood silent while her husband bargained with the company's claim agent will not constitute her husband her agent and render her bound by his acts in procuring a settlement and in obtaining her signature to a release, the wife maintaining that the release was obtained by fraud. [Ralston vs. Philadelphia Rapid Transit Company 110 Atlantic Rep., 335.]

SOUTH CAROLINA—*Franchise Held to Obligate Grantee to Build Extensions.*

A street railroad franchise which stated that, in consideration of the construction and operation of the railway within the city and its extension and operation to designated points outside the city, the city remitted all license taxes, provided that until the extensions were made the taxes should not exceed a stated sum, was a contract binding the company to construct the extensions, not merely permitting it to do so. [Thomas vs. Spartansburg Railway, Gas & Electric Company, 193 Southeastern Rep., 149.]

WISCONSIN—*Reasonableness of Rates Depends on Effect on System as a Whole.*

Where a street railway and a suburban railway were operated as one system, the reasonableness of rates fixed by the Railroad Commission as to the operation of the suburban line is not affected by the fact that such line will be operated at a loss under the rates so fixed, the test of reasonableness being the effect upon the system as a whole. [Milwaukee Electric Railway & Light Company vs. Railroad Commission of Wisconsin, 177 Northwestern Rep., 25.]

WISCONSIN—*Stopping of Street Car Not Invitation to Traveler to Cross Street.*

The stopping of a street car at a customary place for discharging and taking on passengers is not an invitation to a traveler in an automobile to cross ahead of it, and if he is so situated that the car can safely start and safely continue, provided he yields the right of way and can safely do so, the car can proceed upon its trip. [Dering vs. Milwaukee Electric Railway & Light Company, 176 Northwestern Rep., 343.]

Personal Mention

C. P. Taft to Resign from Ohio Traction Company

Charles P. Taft, publisher of the Cincinnati (Ohio) *Times Star* and brother of the former president of the United States, William Howard Taft, has submitted to President W. Kelsey Schoepf his resignation as first vice-president and director of the Ohio Traction Company, Cincinnati, Ohio, and as a member of its executive committee. In his letter of resignation Mr. Taft assigns no reason for his action. The resignation will be presented to the board of directors for their consideration at their next meeting.

Mr. Taft recently was instrumental in forming a stockholders' committee of the Cincinnati Street Railway to look after the interests of that company in the developments in the railway situation in Cincinnati. This committee was formed at the time the Cincinnati Traction Company and the Cincinnati Street Railway named special committees of their boards to enter upon negotiations for a revision of the terms of the lease, the franchise and the capitalization of the companies.

It is understood that Mr. Taft will continue to serve as a member of the directorate of the Cincinnati Street Railway. The significance of Mr. Taft's action is that, although he is largely interested in both companies, he will devote his attention and influence to the interests of Cincinnati Street Railway in the pending negotiations.

Airplane Used to Inspect Power Lines

P. H. Chase, chief electrical engineer for the American Railways, and W. R. Power, general manager of the Ohio Valley Electric Railway and the Consolidated Light, Heat & Power Company, have demonstrated that it is possible to inspect high-tension lines by airplane. The test was made in a new Curtis "Oriole," with Bob Shank, a local aviator at Huntington, W. Va., as pilot. The flight was started from Kyle field, the home grounds of the aerial taxi, and continued to Hurricane, in Putnam County, a distance of 25 miles and return.

The line inspected is being constructed by the Virginia Power Company from Cabin Creek, in Kanawha County, to Huntington. The pole lines are now completed to the southeasterly limits of the city and the wire itself has been brought down the valley to a point near Milton.

Mr. Chase and Mr. Power said that they found it entirely possible to make the inspection from the airplane. They said that in the event of trouble a flying inspector could see from the air

whether a mishap was due to slide or a break in the wire. This method of getting a bird's-eye view of the line will make it possible to save much time in the location of trouble and thus help to render better service.

J. R. Ong Goes South

Former Transportation Engineer in Winnipeg Takes Similar Position with Georgia Railway

J. R. Ong has accepted a position with the Georgia Railway & Power Company, Atlanta, Ga., as transportation engineer. This opening was created last month by the organization of a new department within the trans-



J. R. ONG

portation department for the purpose of increasing the efficiency of the transportation service. Mr. Ong reports to the manager of the railway department and works directly with the transportation department in building and fitting schedules for the operation of cars to meet service requirements.

The new transportation engineer will carry on a continuous traffic survey over all lines so that the car service furnished to the public can be fitted to the needs of those who use the service. Having arrived at definite information relative to the exact number of passengers to be expected on given lines at given times, Mr. Ong will be in a position to make up schedules which will be for the best interest of the public and company. This will relieve the transportation department of similar work and will leave the transportation department free for the operation of cars to meet the new schedules as outlined.

Mr. Ong was graduated from Purdue University in 1909. His practical railway experience began in the car shops and power plants during the construction and early operating period of

the Indianapolis & Cincinnati Traction Company, Indianapolis, Ind., and the Chicago, Lake Shore & South Bend Railroad, Michigan City, Ind. After he was graduated from Purdue he became an apprentice in the East Pittsburgh works of the Westinghouse Company and was later transferred to the Philadelphia sales office of that company. In 1911 he became superintendent of substations on the Fort Dodge, Des Moines & Southern Railroad, Boone, Iowa.

In December, 1911, Mr. Ong accepted the appointment as electric railway engineer on the joint engineering staff serving the Railroad Commission of Wisconsin and the Wisconsin Tax Commission. In this position he specialized on transportation matters and made extended studies for the Railroad Commission relating to operating matters and service on the electric railways of Wisconsin. After serving with the Wisconsin Commission for some time he resigned to accept the position of traffic engineer for the Board of Control of the Kansas City (Mo.) Railways. In 1918 he resigned that position to become transportation engineer with the Winnipeg (Man.) Electric Railway.

Mr. Culkins Resigns

All Cincinnati Agog Over Return of Street Railway Director to Commerce Body

Announcement was made on April 6 of the resignation of William C. Culkins as director of street railways at Cincinnati, Ohio, for the city government. At the same time James A. Reilly, president of the Chamber of Commerce, announced that Mr. Culkins would succeed Charles R. Hebble as executive secretary of that body. Mr. Hebble has held the position during the past three years.

These changes in themselves caused a considerable stir, but on the heels of this news came also intimation of dissension among committeemen representing two sets of stockholders interested in plans for the reorganization of the Cincinnati Traction Company, operating in Cincinnati, several traction lines in the state and a construction company. It will be recalled that Mr. Culkins several months ago demanded an accounting in connection with intercompany charges of \$350,000 in accounts involving the Cincinnati Traction Company, the Cincinnati Car Company and the Ohio Traction Company, in transactions concerning the purchase and sale of materials, certain leases and power rentals.

This demand for an accounting, Mr. Culkins said, was necessary to determine whether or not the Cincinnati Traction Company actually had lost an amount of money sufficiently large during the preceding two months to warrant an increase of fare applied for on March 1, under the service-at-cost franchise.

To bring about a readjustment or reorganization of the traction companies,

there were created at the suggestion of Mr. Culkins two special committees of stockholders, one representing the Cincinnati Street Railway and the other the Ohio Traction Company. This last company controls the operation of the Cincinnati Traction Company.

In a formal statement announcing the change, Mr. Reilly said:

Mr. Hebble having resigned his position as executive secretary of the Cincinnati Chamber of Commerce, the board of directors authorized the president to tender the position to William C. Culkins, the present director of street railways.

Mr. Culkins expressed reluctance to make a change during the pendency of the street railway reorganization which is being worked out in compliance with his order. However, after a conference with Mayor Galvin and myself, he decided to accept the proposition with the understanding that in compliance with the wishes of the Mayor he would continue in his present position, along with his new duties in the Chamber of Commerce until May 1, by which time it is hoped that the street railway problem will have been substantially solved, and with the further understanding that thereafter he is to place all of his information and services at the disposal of the city in connection with any pending suits or other litigation or questions with the traction company.

The position of executive secretary of the Chamber of Commerce will not be new to Mr. Culkins, for he held the office at the time of his appointment to the office of street railway director by Mayor Galvin.

Mr. Hebble, who has tendered his resignation, succeeded Mr. Culkins as executive secretary in 1917 and has held the office until this time. Other than to say that he had made no plans for the future, Mr. Hebble refused to discuss the affair. He entered the service of the Chamber of Commerce in January, 1914, as manager of the civic and industrial department under Walter Draper, then president of that body, holding that position until he succeeded Mr. Culkins.

Mr. Hebble will continue to fill the duties of the office until such time as Mr. Culkins is ready to succeed him.

Recent Visitor to America in New York

Gotthard Diedon, who spent several weeks in this country last fall studying electric railway practice, has relinquished his position as managing director of the street railways of Gothenburg, Sweden. He is now director of the harbor of Gothenburg, which, like the railways, is a municipal property, and is one of the most important of Swedish harbors.

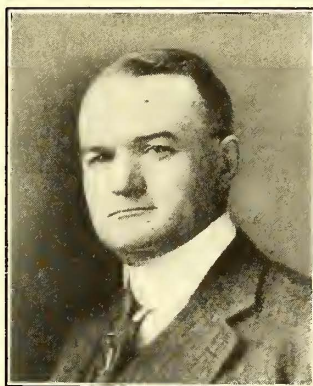
A short time ago, Mr. Diedon, in a letter to one of the editors of this paper, said that he regrets that he will not be able to put into practice the experience and new ideas obtained through his studies here. He pays a very high tribute to the personnel of American railways by saying that the industry was fortunate in having managers, engineers, and other officers of such high ability and intelligence, because the standing of the street railways in this country is considered good in view of the extraordinary conditions prevailing for the last few years.

L. A. Downs Heads A. R. E. A.

Vice-President and General Manager Central of Georgia Railway Elected at Annual Convention

Lawrence A. Downs, vice-president and general manager of the Central of Georgia Railway, was elected president of the American Railway Engineering Association at its twenty-second annual convention, held at Chicago on March 15-17. He succeeds A. Stafford as president of the association.

Mr. Downs entered railroad service in February, 1895, with the Vandalia Railroad. From 1896 to 1898 he was in the engineering department of the Illinois Central Railroad, and for nine years following was roadmaster on the Amboy, Louisville, Louisiana, Westfield and Chicago divisions of that road. From 1907 to December, 1910, he was assistant engineer, maintenance of way, of the Illinois Central. In December, 1910, he became division super-



L. A. DOWNS

intendent of the Iowa division and later of the Minnesota and Kentucky divisions.

In January, 1915, he was made general superintendent of the southern lines and in August, 1916, general superintendent of the northern lines of the Illinois Central. Three years later he became assistant general manager of the road. He was appointed vice-president and general manager of the Central of Georgia Railway in March, 1920.

Mr. Downs was born in Greencastle, Ind., in 1872. He is a graduate of Purdue University in the class of 1894.

E. B. Hardin was appointed auditor of revenue for the Piedmont & Northern Railway, Charlotte, N. C., on April 1. Mr. Hardin will handle all freight and passenger revenue accounts. Mr. Hardin had this position with the company until 1919, when he resigned to engage in other business, at which time this work was placed under the general auditor. His coming back at this time places the auditing work of the company on the same basis as it was previous to 1919.

H. C. Hoagland, formerly vice-president and general manager of the Central Oklahoma Light & Power Company, has resigned to become general manager of the Oklahoma Natural Gas Company. Mr. Hoagland during the last ten years has served at different times as manager of the Muskogee Gas & Electric Company, Muskogee, Okla., and the Fort Smith Light & Traction Company, Fort Smith, Ark., in addition to the position he is now leaving. All these properties are operated by the Byllesby Engineering & Management Corporation, Chicago.

Dr. E. W. Miller has been advanced by the Milwaukee Electric Light & Railway Company, Milwaukee, Wis., to fill the positions of the late Dr. Charles H. Lemon, who for twenty-five years had been chief surgeon of the company and medical director of the Employees' Mutual Benefit Association since its organization nine years ago. Dr. Miller has during the nine years that he has been connected with the company, served both the E. M. B. A. and the company as assistant to Dr. Lemon. So he has been in constant touch with the development of the association and has had much to do with the development of its medical work and other activities. The new medical director is a graduate of the University of Chicago and of Rush Medical College. He had experience in Colorado and the iron country of upper Michigan before going to Milwaukee.

Obituary

Clarence Dallam, formerly solicitor and assistant to the president of the Louisville (Ky.) Railway, is dead. Mr. Dallam was connected with the railway's legal department for about eighteen years. He resigned his position last July. He was a prominent member of the Louisville bar.

T. J. Oliver, one-time owner and operator of the railway system in Dallas, Tex., died recently in McAlester, Okla. Mr. Oliver was for years senior member of the banking firm of Oliver & Griggs, once a leading financial institution of Dallas. Mr. Oliver was eighty-seven years old. He retired from active business many years ago.

Homer J. Hodson, who was in charge of the department of safety and fire inspection of the East St. Louis & Suburban Railway Company, East St. Louis, Ill., died at the St. Joseph's Hospital in Alton, Ill., on March 6 following an operation for appendicitis. Mr. Hodson was thirty-one years old. He was well known by a great many transportation men on account of his activities in the National Safety Council. In the council Mr. Hodson was chairman of the railway section of the bulletin committee. He was also state officer of the American Legion.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Good Stocks of Lightning Arresters

Prices Steady Since Reductions of Ten per Cent—Deliveries Are Immediate, but Market Remains Quiet

Sizable stocks of railway lightning arresters are held by producers awaiting the call of car builders for new equipment and railways for replacements. Deliveries are immediate, but as yet the anticipated spring business in this line has not opened up to any great extent. Some producers are optimistic, however, and report that there has been quite an increase in sales recently, though one large manufacturer estimates that demand just now is only 25 per cent of normal. Considerable success has been met in pushing sales of the condenser type of arrester and this is more and more taking the place of old-type equipment, it is stated.

Production has generally been held to low levels as a result of the existing quiet market. In view of the prompt deliveries that can be made producers are inclined to believe that railways are holding off buying until summer and the lightning factor is actually at hand. Ordinarily it would now be growing late for this class of business to be placed. Prices have held steady since general reductions of 10 per cent were made the middle of February.

Lower Prices of Insulating Tapes and Cloth

Stocks Are Held Low Though Immediate Shipments Are Made—Manufacturers Optimistic

Although prices of insulating material in general have for some time been about holding their own, further reductions on a few items have been announced recently. A standard grade of friction tape was reduced in price 6 cents per pound on April 1, a drop of 15 per cent. On the same date all varnished cloths were reduced about 7 to 8 per cent by the same company. On March 28 another manufacturer lowered the price of woven cotton tape, the cut on the 1-in. width being from \$1.42 to \$1.10 per pound.

The general view expressed by representative manufacturers is that prices in this line can hardly go lower. Cotton, rubber, shellac, etc., are all at unprecedentedly low figures, and the general average drop on all classes of finished insulating material has amounted to at least 33½ per cent, according to the estimate of a well-known manufacturer. Spot cotton at New York is quoted at 12.05 cents per pound at present. Con-

sumers, however, apparently are not yet satisfied that insulation prices have hit bottom as buying remains from hand to mouth for the most part.

Electric railways are making light repairs. Repair shops are buying such material as they need, but their present requirements are small. Manufacturers of finished products such as motors have greatly curtailed production. There is a pretty good industrial market for motor repair work, especially steel mill, at present. These outlets account for a considerable number of orders that are being received, but each order is usually small in size. There is little question that the existing market

is quiet and will probably remain so for some time. Distinct optimism is manifest among manufacturers, however, as the expectation of better business persists. There has been, in fact, some slight trend toward improvement already noticed in some quarters in the number of inquiries which were received last month.

Stocks of finished material have been purposely kept rather low by producers, who have materially curtailed production under present market conditions. The supply of finished material, however, is in virtually all cases quite adequate to cover present needs with immediate shipments.

Excellent Deliveries Quoted on Special Trackwork

Producers Are Keeping Rail Stocks Rather Low—Prices Are Somewhat Lower and the Outlook Is for Improvement

Electric railways which may yet be considering coming into the market for special trackwork this spring should meet with excellent delivery conditions. At present there is keen competition for business among producers and with not a large volume of orders on hand deliveries are obtained very promptly. The average time within which manufacturers state that they can fill orders ranges from three to six weeks. For export shipment in some cases and also on some of the more complicated layouts the time in which orders can be filled extends to as much as eight weeks.

In general makers of trackwork who do not roll their own rails report they are keeping stocks of straight rail sections at fairly low levels. In view of the existing quiet market and the considerable tonnage which rail mills would still be able to take on, little difficulty is experienced in replenishing stocks. Frequently, however, especially on girder rails where the tonnage desired is often small, orders are held for a sufficient tonnage to warrant rolling.

Prices quoted on special trackwork are now lower than they were some time ago, but as each order is really an individual job it is impossible to gain a representative idea from producers as to how much prices have declined, though a minimum of 10 per cent would seem at least a very conservative estimate. Open-hearth standard T-rails are still quoted at \$47 per ton, but grooved girder rails which on Jan. 5 were quoted in ELECTRIC RAILWAY JOURNAL at \$88 per gross ton have undergone some reduction. A nominal quotation at the present time would be \$75 to \$80 per ton, but a price as low as \$67 per ton on an order of 1,000 tons has been made recently.

Producers are generally still optimistic that business in this line will show some improvement later this year, but at the same time there is little hope that the total volume of sales in 1921 will compare very favorably with normal buying years. Steam roads, following reductions in price to \$47 per ton by independent producers of standard T-rails, placed a fair amount of orders for special trackwork but have remained inactive since. Electric railways, where money has been available, have entered the market in fair number but in most cases for small repair orders only.

There are certain hopeful signs visible on the horizon, however. The seemingly inevitable ultimate reduction of wages offers an important outlet for lower costs while the need for higher fares is apparently receiving increasing legislative recognition. Steam railroads too have not yet received payment of money due them from the period of federal control and a readjustment of freight rates would very possibly increase business there.

Tenders Asked for Equipment for Railways in South Africa

Tenders are being invited, according to Trade Commissioner Stevenson of Johannesburg, South Africa, for supplying overhead equipment, switches, gears and accessory track equipment for electric railways in South Africa. Specifications covering this equipment are on file with the South African High Commissioner, Trafalgar Square, London, England, copies of which may be obtained at £5 2s. for the first copy and £2 2s. for each additional copy. Bids are to close June 22.

Window Glass Prices Drop About 20 per Cent

Production Is at Minimum and Stocks
Are Not Large—A Resumption of
Buying Would Push Deliveries

Effective April 1, the price of window glass has been reduced by manufacturers between 19 and 21 per cent. The new discounts announced by the American Window Glass Company, f.o.b. factory with the usual boxing charge extra, are 82 per cent on single strength, both A and B quality; 83 per cent on double strength, A quality, and 85 per cent on double strength, B quality. These compare with discounts of 77, 79 and 81 per cent respectively that have all along been quoted as the market. The above new discounts apply to the list prices dated Oct. 15, 1912.

The lowering of producers' prices will not have the effect on consumer's cost that at first seems evident inasmuch as virtually all jobbers anticipated this decrease some time ago and lowered prices on their own initiative, taking a loss for the sake of moving their stocks.

The present market is extremely quiet, with very little buying from any source, though it is said that the electric railways are ordering for repairs better than are the steam roads this spring. There are several factors in the market, however, that lead glass manufacturers to take an optimistic view of the situation. Probably the chief one is the certainty of an increased demand from the building trade before very long. Another is that there is virtually no large surplus of glass anywhere in the country at present. Some jobbers are still overstocked, but in general their efforts to reduce inventories have been successful, while the policy of glass manufacturers in cutting down production to a minimum has eliminated a surplus on their part.

Production at this time, it may be safely said, is down to about 20 per cent of capacity, or very little above even the present light consumption.

There is considerable cheap Belgian glass on the market, it is true, and in fact low-priced foreign competition has been a very important factor in the slump which the industry in this country has taken. There is, however, little or no supply of foreign glass on the market such as would affect railway requirements.

Labor prices are an important part of the cost of glass manufacture and so far as the hand workers in the industry are concerned there has been no wage cut. As the "hand-operated" factories are all shut down the wage question will probably be reopened again on their resumption of operation in the fall.

Whether wages of machine operators have been reduced or not it has not been possible to learn, but there has been no general cut, at least of the skilled workers.

General Electric's Report Shows Record in Sales

The twenty-ninth annual report of the General Electric Company for the year ended Dec. 31, 1920, shows a record of sales billed never approached by any electric manufacturing company. These billings amounted to \$275,758,487, an increase of \$45,778,504 over those for 1919. The net value of orders received was \$318,470,438 as against \$237,623,932 for 1919. At the end of the year the amount of orders unfilled, after eliminating all cancellations, was \$111,778,000, compared with \$98,880,000 at the close of 1919. Reduction of inventories to market values of Dec. 31, 1920, amounted to \$17,803,985.

The unprecedented amount of orders received during the first seven months of the year, plus unfilled orders at the beginning of the year, in a difficult situation, to add to manufacturing facilities, and during the year the company added 2,052,000 square feet of owned factory floor space and 1,768,000 square feet leased with option to purchase. Present manufacturing space amounts to 24,501,000 square feet.

At the close of 1920, inventories at factories amounted to \$93,574,114 and at warehouses, in transit, on consignment, etc., amounted to \$24,535,059, a total of \$118,109,174, as against \$83,978,463 at the close of 1919. The following item of customers' accounts and notes receivable, carried at \$64,962,682, which is an increase of \$19,077,154 over the balance shown at Dec. 31, 1919, is an indication of the way bills are being paid. Total outstanding capital stock at that date was \$139,026,900.

Westinghouse Air Brake Has Satisfactory Year

The Westinghouse Air Brake Company, Wilmerding, Pa., under date of April 1, has issued its annual financial statement for the year ended Dec. 31, 1920. The volume of orders received and product shipped during the year, it is stated, was satisfactory. Net profits for the parent organization and all subsidiary companies were \$6,580,403, which, after deducting estimated federal taxes and dividends paid out, leaves a surplus of \$1,249,122 to be added to the \$14,891,457 surplus on hand as of Jan. 1, 1920.

The year 1920 closed with a fair amount of orders on hand, it is stated, but current orders show a marked falling off as compared with previous years. Manufacturing operations of the company thus far this year have been at an almost normal rate, but must be reduced materially unless there is a marked increase in new business. Considering prevailing conditions abroad the operations of the several foreign companies which the Westinghouse Air Brake Company wholly or partially controls were considered very satisfactory.

Inventories, including material, supplies, goods in process and finished

stores priced either at cost or market, whichever was lower on Dec. 31, total \$15,628,811. The report states that it is hoped that passage of the Winslow bill by Congress will result in payments which will reduce outstanding accounts totaling \$13,550,168 to normal proportions.

Tenders on South African Railways Asked

The tenders for the conversion to electric traction of the Cape Town-Simon's Town and the Durban-Maritzburg sections of the South African Railways are due in by May 3. There are seven separate specifications relating to each line. For the first of the lines named these items are: Motor cars and underframes, motor trucks, electric equipment of cars, substation equipment, power house transformers, boilers, boiler house equipment, turbo alternators and condensing plant.

For the Durban-Maritzburg line the specifications are: Electric passenger and freight locomotives, electric yard locomotives, substation equipment, turbo alternators, boilers and boiler house equipment, condensing plant and transformers for substations and power stations.

Rolling Stock

Texas Electric Railway, Dallas, Tex., which owns and operates the street-car system in Corsicana, Tex., has purchased three new one-man cars for service there. With these cars, a fifteen-minute schedule will be maintained on the city lines.

Track and Roadway

Kentucky Traction & Terminal Company, Lexington, Ky.—Chief Engineer McLeod has informed the Commissioner of Public Works that the Kentucky Traction & Terminal Company will begin work as soon as the weather permits on track repairs.

Detroit (Mich.) Municipal Street Railway.—F. M. Meyer, city purchasing agent of Detroit, is in Spokane inspecting poles and arranging for a contract award for 3,000 poles, 35, 36 and 40 ft. long. The purchase calls for an expenditure of about \$65,000.

Trenton, N. J.—The Trenton (N. J.) City Commission has instructed the Trenton & Mercer County Traction Corporation, the New Jersey & Pennsylvania Traction Company and the Public Service Railway to improve the paving on streets in Trenton where their lines run.

Oklahoma Railway, Oklahoma City, Oka.—The Oklahoma Railway is making track improvements in the downtown section of the city which will cost approximately \$4,000.

Memphis (Tenn.) Street Railway.—The Memphis Street Railway expects to have to reconstruct about 2,200 ft. of double track and 2,000 ft. of single

track on North Second Street. This is now T-rail and will be replaced with girder rail. The reconstruction will be necessary to meet the city's plan of repaving the street, using asphalt.

Memphis (Penn.) Street Railway.—Track improvement, which will provide for the rerouting plans contemplated by the Memphis Street Railway, will be started about April 15. Commissioner Johnson has stated that the work was waiting for the delivery of curves, switches, etc.

Dallas (Tex.) Railway.—The Dallas Railway will begin work on the extension of its line on Fairmount Street, that will reach the Parkland City Hospital, near the middle of April, according to announcement by Richard Meriwether, vice-president and general manager. The line will extend out Fairmount Street to Oaklawn Avenue within one block of the city hospital. Work has been held up on account of bridge work on Turtle Creek. It is expected that the line will be completed within five months. This is one of the extensions for which the Dallas Railway is committed under the terms of its charter.

Indiana Service Corporation, Fort Wayne, Ind.—The Indiana Service Corporation has agreed with the International Harvester Company to extend the line to the company's big new truck plant east of the city as soon as the plant is completed.

Power Houses, Shops and Buildings

Southern Public Utilities Company, Charlotte, N. C.—The Southern Public Utilities Company has rebuilt its Second Street, Winston-Salem electric power station and has equipped it with modern transformers. Already \$150,000 has been spent and many thousands more will be expended in completing the reconstruction and redistribution improvements.

Mobile Light & Railroad Company, Mobile, Ala.—The Mobile Light & Railroad Company has under contract with the Westinghouse Electric & Manufacturing Company a 1,000-kw. turbine and 550-600-volt generator with condenser. The company has completed a steel and concrete carhouse 100 ft. x 200 ft. having eight inspection pits together with a large amount of yard storage. An office for the transportation department has also been completed.

Salt Lake & Utah Railroad, Salt Lake City, Utah.—A new power substation will be constructed at Curtis, Utah, on the Salt Lake & Utah Railroad this summer, at a cost of \$50,000. Curtis is 5 miles north of Provo, on the main line of the road, and this will be the fifth substation on the line between Salt Lake and Payson, the other four being at Granger, Bringham, Lindon and Springville. The new power substation is expected to be completed by September.

Trade Notes

The Standard Paint Company, 95 Madison Avenue, New York City, manufacturer of weatherproofing products, announces a change in its corporate name to the Ruberoid Company.

E. I. Du Pont de Nemours & Company, Inc., is putting out uniform caps made of pyroxylin coated goods (leather substitute) which is waterproof and made in colors to match the uniform.

The Conveyors Corporation of America, Chicago, announces the appointment of Robert B. M. Wilson as sales engineer of the Chicago district, with E. M. Wolfe associated with him as an assistant.

The Universal Crane Company announces the removal of its plant from Cleveland to its new factory at Elyria, Ohio. The company has greatly increased its capacity and production is now under way in the new plant.

Daniel J. P. Jones, formerly connected with the Chicago office of the Economy Fuse & Manufacturing Company, has been appointed sales representative of the company in Michigan and will have his headquarters in Grand Rapids.

E. G. Le Laurin has resigned as Southern sales representative of the Southern Supply & Hardware Company, St. Louis, to become associated with W. D. Jenkins, representative for railway equipment and supplies, Dallas, Tex., looking after the Dallas-Houston-New Orleans territory.

The Hopewell Insulation & Manufacturing Company, Hopewell, Va., announces that it is now represented in Chicago by the Midstates Engineering Company, Westminister Building, which company takes in the district of Ohio, Indiana, Illinois, Michigan, Missouri and Wisconsin.

The Barney & Smith Car Company, Dayton, Ohio, will not be funded under the plan described in the March 19 issue for financing the working capital requirements of the company by an issue of \$2,000,000 second mortgage, 7 per cent bonds. An insufficient amount of subscriptions were received and other measures will have to be devised for the continuance of the company's business. Directors of the company will meet next week to consider further steps toward clearing up the company's finances.

The Under-Feed Stoker Company of America, Book Building, Detroit, has placed its Western selling agency with the Merkle Machinery Company, of Kansas City. The selling agency has branches in Omaha, Neb., and Tulsa, Okla., selling, designing and installing machinery for power and pumping plants. The Salt Lake City agency has been placed with N. L. Alison, 616 Newhouse Building. The company also will be represented in the Southern territory through Smith & Whitney, Southwestern Life Building, Dallas, Tex.

A. J. Manson has been appointed manager of the Railway Division, New York office of the Westinghouse Electric & Manufacturing Company. After graduating from Massachusetts Institute of Technology in 1905 Mr. Manson entered the company's engineering apprenticeship course. He was active in the electrification of the New Haven Railroad and the Pennsylvania Railroad into New York City and during the past few years has been connected with the sales organization in New York.

Engineering Business Exchange, New York, announces the opening of a South-eastern branch with Marshall O. Leighton, consulting engineer, of Washington, D. C., as director. Mr. Leighton was for a dozen years one of the principal officers of the United States Geological Survey. During the past three years he has been chairman of the National Service Committee of the Engineering Council. Associated with Mr. Leighton in carrying on the Exchange will be A. C. Oliphant. The Southeastern branch of the Engineering Business Exchange has offices in the McLachlen Building, Washington, D. C.

New Advertising Literature

Seats.—The J. G. Brill Company, Philadelphia, Pa., has issued leaflet No. 248, describing "Brill Seats for Motor-men and Conductors."

Rails.—The Titanium Alloy Manufacturing Company, Niagara Falls, N. Y., has issued bulletin No. 9 in its series of reports on open-hearth rails.

Pulverized Coal.—The Fuller-Lehigh Company, Fullerton, Pa., is distributing bulletin No. 600, entitled "Pulverized Coal for Boilers."

Brush Holders.—D. B. Flower, 1217 Spring Garden Street, Philadelphia, is distributing two leaflets covering different types of Flower brush holders for industrial motors.

Metal Statistics.—The fourteenth annual edition of the Metal Statistics, 1921, has been published by the American Metal Market and Daily Iron and Steel Report, 81 Fulton Street, New York City.

Damper Regulator.—A new hydraulically operated damper regulator for boiler pressure up to 250 lb. has recently been developed by the Atlas Valve Company, 282 South Street, Newark, N. J.

Electric Locomotives.—Westinghouse Electric & Manufacturing Company has issued a pamphlet on the electrification of the N. Y., N. H. & H. R. R., with especial reference to the road's six latest electric locomotives which are described.

Transmission Towers.—Archbold-Brady Company, Syracuse, N. Y., has published a booklet illustrating and describing the transmission lines of the Niagara Falls Power Company constructed by it, which involved some special engineering problems.