

# Electric Railway Journal

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

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## New York Developments Indicate Possible Municipal Ownership

THE latest development in New York City traction affairs seems to be a movement toward municipal ownership, first of the rapid transit lines and later of the surface lines, or some of them. The basis of the transfer, if the present plan is carried out, is to be a fair appraisal of the properties on which the city will pay a reasonable rate of interest and then that fares will be charged sufficient to amortize the purchase price within about twenty years. At the time at which this statement is being written, the plan had reached only its preliminary stage and neither the Mayor nor representatives of the Board of Estimate had publicly expressed any comments on the proposal nor had it been before the boards of directors of the companies.

Such a plan would undoubtedly be welcomed by the owners of the securities, who have seen the value of their holdings greatly diminished during the past two years, because of the refusal of the city authorities to grant increases in fares. Just what the public will gain by the change, however, if it is carried through, is another question. It is too much to expect that the city will operate the system anywhere nearly as efficiently as has been done by the present owners, nor is it likely that the service will be as good. The ventures of the city into other commercial fields, such as ferry operation, are certainly not such as to encourage any further activities of a like nature. If the city authorities are wise they will arrange for the operation of the lines in such a way, if possible, as to preserve the advantages of private management, even if they cannot retain the benefits of private initiative. Whether this can be done with the New York transportation lines under the control of the city remains to be seen.

## Synchronizing Revenues with Wage Increases

THE decision of the Railroad Commission of Wisconsin in the Milwaukee case, reported in the last issue of this paper, is the first order under the law enacted at the last session of the Wisconsin Legislature, which establishes a definite relation between wages and rates. Briefly, the law provides for arbitration of disputes in regard to wages on public utilities by the State Board of Conciliation, and then for a determination by the Railroad Commission of the State of the ability of the company to pay the increase, if one is granted. If the Railroad Commission finds, as a result of its inquiry, that the surplus of the company, after paying a fair return on the investment in its property, is insufficient to pay the increased wages awarded, the law places upon the commission the duty of supplying

the company with sufficient revenues for this purpose. In other words, the law is the first practical application of the attempt directly to synchronize increases in revenues with increases in wages, which has frequently been suggested, and it should prove in this respect far more effective and satisfactory to all parties concerned than the condolences, recommendations and admonitions of the late War Labor Board.

The new regulation must also be of great satisfaction to labor because it provides for arbitration of labor's demands through a State board and insures the payment of the award of this board through all the powers of the regulating commission. It therefore makes strikes unnecessary, as the interests of the three parties—labor, capital and the public—are automatically reconciled. The new law has a further effect which is apparent from a reading of the appendix to the decision of the Railroad Commission of Wisconsin. Since it insures a fixed return upon the investment, it establishes a more or less automatic scheme of adjustment of fares, in other words, a service-at-cost plan, under State commission regulation. It is thus again unique because all previous electric railway service-at-cost plans in this country have been either under the direction of a municipal commission or, in the case of Massachusetts, of a special commission appointed by the Governor.

## Actual Experience Data of Automatic Substation Operation

AUTOMATIC control of substation equipment has now been in use long enough to have permitted the "bugs" to be eliminated from the relay and switch design and to allow the operators to accumulate some reliable data that will be useful to themselves and others in future expansion along this line. In the issue of this paper for March 22, 1919, page 565, E. J. Nash, electrical engineer, Butte (Mont.) Electric Railway, told of the results of a year's experience with "automatics" on that property. He plans shortly to supplement this with the 1919 record. In the five-in-one combined number issued on Dec. 13, 1919, page 886, R. J. Wensley, a Westinghouse engineer who has had a great deal of experience in this matter from the manufacturers' side, gave a frank summary of the trials and tribulations of the inventor with the apparatus. This week we are pleased to give an abstract of a paper by C. L. Cadle, presented before the New York Electric Railway Association at its New York City meeting held last week. In this he gives some convincing statistics which will prove cheering in these days of high labor costs. These data will be appreciated by manufacturer and railway operator alike, for they show what can be expected in many other locations if moderate sums of money are invested intelligently.

In his tabulations Mr. Cadle estimates, in the cases of the two stations with which he has had personal experience, the number of years necessary for the control equipment to purchase itself. This number proves to be so small as to be considered negligible when compared with the probable useful life of the equipment. It ought then to be easy to "sell" the idea of automatic control to the executive officers of a railway company when the advantages are so self-evident. The industry is now too dependent upon labor and is not dependent enough as yet on automatic devices in several departments, of which the power distribution division is cited here as an example. The same service could be given with fewer men, or better service with the present force, if the same principle, that is the use of labor-eliminating equipment, were further and more diligently applied in the cars, on the track, in the power plant, in the counting room, etc. Give the engineer a fair chance in all of these fields and he will show results.

### Planning to Combat Coal Famines

**I**N THE good old days "befo' de war," we as a people worried very little about the problem of our fuel supply. Coal, water, and air were on somewhat the same basis. They did not trouble anyone very much but were procurable at any time and in any quantity needed. Only a few scientists and other folk of the ilk who love to peer into the future, and whom the common people usually prefer to consider otherwise than seriously, were at all concerned about our coal supply. But now for a second time within two years the country has found itself in the throes of a fuel famine, and it begins to look as if vigorous action on the part of all the people, instead of dreaming on the part of a few, must begin. It is not our thought to discuss here the causes of these fuel shortages; it is sufficient for our purpose to point out that the immediate causes at least were not the same. Further, with labor conditions in the steam railway field as they are at present, future coal famines are not difficult to imagine.

Now the lifeblood of all industry in this age of machinery is motive power, and we know how to get motive power in bulk only in two ways, namely, from coal and from running water. If we are to have motive power when and where we need it we must so develop our motive power resources that war, weather or the selfish desires of one class of our people can have but a minimum influence on motive power production. The attainment of this end, so far as electric power is concerned, means that our steam electric stations to a considerable extent must move to the coal mines, our water power must be developed and our electric transmission systems must be interconnected.

It is beyond our purpose to outline the advantages of super-power stations at the mine mouth, hydroelectric power and interconnected electric systems. These advantages have been set forth at length time and time again in our technical press within recent years. The most notable proposal along these lines is the investigation recommended to Congress by Secretary Lane to determine what can be done in the way of a super-power tie line in the industrial district along the Northeast Atlantic Seaboard, but pioneer work of this kind under private initiative has already been done, notably in New England and among the great water-power com-

panies of the West. It is our purpose here principally to emphasize that the electric railways, as big electric power producers and users, should by setting a proper example do their share in developing the power resources of the country along right lines and that we electric railway men as individuals must use our energy and our influence in moulding public opinion to the same end.

### How Can Railways Train Men to Be Good Welders?

**T**HE use of welding by electric railways for reclaiming worn parts and for reducing the cost of repair work has increased tremendously in the last few years. The necessity for some type of welding apparatus as part of the shop equipment is generally recognized, and many railways are now facing the problem of developing and training men who can be depended upon to carry on this work. If an attempt is made to draw trained men from other industries, it will be found that the supply of good welders is far behind the demand. When a carpenter, machinist or blacksmith is needed, an advertisement in a local paper is pretty sure to supply whatever help is required, but an advertisement for a welder is almost certain to go unanswered.

The operator's ability is now generally conceded to be the most important factor in producing good welds. The number of men who have had some experience in oxy-acetylene cutting and welding is more pronounced than those familiar with electric welding, and many roads which have previously operated gas welding outfits have used men familiar with this work for electric welding with good results. Where it is necessary to train a man with no previous experience, his former occupation must be carefully taken into account. Experience as a blacksmith, machinist, boiler maker, pattern maker, sheet-metal worker, moulder, electrician, or in several other kindred occupations, will in every case be found of great value. Any experience in handling metals as well as all mechanical experience is a valuable asset, and it has been found that men with such training take up the work more readily and become expert welders more rapidly. The man, of course, must feel an interest in the work, as it is this interest combined with ingenuity which will enable him to handle the new problems successfully and aid him in developing better and more efficient ways for carrying on the work.

During the war, the training of electric welding operators was taken up by the education and training section of the Emergency Fleet Corporation. Schools for training operators and for educating operators to become instructors were established in many sections. These training courses consisted of familiarizing the men with various parts and uses of welding equipment, of giving the men intensive practice in work to make good craftsmen of them, of explaining to them the various safety precautions and protection necessary, and, finally, a course in the theoretical characteristics of welding. The men thus trained were taken principally from the shipbuilding industry and were returned to their employers after the course was completed.

At present there is a need for good welders, not half trained men, and any training course adopted should aim to turn out a good welder who not only has manipulative skill but, in addition, is well versed in

the theoretical knowledge of the subject. Various exercises and practices in the work will produce the required skill, and the interested worker will gladly read papers and books describing the theory of uniting metals by welding if these are readily obtainable. Manufacturers of welding equipment are naturally very anxious to have their apparatus efficiently handled and are in a position to furnish valuable assistance in training men for the work.

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### Will the Screw Spike Replace the Cut Spike on Electric Railways?

**A** RAILROAD spike seems to be a comparatively insignificant part of a track structure. In spite of this seeming unimportance, the spike is now receiving a great deal of study in conjunction with all other details of what are usually considered minor track fastenings, such as tie plates, rail braces and track bolts. For years our railroads knew no other rail fastening than the so-called standard hookhead or cut spike. Within the last few years, however, the demand for better fastenings and greater permanency has led to numerous experiments with, and adoption of, the screw spike.

This, at first, was hailed as the final solution of the spiking problem. Along with the steam roads, quite a few electric railways adopted it as standard. Nevertheless, a great many electric railway track engineers and not a few of their steam-road brethren have felt that the screw spike did not warrant its greater first cost. This view finds support in a recent report of the Pennsylvania Railroad engineers, covering extensive experiments with the comparative merits and maintenance costs of the two types of spikes, the results of which show that the screw spike is not only much greater in first cost than the cut spike, but also greater in maintenance cost, and less reliable as a permanent fastening. The chief trouble appears to be due to the fact that no satisfactory method has been found which permits the screw spike to obtain a firm hold in the tie, once it has been loosened.

One of the particular points advanced in favor of the screw spike has been its greater holding power or resistance to withdrawal. The Pennsylvania report states that while it does have a greater initial resistance to withdrawal, it ultimately becomes entirely loose under the continual raising action of the rail. Meanwhile, under similar circumstances, the cut spike will retain a considerable portion of its holding power.

In the electric railway field, a recent questionnaire covering the screw-spike question, circulated by one of the large Eastern companies, resulted in replies of which the majority indicated that electric railway engineers have not found the use of the screw spike justifiable for ordinary electric railway conditions either on private right-of-way or in paved streets. Here it may be noted that the screw spike is not used either in the New York subways or upon the elevated roads, except under certain conditions at stations and other special locations.

We are inclined to the belief that the cut spike will continue as the standard rail fastening for electric railways, but attention is called to the point that recent experiments made at the civil engineering laboratories of Columbia University indicate the value of preboring holes in the ties to receive the spikes. The crushing and bunching of the wood fibers are thus materially

reduced and the elasticity of the fibers, upon which the resistance to withdrawal partly depends, is retained to a far greater degree and over a long period. It should also be noted that preboring should be done before creosoting or other treatment is applied. Attention is again called to the desirability of making new comparative tests of standard cut spikes made with the regular chisel point and with the Goldie point. The latter should prove the better of the two because its shape should lessen the crushing and bunching of the wood fibers, due to its better cutting action, and it is believed that the Goldie point will insure the best results when driven in prebored holes.

Upon occasion it may be necessary to resort to the practice of double spiking of the rails in order to reduce the load which each spike must sustain in resisting withdrawal, and it will be found advisable to give close attention to such details if the most effective use of the cut spike is to be obtained.

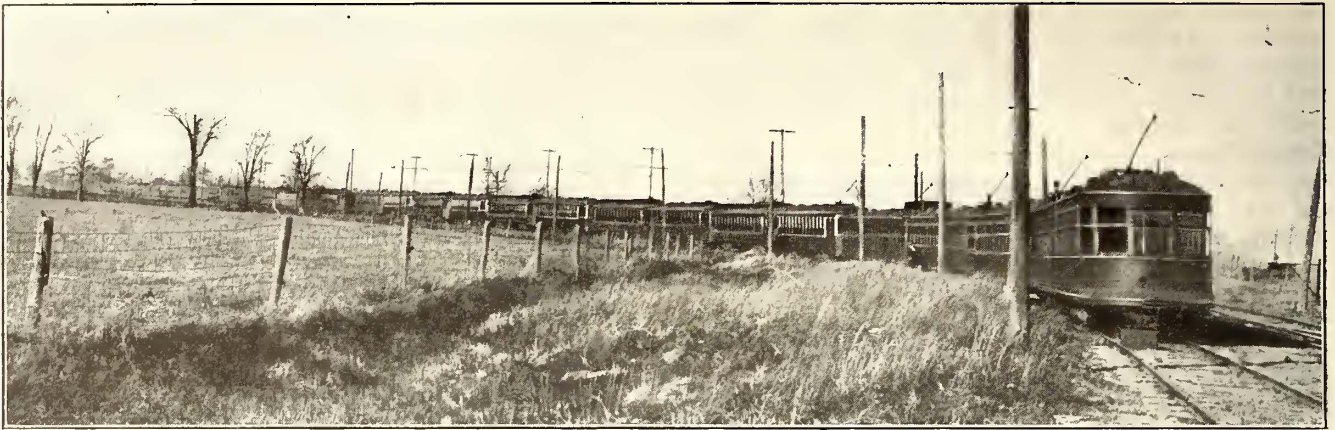
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### Co-operate With Those Who Need Your Riders

**H**OW much capital are electric railways making of the fact that the merchant and amusement purveyor need the electric railway rider even more than the electric railway itself? For every shopper or pleasure seeker that the electric railway carries, it does not make as much as one cent per round trip. On the other hand, the profit which this class of rider brings to the business or theatrical man is anywhere from twice that humble figure to several dollars! Therefore, these classes of the public have a very live and materialistic interest in the ability of the electric railway to maintain a high standard of service. In spite of this fact they are often the chief grouseurs, grumblers and grouches with no conception whatever of what they could do to help the railway along.

For this attitude we fear the electric railways themselves are largely to blame. They go on with the same, or declining schedules year after year under the impression that no one is scanning their actions with any degree of care. This is not so. The business or amusement fan who is at all observant can tell with disconcerting precision just why his west-side customers average more visits to his place than do his east-side customers. He will tell you that it is largely a difference in service. The patron who comes in on a five-minute line is around oftener than the one who lives on a route with ten-minute service. The latter is a lot more likely to telephone, thus buying less than in personal shopping, or to put off her purchases and pleasures until the Saturday peak when she cannot be served and sold so advantageously.

The attractors and exploiters of street railway traffic have so large a stake in the well-being of the railway that they should not be kept in ignorance of the great help that they can give to the railway and themselves if they will lend their show window space, picture screens and advertising copy to pushing any service-betterment plan that the railway may have, be it so small a matter as the sale of tickets or so large a matter as financing the purchase of new equipment with local money. Let the railway management but get close to these men, and it will be most agreeably astonished at their willingness to co-operate in the development of the transportation business, which is an important feeder for their own.



CARS IN STORAGE IN MICHIGAN

## Toledo Walked While Cars Rested in Michigan

In Compliance With "Ouster" Ordinance Passed on Nov. 8, Toledo Railways & Light Company Removed All Cars From the City and No Wheels Turned Until Dec. 5

FOR practically four weeks beginning Nov. 8, citizens of Toledo, Ohio, walked to and from their business in the loop district or rode in buses while the street cars rested peacefully across the line in the State of Michigan. On Nov. 8 an ordinance was officially passed "ousting" the Toledo Railways & Light Company from the streets and at midnight the company quietly obeyed the public decree and placed its cars where they would be safe from injunction proceedings and the lawless element. Thus was brought to a close a long drawn-out chapter in the traction controversy history of Toledo. The next chapter opened almost a month later when the ouster ordinance was amended so the cars could come back. Immediately thereafter, on Dec. 5, service was restored, pending a permanent settlement of the controversy.

### CARS CAME BACK ON DEC. 5

To be correct the railway resumed regular service at four o'clock on the afternoon of Dec. 5, twenty-eight days after the cars had been removed. The first car carrying passengers was cheered all along the street. Judge Killits, to whom the city had carried its case to require the company to resume service, acted as motorman on the first car in from Toledo Beach, where the cars had been stored, and piloted it through the downtown district.

By Dec. 6 the company was operating 100 per cent of normal service, and as regards passengers handled that day proved to be the most successful in the history of the company. Since the resumption of service the passenger revenue has been greatly in excess of that at any time previous to the lay-off. All but a very



H. L. DOHERTY



F. R. COATES

few of the trainmen returned immediately to service and showed an earnest effort to co-operate in bringing service back to 100 per cent.

The modification of the ouster measure so that the cars could return was not brought about, however, without considerable acceleration from outside influences. In this work the business men of the city played a prominent part, for early in the first week of December they started a

petition for the recall of the Mayor, and certain members of his Council. Before this had progressed far enough to have any influence on the situation, however, five councilmen, without the knowledge of the Mayor, got together and called a special meeting of the Council to amend the ouster ordinance as suggested by Judge Killits. This was done, and immediately the city asked to have the car service restored.

On Dec. 5 Judge Killits named two commissioners to help city and traction officials in drafting the proposed ordinances to be submitted to a popular vote. Either of these ordinances, if accepted, will permanently settle the controversy. As previously suggested by H. L. Doherty, a municipal ownership and a Taylor-plan franchise will be drafted. The court also ruled that these franchises must be ready to submit to the people by Jan. 15, 1920, or that the cars could again be removed from service. Until that time the fares are to remain at 6 cents with 2 cents for transfers, the fare in effect when the cars were removed from service.

As soon as the cars resumed service the 2500 jitney buses cut their fare from 10 cents to either 6 cents straight or in a few cases to 5 cents and a free transfer. The latter service, however, is most unsatisfactory, and none of the jitney service is looked upon by

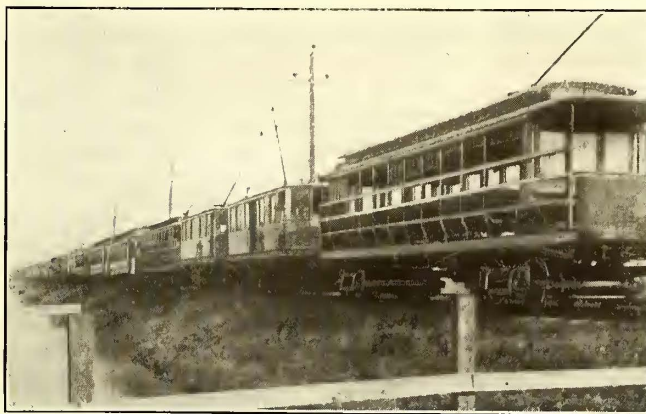
the railway as offering serious competition to street-car service. Practically all touring cars have discontinued operation.

It is not expected that there will be any further important development in the Toledo situation until the two proposed franchises are submitted to the people on or before Jan. 15 next.

The electric railway situation in Toledo has been a source of dispute and a political football for many years. The past seven

years have been especially turbulent and for the last two years some radical development has been imminent. The Toledo Railways & Light Company was incorporated in the State of Ohio on July 1, 1901, as a reorganization of the Toledo Traction Company, which the H. L. Doherty interests had acquired. On July 1, 1907, the property of the Toledo Gas, Electric & Heating Company was also acquired. Before the property was taken over by the Doherty interests there had been trouble between the former company and the city and this was inherited by the new organization.

F. R. Coates, the present operating head of the company, became president in 1911, at which time the franchises for various routes were expiring and negotiations were undertaken to renew them. The last of the franchises expired in January, 1914. At this time the fare was 5 cents with universal transfers, six tickets for 25 cents and 3-cent tickets for workmen good for



CARS STORED ON THE SEA BEACH LINE

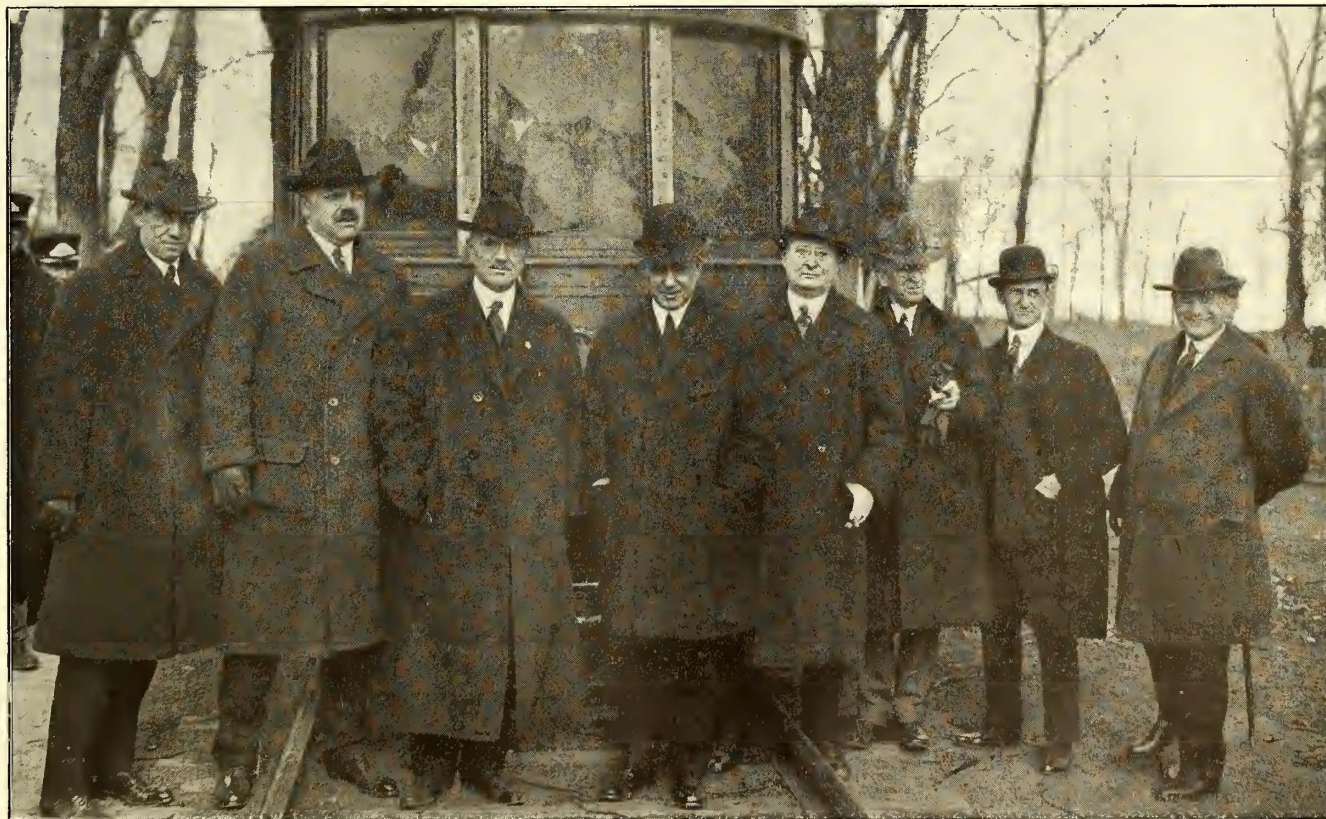
two hours morning and evening. The city politicians insisted on a straight 3-cent fare despite the fact that their own figures showed that it cost more than this to carry a passenger.

In March, 1914, the City Council, under the present Mayor, Cornell Schreiber, who was then the City Solicitor, without notice or discussion passed an ordinance making fares 3 cents and advised the people to pay no more, promising that police protection would

be given the people if they would tender but 3 cents. The railway company put the case squarely up to the public by straightforward publicity methods and said that if the people did not wish to pay 5 cents they could ride free. In this manner trouble was avoided and nearly 80 per cent of the passengers paid a 5-cent fare. In September, 1914, in the Federal Court, the city was defeated in an attempt to force 3-cent fares and the 5-cent fare was restored.

COMPANY HAS HAD NO FRANCHISE SINCE 1914

Since January, 1914, the railway has been operating under a day-to-day franchise granted by the court, the city having the right to "oust" the company on twenty-four hours notice and the company having the same right to abandon operation. Late in 1914 the city railway committee began the drafting of a street railway franchise. A careful study was made of the Taylor



AN UNIQUE GROUP OF MEN WHO BROUGHT THE FIRST CAR BACK INTO TOLEDO

Left to right—Dewey C. Bailey, attorney for Mr. Doherty; Frank R. Coates, president of the company; Federal Judge John M. Killits; Cornell Schreiber, Mayor of Toledo; Chris Wall, director of safety of Toledo; James S. Martin, law director of Toledo; Dewitt Fisher, secretary to the Mayor; Charles A. Frueauff, legal adviser to Mr. Doherty.

franchise under which the Cleveland Railway was operating, and Mr. Doherty expressed his willingness to agree on a settlement regardless of the outstanding capitalization and bonded debt.

A proposed ordinance known as the Dotson ordinance was drafted and in this it was provided that the railways be operated at cost plus 6 per cent on the valuation. In order that the fare might be increased or decreased in units smaller than 1 cent it was provided that tickets could be purchased in certain quantities for certain amounts. This ordinance also provided for a commission to make a valuation of the property upon a



JUDGE KILLITS, IN APPROPRIATE UNIFORM, AT THE CONTROLLER

fixed basis. When the fare was once fixed it was to prevail for five years and transfers were to be free.

It was popularly supposed at this time that Cleveland people were paying only a 3-cent fare and there was agitation in Toledo for the same rate. The Dotson ordinance provided for a try-out of this rate. For the first year the railway was to be completely under the management and direction of three city commissioners who were to control all property, moneys, records and operations and charge a fare of 3 cents with free transfers. During this first year the actual cost of operation was to be ascertained.

The proposed ordinance also provided that before the test began, improvements and extensions should be made and full equipment acquired by the company so that the test could be made under the best possible conditions. At the termination of the first probationary year the Council was to fix the fare for the first five-year period. Mr. Doherty announced publicly that the company was willing to accept this ordinance, although he thought the return to the stockholders should be 8 per cent.

#### PROPOSED ORDINANCE DEFEATED BY NEWSPAPERS

Two Toledo daily newspapers, notably the Scripps paper, had been bitterly attacking the railway and viciously opposed the ordinance. The ground of the opposition was that the people wanted municipal ownership and that the only way to get it was to defeat every proposed franchise. Although conservative people of Toledo believed this ordinance to be one of the best and

fairest ever drafted, it was lost at the election through the influence of these newspapers and the radicals.

When Mayor Milroy was elected in November, 1915, he named a street railway committee which consisted of the two editors of the opposition newspapers, a former president of a labor union, a lawyer who was a violent opponent of the Dotson ordinance and H. L. Doherty. The lawyer refused to serve with Mr. Doherty and in order to eliminate Mr. Doherty the committee appointed a street railway commission consisting of the other four members and invited Mr. Doherty to attend the meetings and give information.

Although the two editors who had opposed everything that had been done toward a settlement now had the opportunity to draft such an ordinance as in their opinion Toledo should have, the result, known as the "community plan," was so impracticable that nobody ever considered its adoption. This plan was the old device of "trusteeing" stock in order that new owners might acquire it. A new company was to be incorporated and the capital stock was to be trusted and placed on sale. A period of five years was given in which to sell the stock and any citizen might purchase. The money paid for the stock was to be used to buy the street railway, with the provision that the city might purchase from the new owners when it had the money. The proposed ordinance was filed with Mayor Schreiber, who was again in office, and he laid it away.

#### FARE INCREASE RESULTS IN OUSTER ORDINANCE

With constantly rising costs resulting from the war, the court in April, 1918, ordered a straight 5-cent fare and a charge of 1 cent for a transfer. In May, 1919, by mutual consent between the company and its employees, the question of higher wages was referred to the National War Labor Board. Large increases were granted and in June, 1919, the fare was increased to 6 cents with a charge of 2 cents for a transfer.

When the last fare increase was placed in effect Mayor Schreiber submitted to the Council an ordinance to "oust" the company from the streets. This passed the Council on June 30. In July the company submitted a proposed ordinance for operation at cost plus a percentage of the profits for the company, this being in effect the Tayler plan in use in Cleveland. In this proposed ordinance the city was given the right to purchase the property. This ordinance was shelved. The ouster ordinance would have become effective on July 31, but members of the local commerce club and other representative citizens initiated a petition for a referendum vote at the municipal election. This was held on Nov. 4, at which time the ordinance was passed by 800 votes out of a total of 39,000 cast. The city urged passage of the ordinance, saying that it would be a club over the railway.

The wording of the ordinance was as follows:

*An Ordinance:* Directing the Toledo Railways & Light Company to cease operating street cars in the City of Toledo and to remove from the streets of the City of Toledo all of its property devoted exclusively to street railway purposes.

Be it ordained by the Council of the City of Toledo:

Section 1. That the Toledo Railways & Light Company shall forthwith upon the taking effect of this ordinance cease operating street cars in the streets of the City of Toledo, and shall within a reasonable time remove from the streets of the City of Toledo all of its property devoted exclusively to street railway purposes.

Section 2. That the director of law shall secure the enforcement of this ordinance by appropriate legal proceedings.

Section 3. This ordinance shall take effect and be in force from and after the earliest period allowed by law and shall be subject to amendment or repeal, expressly or by implication, at any time at the will of the Council.

No campaign of any sort was made by either side other than such matter as appeared editorially in the newspapers. It is frankly admitted by some citizens that they voted for the ouster not because they were unfriendly to the company but because they saw in such action the only means of taking the traction matter out of politics and having it settled once and forever. On the other hand, it is said that those who voted for it because of unfriendliness to the company did so because they had been influenced by the unfriendly newspapers and because they had been led to believe by the administration that a plausible substitute plan was ready to be put into effect. In reality it is believed that the administration intended to use the ordinance only as a club and did not expect the company to cease operation.

#### COMPANY OBEYS ORDER AND REMOVES CARS

It will be noticed from the foregoing quotation of the ordinance that the company was ordered to "forthwith . . . cease operating street cars." The official count of the vote was received at noon on Nov. 8. The company did not wish to inflict unnecessary hardship upon the public by leaving people stranded in the downtown district, so operated the cars the remainder of the day and at midnight, without further opposition to the mandate of the people, ran all the cars over the State line into Michigan.

The company was advised by its attorneys and by outside lawyers that if the cars were operated after the ouster was passed the company would be a trespasser on the streets and there would be no limit to the amount of damage that might accrue in case of personal injury suits. Also, by placing the cars in a neutral state, delivery could be more easily made in the event that the property had to be salvaged.

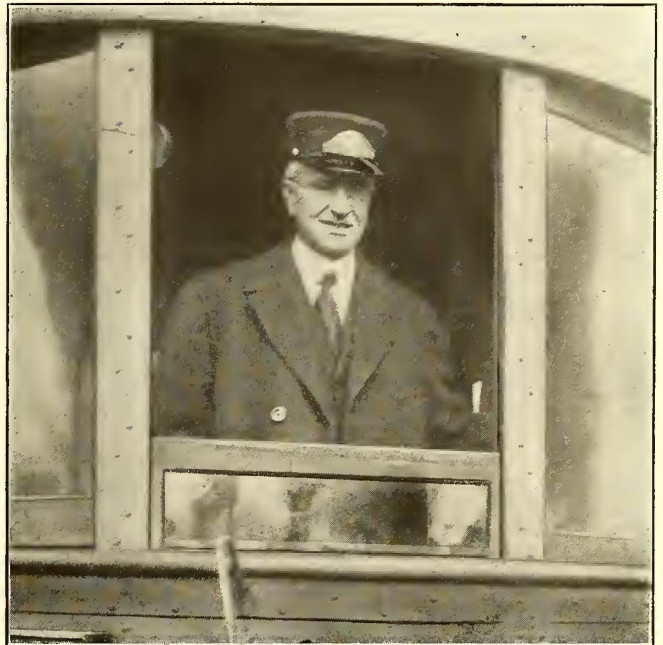
Upon learning that the cars had been withdrawn Mayor Schreiber charged that President Coates had broken faith with the city. Apparently this was an attempt to shift the blame. It is reported that the city officials were planning to prevent the company from removing the cars in order that the city might take possession and operate them. The city officials say that they did not expect the ouster to drive the cars out of the city but merely to compel the company to enter into a franchise upon terms dictated by the City Council. Someone evidently overlooked the meaning of "forthwith" but it was not the railway.

Immediately after withdrawal of the cars there was talk, at the city hall, of repealing the ordinance. It was decided that such a repeal, before becoming effective, would have to be ratified by a public vote. Meanwhile the company, having no further privileges on the city streets, was obliged to cancel its contracts with inter-urban lines entering Toledo over the city tracks and refused to permit further use of the tracks.

The majority of the reasonable, fair-minded people of Toledo did not censure the company for its action. The merchants, who are the heaviest losers by the lack of service, unanimously voted to ask the company not to put the cars back until a permanent settlement is reached. Mr. Doherty personally did everything possible to bring about a settlement. He agreed that if the Council would pass both the Cleveland type of franchise and a municipal-ownership franchise and would get the

sources of organized opposition to agree to vote "yes" on one or the other proposition when it came up for public vote, he would put the cars back in the interim until a vote of the people could be obtained.

In its desire for a settlement the city asked that the company lawyers meet the city lawyers to frame the two franchise ordinances, and this is now being done. In the meantime a valuation of the property is being made to help to defray the expenses, for which the company offered to put up \$25,000. The company meanwhile is said to be circulating a petition for a vote on a Taylor franchise plan so as to be prepared in case no agree-



"CLOSE-UP" OF JUDGE KILLITS AT HIS NOVEL OCCUPATION

ment is reached on either of the two franchise ordinances in question.

On Nov. 22 Mayor Schreiber introduced a motion before Federal Judge Killits for a mandatory order compelling the company to resume operation. This was based on the Miller law, passed last April and made effective in August. The Miller law provides that no public utility company shall abandon its lines or discontinue service without a hearing on the issue being held before the State Public Service Commission. The company and the commission both contended that the law did not apply to this case, inasmuch as the company has no franchise. Mr. Doherty announced that if Judge Killits issued the mandatory order he would carry the issue to the Supreme Court of the United States.

#### COURT SUGGESTS TEMPORARY SETTLEMENT

The case came before the court on Nov. 28. Judge Killits said he was ready to order the cars back to the streets immediately upon the formal order of Mayor Schreiber then in court, but he expressed the belief that the order of the Mayor lacked the sanction of the City Council. To this Mayor Schreiber declared he would call Council in special session. This the councilmen subsequently did themselves, but as a result of the suggestion of the court the purport of the meeting was changed and the ouster measure was amended so the cars could come back.

In his suggestion for operation of the cars immediately Judge Killits proposed to appoint a commission, composed of six or ten members, equally divided between adherents of municipal ownership and those favoring the Tayler service-at-cost plan. Under this plan, he said the cars could be operated at once as he would suggest appointing Frank R. Coates, president of the Toledo Railways & Light Company, operating head of the traction system, while the city officials and traction owners consider details of the franchise drafts they now are working upon. The plan proposed by Judge Killits was summarized at the time as follows:

1. Provides for resumption of car service at once, on temporary basis, if H. L. Doherty, Mayor Schreiber

9. Court reserves judgment as to what will be done further if one party accepts and other refuses to accept suggested plan.

10. Judge Killits expresses opinion court has power to order resumption of transportation, under Miller law, but says this or any other order would be subject to appeal and indefinite delay.

2500 UNBONDED JITNEYS IN OPERATION

While the cars were "on vacation" the chief mode of transportation in Toledo was the automobile, either in the form of the private car, the jitney bus or the taxicab. The city issued a call for buses and 2500 were soon in operation. Each bus was registered free, received a number and picked out a route. A fare of 10 cents without transfer privilege was charged. The routes were short, keeping to the good streets, and many outside districts were practically marooned. Definite routes were laid out, but a driver could take his choice and change routes as often as he pleased. No bond was required for registration, so that the only recourse in case of accident was a personal suit. Buses were prohibited from operating in certain busy thoroughfares and an attempt was made to loop the routes following the street car lines as closely as possible. An amendment to the ordinance permitting bus operation was passed compelling all buses to operate the full length of the route instead of turning back as soon as all of the passengers were discharged.

To reach their places of employment many persons had to use two or more buses, paying 10 cents on each and then ordinarily there was a walk at each end. An interview with the City Commissioner of Transportation disclosed the fact that he would not have been surprised to have the city without street railway transportation all winter. He expressed no dismay at the possibilities of early snow, however, and believes it would have had no ill effect on the buses. His contention was that instead of traffic being benefitted by the railway in keeping the tracks clear, it would find the streets more passable with an even layer of snow than with the condition in which the railway snow plows leave the roadway. That the buses had a problem before them is clear from the fact that the railway company was transporting about 200,000 passengers a day with approximately 400 cars.

BUSINESS HOUSES AND THEATERS SUFFERED

In addition to interviewing the railway company officials, the Mayor, the City Clerk and the Commissioner of Transportation, a representative of this paper interviewed the secretary of the Chamber of Commerce and the managers of several large department stores, theaters and hotels. The general attitude of the business man was found to be a belief that the lack of transportation had a very demoralizing effect upon business, not especially due to the added cost of the bus service but because of the inconvenience of travel. He desired to see the cars back on the streets but would rather sustain a temporary loss of business and have the cars remain out of service until a definite and final settlement could be made.

It seemed to be the general belief also that the company did the proper thing in removing the cars. Some public opinion among the lower classes was crystallized against the company by the action. Many people seemed to believe that the Council had some miraculous power by which it could provide a substitute for railway ser-

REFERENDUM PETITION

NOTICE:

It is a misdemeanor for anyone to sign any initiative or referendum petition with any name other than his own, or knowingly to sign his name more than once for the same measure, or to sign such petition when he is not a qualified elector.

All names must be signed in ink or indelible pencil and must be followed by the signer's place of residence, by street and number, ward and precinct.

To Albert W. Payne, Clerk of the Council of the City of Toledo, Lucas County, Ohio:

We, the undersigned, five duly qualified electors of the City of Toledo, Lucas County, Ohio, hereby designate ourselves as the proponents of the proposition of this petition and as the Committee in charge thereof:

Name	Residence
Alfred B. Koch	424 Winthrop St.
Albert J. Neuhausel	2616 Parkwood Ave.
Albert J. Eggleston	747 Main St.
Frank M. Knierim	523 Bush St.
Dr. James A. Duncan	1107 Broadway

We, the undersigned qualified electors of the City of Toledo, Ohio, hereby present by referendum petition, for approval or rejection by the electors of the City of Toledo, Ohio, a certain ordinance adopted by the Council of the City of Toledo, Ohio, on the 30th day of June, 1919, and approved by the Mayor on the 10th day of July, 1919, a full and correct copy of the Title and Text of said Ordinance is as follows:

PART OF THE REFERENDUM PETITION

and Council accept court's suggestions for temporary and permanent settlement.

2. Requires Council first to pass emergency resolution, ratifying Mayor Schreiber's application for mandatory order for resumption of car service under Miller law.

3. Judge Killits then to begin operation of railway for sixty-day period, preserving company organization intact, and appointing President Frank R. Coates operating officer. Court to determine fare, schedules, rerouting.

4. For permanent settlement, Mayor and Council must agree to accept assistance of a commission, to be appointed by Judge Killits and approved by Mayor and Council.

5. Commission to consist of either six or ten members, divided equally between municipal ownership and Tayler plan advocates.

6. Commission, Mayor and Council to work out ordinances providing for both plans to be submitted to popular vote.

7. Acceptance of court's proposal by either party not to be deemed final until order is framed and submitted designating exactly how cars shall be operated temporarily.

8. If both city and company refuse to accept court's suggested order, Judge Killits may abandon further attempt to help.





WHEN THE CARS RETURN

(Cartoon from one of the local papers while the cars were on their "vacation" in Michigan)

vice. These people, because of a dislike for public utility companies in general voted for the ordinance without investigating to see what the result would be.

The out-of-town business of the stores was especially hard hit by the withdrawal of the interurban cars from the city streets. Toledo is the center of many interurban lines which brought in considerable business. During the traction famine the cars turned back at the city limits and only a few lines provided bus service to the downtown district. Some of the department stores reported a decrease of about one-third in gross business.

The moving-picture theaters suffered more than the "legitimate" houses. The former reported a loss of about 30 per cent in attendance. This was noticed more at the evening shows than in the afternoon. The "legitimate" theaters reported a loss of about 12 per cent in attendance the first week the cars were off with an increase to about 15 per cent later. Contrary to the experience of the moving-picture shows the attendance at the matinees showed the greater reduction. There are several reasons given for this, among them being that there are fewer shoppers down town during the day while the evening attendance is largely made up of persons who drive to the show in their own cars.

The withdrawal of the cars threw out of employment some 1100 of the railway's 1400 employees, the remaining 300 being used to guard the cars in storage and perform other necessary work. Many of the men thrown out of work secured temporary employment elsewhere and were within easy reach when the ouster ordinance was repealed. The ordinance did not foster a kindly feeling on the part of the members of the street railway union toward the city administration.

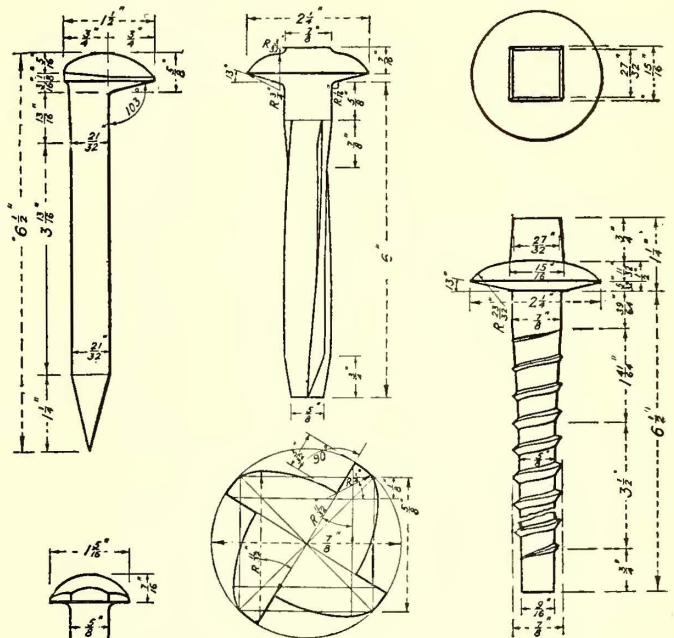
### Fatigue of Metals

An investigation of fatigue phenomena in metals under repeated stress has just been started under the joint auspices of the National Research Council, Engineering Foundation and the Engineering Experiment Station of the University of Illinois. Plans are laid for a two-year program of tests, and it is hoped to secure data of various metals including results of a number of tests of each metal to 100,000,000 reversals of stress.

### Tests on the Holding Power of Railroad Spikes

THAT there is room for much more extended study of the holding power of railroad spikes is indicated in the recent laboratory tests conducted by the civil engineering testing laboratories of Columbia University as reported upon in its Bulletin No. 1 recently published. The point is made in the report that the method of test used in the past appears to give erroneous results when checked with the more modern and accurate method used for these tests. Incidentally, some tests were made to cover resistance of the spikes to pull after redriving, which are perhaps as important as original pull tests because the former give data bearing upon actual track conditions where spikes pulled in service are redriven.

Three types of spikes are compared: A standard cut spike, a standard screw spike and a new design called the Sessler grip spike which is a quite radical departure from existing standards. All these are shown in the accompanying figure.



THREE TYPES OF SPIKE TESTED IN COLUMBIA UNIVERSITY LABORATORIES

The conclusions reached as the result of the tests so far made are as follows:

1. The tests outlined herein, although of limited extent, show conclusively that the rail fastenings tested act as elastic structures within certain limits depending upon the character of the wood and type of spike.
2. In the softer woods the elastic limit of the fastening is reached at very small withdrawals ranging from 0.004 to 0.006 in. In an oak tie these limits are higher.
3. Within the elastic range of the fastening the resistance developed by the fastening is directly proportional to the amount of withdrawal.
4. Small permanent withdrawals or sets have been recorded within the elastic range of the rail fastening but these are no greater than would be reasonably expected in a material such as wood.
5. A rail fastening to approach permanency must at no time be stressed beyond its elastic holding power, making due allowances for the fatigue and physical deterioration of the wood fibers during the life of the fastening.
6. In view of the importance of these facts to the railway profession a more complete investigation should be made definitely to establish the elastic behavior of various types of spikes, both without and with preformed holes of various sizes driven into deteriorated ties.

# Voltage Surveys Give Information for Varying Station Voltage

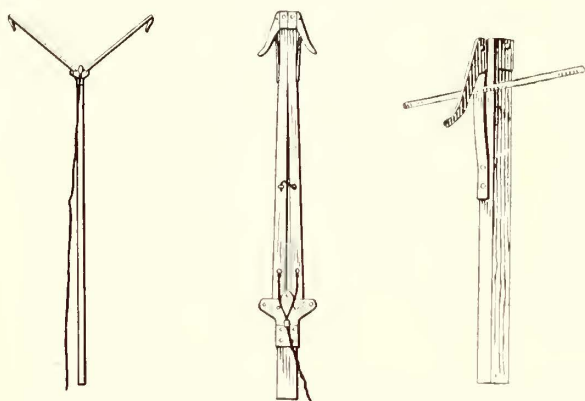
**A Pole Which Can Be Quickly "Knocked Down" for Portability, Provided with Suitable Contacts, Is Convenient for Use in Making Voltage Readings**

BY HARRY RESTOFSKI

West Penn Power Company, Connellsville, Pa.

**I**N THE operation of a large railway system it is frequently desirable at intervals to check the trolley voltage at various points. Such information is necessary in order that the location of feeders and feeder taps, and the station voltage may be adjusted to the changing needs of the system resulting from extensions or from load variations.

In making voltage surveys for these purposes the writer has found it convenient to use a standard three-section wooden pole made by the Western Electric Com-

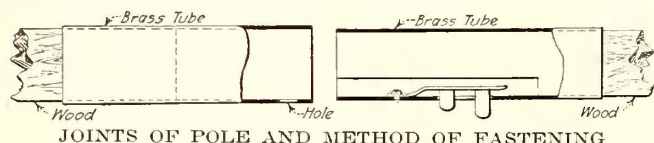


END SECTION OF POLE FOR MAKING CONTACT WITH TROLLEY WIRE

At left end with spreaders extended. Center, end with spreaders closed. At right, method of clamping to the wire.

pany, primarily for use in connecting portable telephones to the line from ground. Details of the construction of this pole are shown in the accompanying illustration. The sections are approximately 6 ft. long and are connected by inserting the brass-tipped end of one section into the close fitting brass sleeve on the end of another. The arrangement for locking the sections together to prevent them from falling apart when hanging on the wire, are shown in a second illustration. Ordinarily, three sections are used but the middle section may be omitted where the entire length is not required.

The pole is equipped with 100 ft. of wire and with two hooks on which the wire is wound when not in use. The contact device gives a two-point contact and its



JOINTS OF POLE AND METHOD OF FASTENING

effectiveness is increased by the spring pressure when clamped to the wire. When knocked down, the pole can be taken readily into a street car and can be conveniently carried.

The method of establishing a ground connection varies with the location. If the readings are to be taken near a signal box the connection is made on the ground wire from the signal box. Where stranded bonds are accessible, two or three strands of the bond are cleaned and the ground connection made to these. Where it is

necessary to make readings along a paved street, and a signal box ground is not available, the ground connection can be made by wedging the wire tightly between the ends of two rails with a screwdriver. Care must be taken not to run the ground wire over the track as it would then have to be removed every time a car passes, while with proper precaution the ground wire can be left in position, and it is then only necessary to remove the pole from the trolley wire as a car passes.

The method which I have employed in making a voltage survey consists of taking readings at half-minute

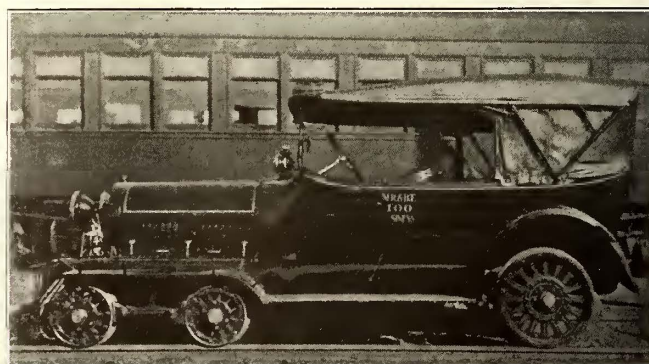
RAILWAY VOLTAGE READINGS—UNIONTOWN

September 25, 1917					
Time	Voltage	Time	Voltage	Time	Voltage
12:41	700	1:05	680	29	695
	695		675		695
42	690	06	680	30	680
	680		685		675
43	705	07	675	31	695
	705		690		700
44	700	08	690	32	675
	710	To Uptown	690		675
45	695	09	685	33	675
	700		670		700
46	700	10	680	34	695
	700	Work Car	690		685
47	695	11	685	35	675
	700		690		700
48	710	12	690	36	705
	700		700		675

intervals throughout a complete cycle for each particular part. The accompanying tables show a series of voltage readings which were taken at Uniontown on Sept. 25, 1917. Notations are made to show the time that cars passed in each direction. The voltage readings are averaged and the maximum and minimum voltage determined. This information, together with the place and date of readings, is copied in permanent form and filed. To make the records more convenient, a tabulation showing the date and place of the average, the maximum and minimum readings, and any additional information desired, is made on separate sheets, or on a card record where this type of system is employed.

## Automobile Arranged to Operate on Steel Tracks

**T**HE Missouri River & Bonne Terre Railroad is operating over its lines a Buick car which has been rearranged to run on the track rails. This is a standard-gauge road and the automobile, as shown in the accom-



AUTOMOBILE CHANGED FOR RAILROAD USE

panying illustration, is provided with a pony truck at the front and a single pair of driving wheels in the rear. The car as reconstructed weighs 5800 lb. and it is stated to be capable of making 12.8 miles on a gallon of gasoline. John Kehrman, master mechanic of the railway fitted up the car.

# N. Y. E. R. A. Holds Fall Meeting

**Higher Fares, Automatic Substations, Safety Cars, and Auto Bus and Truck Competition Were the Subjects Discussed at New York City Meeting Held on Dec. 10**

THE fall meeting of the New York Electric Railway Association was held at the Hotel Astor, New York City, on Dec. 10, with President E. A. Maher in the chair. Major Gardner F. Wells read a paper on "The One-Man Safety Car," which is abstracted elsewhere in this issue. Following the reading of the paper the motion picture prepared by manufacturers of safety cars and equipment, which was shown at the Atlantic City convention, was demonstrated by C. H. Beck, Safety Car Devices Company, who explained the history of the film and stated that the American Association has made arrangement for its use by interested companies.<sup>1</sup>

J. S. McWhirter, Third Avenue Railway, New York City, then described the one-man or "auto" type of car with pedal control which is used at several points on the Third Avenue System.<sup>2</sup> Some of the cars have been operating more than eighteen months. The company now has twenty-five single-truck and twenty-five double-truck cars of this type in operation, and the management has authorized the conversion of seventy-five additional cars which will be put into service in a few months. Thirty of these will be double-truck cars arranged for one-man or two-man operation. The cost of converting a double-end car for pedal operation is less than \$250. One feature of the car is that the operator's duties are very simple and he can be taught the details of the control devices in a very few minutes. Mr. McWhirter emphasized the fact that this is not a make-shift device of the type that has been condemned in some quarters. As a general proposition he favored the one-man car, which he said will take care of most operating conditions in practically all cities.

G. M. Wood, Westinghouse Electric & Manufacturing Company, then spoke of the emphasis that should be placed on the increase in receipts produced by the safety car due to decrease in headways. Although introduction of these cars sometimes increases expenses, receipts increase more rapidly because more cars are used.

J. C. Thirlwall, General Electric Company, was the next speaker, and he reiterated the statement of Mr. Wood as to the increase in receipts. His principal point was as to the wide-reaching effect of weight reduction. He said that it has been the custom to assume that a reduction in weight of 1 lb. will save 5 cents per annum in operating cost. This was true some years ago of cars in practically continuous service, but not of tripper cars. Now, the figure should be about 10 cents to cover power and track maintenance costs. As an example of savings due to weight, Mr. Thirlwall cited the case of a road using 20-ton cars with energy costing 1.4 cents per kilowatt-hour, where the average energy cost was 6.55 cents per car-mile, without heat, or say, \$3,500 per year. This case would require safety cars in the ratio of three to two as compared with the older cars, but these three would weigh 16 tons less than the other two.

J. H. Ohlsson, The J. G. Brill Company, said that the first safety cars were too light and that in their use it had been a mistake to put a limitation upon the number of passengers. The cars are now being built to meet transportation requirements, and a weight of about 7½ tons is standard. It should not be much more than that, certainly not more than 8 tons. The Brill Company and its subsidiaries have to date built or are building a total of 1700 safety cars.

Referring to the subject of track maintenance on lines equipped with safety cars, R. C. Cram, Brooklyn Rapid Transit System, pointed out that it is very difficult to make any definite statement as to these costs. Very few companies, he said, know what it costs to maintain tracks with any kind of equipment. This fact must be kept in mind in weighing the merits of any claims as to reduction in track maintenance cost, and the live question before the way engineers now is as to how light track can safely be built for use under safety cars.

At this point the chairman, on behalf of W. G. Gove, Brooklyn Rapid Transit System, extended an invitation for the members of the association to visit Brooklyn and see the new safety cars in operation. He also said that the pedal-control car, described by Mr. McWhirter, could be seen at the shops of the Third Avenue Railway.

The second paper was one entitled "Automatic Substations," which was read by the author, C. L. Cadle, chief engineer New York State Railways, Rochester, N. Y. This paper is abstracted elsewhere. The discussion upon it was opened by G. H. Roosevelt, General Electric Company, who expressed appreciation for the data which Mr. Cadle gave. He said that it had been customary to assume that automatic control equipment would pay for itself in two and one-half years. This would seem to be conservative in the light of the cost figures given, especially under present labor charges. In paying for itself the automatic substation makes the greatest saving in labor, but there is also a saving of some 5 to 6 per cent in energy consumption.

Taking up the subject of interruptions in service, Mr. Roosevelt said that the causes of these have gradually been eliminated. Sometimes interruptions had resulted from over-confidence on the part of the operators. They must realize that an automatic substation is not a manual one made foolproof, and high-grade inspection is absolutely necessary. Relays are sensitive pieces of apparatus, but they can be kept in good condition without great difficulty by skilled maintainers. There are in the automatic substations but three relays that will keep it off the line and these operate only under conditions which might prove disastrous to the substation apparatus. Some purchasers of automatic substations have insisted that hand-operated circuit breakers of the older type be included as an extra safeguard. This is not necessary, and if installed they must not be considered a part of the automatic equipment.

Mr. Roosevelt showed that the greatest economy in applying automatic substations results when they are

<sup>1</sup>An article describing this film appeared in the issue of the ELECTRIC RAILWAY JOURNAL for Sept. 27, 1919, page 667.

<sup>2</sup>See ELECTRIC RAILWAY JOURNAL, May 18, 1918, page 977, and Aug. 10, 1918, page 249.

used on a system in which the "center of gravity" of the load is changing. This is due to their flexibility, because it costs very little more to distribute rotary converters over a system than to concentrate them in a few substations when automatic control is used.

The discussion was concluded by T. R. Langan, Westinghouse Electric & Manufacturing Company. He said that many people cannot believe the automatic equipment capable of doing what it really can do. However, it is "not too good to be true," and the present rapid introduction of the automatic telephone shows how reliable labor-eliminating devices can be made. The automatic substation affords an excellent means for reducing the amount of overhead copper necessary to maintain good voltage distribution. A wonderful thing about this equipment is the speed with which a rotary can be put back on the line, the time required being only from six to seven seconds, whereas with manual operation from one to two minutes may be required. Mr. Langan backed up the previous speaker as to the importance of high-grade maintenance, and the labor saving made possible with the new equipment.

After the conclusion of the discussion on automatic substations the association adjourned for lunch, which was served in buffet style.

#### INCREASED FARES AND AUTO TRUCK COMPETITION

The afternoon session was devoted to the presentation and discussion of a paper by Harlow C. Clark, editor of *Aera*, on "Fare Increases in New York State" and one by C. L. Stone, vice-president and general manager Southern New York Power & Railway Corporation, on "Competition with Motor Vehicles." Mr. Clark's paper will be printed later. Abstracts of Mr. Stone's paper and three others contributed to the discussion are published in this issue.

After these papers had been presented, President Maher suggested that it would be interesting to hear something from the "other side," and asked Carl E. Lang, president Lang-Warden Motors, Inc., to give his views on motor trucks as a competitor to electric freight.

Mr. Lang said he realized that railway men think the motor bus is a pest, but he believed, and others who had studied the subject from the motor bus standpoint also believed, that it was here to stay. He did not believe in irresponsible individual operation, such as had been described, but where the motor bus was put in service as a merchandise proposition it would be profitable, both in passenger and freight service. Logically, the railway men should operate such lines because they have the organization to conduct them, as well as expert knowledge of transportation.

B. E. Wilson, general freight and passenger agent, New York State Railways, Rochester Lines, said the difficulty arose from the fact that "a sucker was born every minute," and that irresponsible individuals would engage in the motor-truck freight business with the expectation of making a profit, but would be unable to do so.

Myles B. Lambert, Westinghouse Electric & Manufacturing Company, emphasized especially the expense and the time required to pass freight through railway terminals. This made the auto truck useful for short-haul business, and this was its especial province. He said he had attended the Central Electric Railway convention at Grand Rapids, where the same subject was discussed. The principal conclusions there reached were: First,

that the railways should make a scientific study of methods for reducing operating costs, and second, that they should give publicity to the advantages of their service and the burdens under which they were working. If the auto trucks should carry the same burdens, they would cease to be active competitors for the longer haul business.

C. E. Morgan, assistant general manager Brooklyn City Railroad, also urged scientific study of the cost of operation and adjustment of the service to the needs of the traffic so as to save unnecessary mileage and light loads. The field for the auto bus, in his opinion, was as feeders for the electric railways, and he thought that there was room for both car and truck, if co-operation in service could be arranged. He cited some of the long through hauls conducted in Central Electric Railway territory.

W. Tuke Robson, formerly general manager and engineer Southampton Corporation Tramways, England, said that the British electric railways had not engaged in the freight business, but that many of them operated motor buses in co-operation with their cars in passenger business. The buses were used in three ways. First, to operate as extensions from tramway termini and so to act as feeders; second, for crosstown or cross-country lines, and third, to test out the traffic on proposed tramway routes to determine whether it was worth while to lay rails. He thought that there would be considerable development of the motor bus business in Great Britain in the next few years by tramways, particularly in the way last mentioned, because of the high cost of tramway construction at present. He also spoke about the way in which the British tramways catered to the short-haul traffic, as a result of which there are no jitneys in England. In America he thought the short-haul rider was discriminated against, not only in fares, but through paucity of destination signs and directions as to what point on the street he should board a car and by what platform door. In fact, by the time the stranger discovered the door by which he was supposed to enter the car it would be shut in his face and the car would be in motion.

At the close of this discussion President Maher announced that the annual banquet would be held at 7:30 p. m.

#### Interesting Speeches at Banquet

THE dinner in the evening was held in the roof garden of the Hotel Astor, and President E. A. Maher, Jr., acted as toastmaster. There were three speakers. The first was a well-known entertainer in New York who was introduced under the name of "Senator Edward Ford of Wisconsin." The next speaker was Senator Charles S. Thomas of Colorado, who declared that the regulation of rates which did not include regulation as to expenditures would result in disaster. The greater part of his speech, however, was devoted to the labor situation, in which he thought the radical tendency should be corrected by legislation supported by a united public opinion. He said that the total number of strikers between the declaration of war by this country and the armistice, a period when there was supposed to be no strikes, was more than 2,000,000, and that the present discontent in labor was interfering greatly with production. He questioned whether combinations of labor should not be subject to legal restraints similar to those of capital, and said

that he had reason to believe that much of the financing of recent strikes had come from Russia by way of Mexico.

The final speaker was Public Service Commissioner Lewis Nixon, who was introduced by the toastmaster as a man "whose mind and spine synchronized." At the opening of his speech Mr. Nixon, in commenting on a remark by Senator Thomas that the whole world was in a state of flux and change, said that he could show the Senator in New York a man with a most unchangeable mind. Speaking directly on the traction situation, he said that he had made every effort to get the city and railways to adjust their difference, but that the former had shown no disposition to do so. He proposed, however, to see the matter through and that he would naturally want to see it through to a solution as soon as possible. He said that the concessions which the companies had expressed themselves as willing to make were "almost unbelievable." He quoted the present situation in Toledo as an example of the dependence of a city on good transportation. In a visit there during the absence of street cars he had found the jitneys and buses were charging from 10 cents to 50 cents a ride and the whole city was in a state of demoralization. The merchants reported that their sales had fallen off not less than 50 per cent. In conclusion Mr. Nixon discussed fuel conservation.

## Competition from Motor Vehicles\*

### Owners of Motor Vehicles Carrying Persons or Property for Hire Should Be Subject to the Regulations of Other Common Carriers

BY C. L. STONE

Vice-President and General Manager Southern New York Power & Railway Corporation, Cooperstown, N. Y.

WHEN a motor vehicle is owned or operated for the purpose of transporting persons or property for compensation it is perfectly plain that it should become a "common carrier," and as such it should be subject to laws and regulations similar to those which govern other common carriers within the State.

Public service commissions have been established for the purpose of regulating public utilities. The early plan of encouraging competition, in the end brought hardships upon the communities served by dual systems. It is now generally admitted that one strong lighting company, for example, will serve a community to better advantage than two systems. At present, motor vehicles transporting passengers and property for compensation are operated over the public highways in this State with practically no regulation and without paying anything like a fair license fee to compensate for the wear and tear of highways occasioned by the operation of these motor vehicles. To aggravate the situation from our standpoint, the taxes of the electric railways have been heavily increased during the past few years, and these funds have been used in part to build and maintain improved highways over which our competitors operate.

There is some regulation of motor vehicles transporting passengers for hire within New York State, but there is no provision in our existing laws for the Public Service Commission to regulate motor vehicles transporting freight for hire.

There was an amendment made to the transporta-

tion corporation laws on May 3, 1919, wherein it was provided that villages and towns may elect to place themselves under the provision of the transportation corporation law, and thereupon it would become necessary for motor vehicles carrying passengers for hire to obtain a consent from the local authorities before operating over the streets in the village or town, and in addition to this consent the owner or operator of the motor vehicle must procure a certificate of public necessity from the Public Service Commission. This amendment is a step in the right direction to protect electric and steam railroads from passenger bus competition, but it does not go far enough because it is often difficult to get village boards and town boards to place themselves under the provision of the transportation corporation law, and even if one set of officials does pass a resolution to this effect a succeeding village or town board could pass a resolution which would nullify the act of their predecessors.

A few years ago, a number of states and municipalities enacted so called "jitney" laws, but very little attention has been given to the protection of electric railways from competition with motor vehicles carrying both passengers and property, when these motor vehicles are operated outside the limits of cities. This statement applies not only to New York State but also to Pennsylvania, Massachusetts, Ohio, Indiana, Illinois, Wisconsin, California, Georgia and Washington, D.C.

The public service company law of Pennsylvania apparently regulates the operation of motor vehicles on public highways to a greater extent than any other public service company law which I have found, and a law in New York similar to the Pennsylvania law would be highly desirable. This Pennsylvania law, in the first place, defines clearly that the term "public service company" when used in the act, includes all railroad corporations, canal corporations, street railway corporations, stage line corporations, express corporations, baggage transfer corporations, pipe line corporations, ferry corporations, common carriers, etc., and the term common carrier, as used in the act, includes any and all common carriers, whether corporations or persons, engaged for profit in the conveyance of passengers or property, or both, between points within the State of Pennsylvania, by, through, over, above or under land or water, or both. In the second place, no public service company can lawfully begin operation until it has obtained a certificate of public convenience from the Public Service Commission.

To ascertain as definitely as possible the facts in regard to the practical application of this law I have written to the officers of several of the large electric interurbans in Pennsylvania and also to the counsel for the Public Service Commission.

One of the questions asked was: "Can owners or operators of motor vehicles transporting passengers or property or both passengers and property for hire within the State of Pennsylvania secure from the Public Service Commission a certificate of public convenience and necessity if the proposed route parallels an electric railroad, assuming that the electric railroad can prove it is providing good service?"

C. L. S. Tingley, vice-president American Railways Company, answered this question as follows: "The Public Service Commission will not grant a certificate of public convenience and necessity for the operation of motor vehicles except for fixed routes and upon fixed schedules. Schedules of runs and tariffs of rates

\*Abstract of paper presented at quarterly meeting of the New York Electric Railway Association, New York, Dec. 10, 1919.

have to be filed with the commission, and it will not grant such certificate where the route parallels an electric railway, if the electric railway is giving reasonable, adequate and sufficient service."

A question asked of the counsel for the Public Service Commission of Pennsylvania was: "Take, for example, an auto freight truck (large moving vans, etc.) engaged in transporting property for hire. The owner or operator "will transport anything anywhere" i.e., there is no prescribed route or schedule. Is it necessary for owner or operator of truck to secure a certificate of public convenience and necessity before beginning operation?"

This question was answered by E. M. Vale, chief of bureau of public convenience, as follows: "Under the public service company law any person, partnership or corporation engaging in the business of a common carrier must secure this commission's approval before possessing a lawful right to engage in such business. It is not necessary that the business be conducted over a prescribed route or upon a schedule. If the business transacted is that of a common carrier, the commission's approval must be obtained. The question as to whether the operation is between fixed termini and over a prescribed route is not material. The only question is whether or not the proposed business is that of a common carrier."

There has been a tremendous increase in the use of motor vehicles in New York State during the past few years.

In 1914, there were 17,193 commercial vehicles registered. During the first nine months of 1919, there were 88,051 commercial vehicles registered. This is an increase of 5 to 1, and 1919 is not complete. In 1914 there were 152,773 motor vehicles, in addition to the 17,193 commercial vehicles above. During the first nine months of 1919 there were 445,518 motor vehicles, in addition to the 88,051 commercial vehicles mentioned above. This is an increase of 3 to 1 during the first nine months of 1919, as compared with twelve months of 1914.

#### CONCLUSIONS STATED

Some of our government officials realize that the state, counties and towns, in the building of improved highways, are furnishing the owners and operators of motor vehicles engaged in transporting passengers and property for hire with the bulk of their plant. These owners and operators of motor vehicles are engaged in the transportation business in competition with existing carriers. They should be subject to the same regulations as steam and electric railroads, which, to date, are the only carriers which provide transportation for the public twelve months in the year. Furthermore, wherever a motor vehicle is engaged in transporting passengers or property for hire, the license fee should be adequate to cover not only wear and tear and depreciation of highway but a fair portion of fixed charges on the cost of the improved highways used by the motor vehicles.

There should be a law in the State of New York which will clearly designate all motor vehicles engaged in transporting passengers and property for compensation over public highways as "common carriers," and as such it should be compulsory for the owner or operator of these motor vehicles to obtain from the Public Service Commission a certificate of public necessity before these motor vehicles are operated over any public highways.

## Motor Trucks and Electric Road\*

### Pick-Up-and-Deliver System Approved—Other Suggestions Made for Competing with the Motor Truck

By F. W. WATTS

General Express Agent New York State Railways, Syracuse Lines

THE future of the freight and express business on electric railways depends upon the service that the companies can render. To secure more traffic, it is necessary to give better service than the motor trucks. This involves a pick-up-and-deliver service in cities and large towns, centrally located terminals large enough to care for all the business that is offered, efficient facilities for the prompt and economic handling of freight, courteous treatment to all patrons and prompt adjustment of claims for loss and damage. These factors should not be lost sight of.

Large shippers with a knowledge of traffic conditions favor giving their business to railway companies for the reason that they are responsible for loss and damage, that they operate their cars daily on schedule time and that the service in all ways can be depended upon.

About a year ago we were about to abandon our pick-up-and-deliver service because of the large number of motor trucks operating in our territory. Our general manager, who did not take kindly to the idea, advised that we separate the freight from the express business and ascertain what kind of service our patrons desired. New tariffs were made and filed, rates were advanced on the express service and a complete record of the operations was kept, and for the past nine months when trucks have had no difficulty in operating the report shows that 65 per cent of the total business has been pick-up-and-deliver service and that this service has yielded a profit even when every item of cost including depreciation is charged against it.

It appears to me to be the opportune time to campaign for less than carload business by electric lines. There is also a splendid opportunity for motor trucks to act as feeders for street railways in territories not covered by an electric line. As an example, we are now handling freight in connection with several truck lines operating in territory not covered by electric lines from Utica, and the service rendered is better than can be given by the steam roads.

The electric express and freight business has many warm supporters who may be depended upon to aid in securing necessary legislation to regulate the dangerous and unfair competition provided by motor trucks. It is of no benefit to electric railway carriers to have an individual decide to operate a motor truck parallel to the rail line, carry traffic at unremunerative rates, and then become bankrupt.

Another very unfair condition is that the truck operator can choose his traffic. If the consignee is in a remote part of a village, perhaps upon a hill entailing a long, hard trip for the truck, the operator decides that he does not want it and leaves that for the electric line.

Despite the competition to which we have been subjected our business has held its own, and while the tonnage transported is not as large as in former years the net revenue has been greater due to the better class of traffic carried.

\*Abstract of paper presented at quarterly meeting of New York Electric Railway Association, New York, Dec. 10, 1919.

I would like to suggest the possibility of joint advertising on the part of all of the lines of the State to bring the superiority of the electric service to the attention of the shipping and receiving public.

## Motor Truck Competition \*

### A Discussion of How It May Be Met—Three Things That the Railways Must Do

BY W. J. WHITESIDE

Traffic Agent, International Railway, Buffalo

**M**OTOR TRUCK service competition may be considered as of two classes: That operated to transport merchandise from one place to another for the benefit of the owner (usually a manufacturer or merchant), and that for revenue only, or designed to transport merchandise for others, a charge being made for such service.

In western New York State both classes of motor truck service have been increasing to an alarming extent, and the competition caused thereby has entailed loss of large tonnage to the electric lines' freight service and a corresponding loss of revenue; and although considerable thought has been given by electric operators as to what could be done to overcome this strong truck competition nothing of a definite nature has been accomplished.

It has been said "the motor truck operator for revenue only cannot make it pay and will be compelled in time to quit. This, to my mind, is a big mistake, at least between short-haul points where the owner is favored in two ways: (1) By actively soliciting new business in the territory served and limiting the number of privately owned trucks for personal use and benefit, thereby securing full tonnage between short-haul points all times; and, (2) being favored with good roads, reasonable weather and other conditions to permit regular daily truck service between the points covered.

I have found in the Buffalo territory that a 5-ton truck can operate at the same rate as charged by the electric line between short-haul points and make a good profit. For example, between Buffalo and the fruit belt of Lake Ontario, the truck would pick up a shipment at the packing house on a farm, haul it to the commission merchant's place of business in Buffalo, charging the same rate per 100 lb. as the electric line, with two handlings of the shipment, as against the farmer delivering the shipment to the freight house of the electric line, where it is loaded in a freight car, transported to Buffalo and transferred to a carting truck for delivery to the commission merchant's place of business, making four handlings of the shipment. The cost of operation and net return for one round trip per day, the truck capacity being 5 tons, is as follows:

Gross revenue, 10,000 lb. at 30 cents per 100 lb.....	\$30.00
Cost of Operation:	
One chauffeur .....	\$5.00
One helper .....	4.00
Gas and oil .....	5.00
Depreciation .....	5.00
	19.00
Net profit .....	\$11.00

Where the chauffeur is the owner of the truck, his daily earning would be \$16. These figures were furnished to me by an automobile operator and he fixed the cost at a conservative figure. However, the depre-

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ciation of \$5 per day is too high. Trucks of 1½-ton and 3½-ton capacity can also operate with profit, based on the same cost with the wage of helper eliminated.

At the present there are now operating between Buffalo and Lockport six trucks; between Buffalo and Erie, Pa., two trucks; Buffalo and Rochester, N. Y., five trucks; Buffalo and Jamestown, N. Y., one truck, and between Buffalo and Cleveland, Ohio, with a transfer at Erie, Pa., one truck, while between Buffalo and Niagara Falls, N. Y., where no electric line freight service is being operated, there are seventeen trucks. While on these various routes the schedules are not all daily, still the volume of traffic by truck is sufficient to take away from the electric lines tonnage of large amounts. Practically all trucks operated are of the 1½- to 5-ton capacity. These trucks are owned by motor truck operators for revenue only, and this service is augmented by trucks privately owned.

Manufacturers who have one or more trucks for use locally often figure that if shipments must be delivered to and received from the freight house of the electric line, they can make deliveries and receive shipments for themselves between short-haul points without inconvenience and delay, and in this way save freight charges as well as carting charges. As the number of such personally owned trucks is increasing, the electric lines are further menaced in the operation of freight service by decreased tonnage and revenue.

The motor truck service for long hauls, while it is and has been quite a factor in competition, is operated almost exclusively by the "motor truck for revenue only operators" and at the start dazzles the operator with its possibilities of great return, but sooner or later the halo of great return fades away, and the operator finds himself possessed of worn-out trucks and empty pockets and discontinues the service on account of poor return. This, I believe, is caused by lack of full tonnage on all long-haul trips, length of time in making trips, maintenance of trucks and delays caused by bad road conditions, weather and other factors, so that the patron of the truck becomes dissatisfied and either purchases his own truck or avails himself of the electric line freight service. The personally-owned truck does not figure very strongly in the long-haul service because it would mean the loss of the use of the truck locally for extended periods, and with large concerns the truck cannot be spared for practically the greater part of a day to save freight charges of the electric lines.

While operators of motor trucks "for revenue only" may lose money and discontinue, there will always remain the truck owner who thinks there is a fortune in the business and start service, believing he can make it pay, and in this way continues the competition which menaces the electric line freight service.

Remedies are badly needed, and from a freight agent's point of view, three plans are worth consideration:

1. *Solicitation of Business.* Electric lines should have live, soliciting freight agents, capable of meeting the shipper in such a manner that by putting before him the frequent service offered by the company, the reasonableness of the rates for the class of service operated and the responsibility of the company in the payment of just claims as against service offered by the truck operator, who in almost every case is irresponsible when it comes to paying loss or damage claims.

2. *Prompt Payment of Claims.* Where claims are

legitimate, payment should not be delayed, as otherwise the business of the shipper or consignee making the claim is likely to be lost to the company.

3. *The Maintenance of Schedules.* Shippers and consignees soon learn when shipments should go forward and arrive at destinations, and if schedules are not maintained, the consignees become dissatisfied and purchase their own truck or turn to some other transportation service.

I feel that the electric and steam lines are entitled to some relief and protection to their freight service against motor truck service, and that the cost of building state and country roads should be paid, in part at least, by motor truck owners according to the tonnage of the truck operated, and that motor trucks operated for revenue should be subject to the jurisdiction of the Public Service Commission of the State as to rates and schedules, and that they be financially responsible to shippers as to payment of any claims.

## Handling the Freight Business\*

### Promotion of Business, Motor Trucks in Relation to Traffic, Freight Claims, Billing and Reporting Freight, and Cost at Terminal Stations

BY H. C. STANTON

General Freight and Passenger Agent, Rochester & Syracuse Railroad

**A**N ACTIVE traffic manager is a most valuable asset in the traffic organization, for he will not only look after the development of freight business but will also see that there is adequate service properly to handle the business after it is once acquired. A good solicitor in the traffic organization is of valuable assistance, for he can acquaint shippers with the service and rates.

Electric railways are in a position to give service superior to that of their competitors, but many have failed to convince the public that the electric freight service excels other means of transportation. The most profitable service is carload business, but some electric lines are so situated that they cannot develop this traffic on account of paralleling steam lines. Therefore, their only revenue is derived from l.c.l. business which is the most expensive to handle. To secure and handle freight business, proper facilities are necessary, and also it is necessary to have and keep the confidence of the shipper. The fast and frequent service which electric railways furnish is worth a slight increase in rates over those of the steam roads.

I am a great believer in personal solicitation. We have a solicitor on the road who is constantly acquainting shippers with our service and rates. We do very little newspaper advertising for we believe, and our experience has proved that circular letters addressed directly to the traffic manager or the shipper are most effective.

We have on file in the traffic department a card index of all shippers and consignees on the line, giving names of persons in charge of freight traffic, which enables us to address letters direct to traffic managers and others in charge. It is our policy to keep patrons informed by means of circular letters regarding every new situation that arises. We also furnish all the principal shippers with copies of our freight tariffs and schedules.

We have joint rates with all electric lines west of Syracuse, and this enables us to accept shipments for points west as far as Buffalo. We have also developed a large tonnage during the past two years by accepting shipments for Detroit and Cleveland, transferring at Buffalo to water lines in the summer months and to steam lines in the winter months. Electric freight can be handled most economically at night. Early morning deliveries are the feature of the electric freight service.

We often hear that motor trucks are unfair competitors of the electric railways in the handling of freight. In my experience this is not entirely true as there are thirty-three trucks operating in and out of Syracuse, with which our company is co-operating. They are delivering some freight to us for points which they do not reach, and we in turn are delivering freight to them for points not located on our line. In other words, we are using them as auxiliaries to our service.

#### SETTLEMENT OF FREIGHT CLAIMS

The freight claim problem has become a serious one due principally to the following: (1) Theft of packages from cars and stations and abstractions from packages; (2) delivery of stray freight without due protection against claims for its value; (3) accepting packages not fully marked with name of consignee and destination.

I will give a brief outline of the method of handling freight claims on our line.

When a claim is presented our claim department acknowledges its receipt by a postal card, giving the claim number and requesting that future correspondence should refer to number given. After the claim has been acknowledged it is recorded on a card index, and the claim is placed on file in a separate folder under the file number given, and all correspondence in relation thereto is placed in this folder. In most cases when claims are presented, our investigation is complete for the following reasons: Our agents issue an O. S. & D. report for all "over, short and damaged" freight received at their stations. This report is then immediately sent to the forwarding agent for investigation. After the forwarding agent gives his statement, the report is sent to our claim department. On each freight car we have a traveling freight agent who sends our claim department a report of all freight over, short or damaged on his run. If no freight is over, short or damaged on his run, he makes a report with the notation "nothing to report" so that when these reports are received the investigation is complete, making an early settlement of claims possible. Prompt settlement of claims makes satisfied patrons and promotes business.

In addition to the investigation by agents, we have a special officer who receives direct information from the agents of all shortages and immediately starts personal investigation. In this way many claims are avoided.

#### BILLING AND REPORTING FREIGHT AND COST OF HANDLING AT TERMINAL STATIONS

I would like to bring up for discussion the method of billing and reporting freight and also the cost of handling freight at terminal stations. Various methods are employed. At present we are using the blanket way-bill and the received and forwarded register and by the use of carbon paper we make a copy of the way-bills received and forwarded at the same time that the

\*Abstract of paper presented at meeting of New York Electric Railway Association, New York, Dec. 10, 1919.



register is made up. Some electric railways are using the individual way-bill, making the freight bill and the copy for the cashier, auditor and forwarding agent at one time.

At our Rochester freight station we handled during the month of November, 4,801,575 lb., or 2401 tons, with a force of eight day and seven night employees with a payroll of \$1,302.03 at a cost of \$0.542 per ton, and at our Syracuse freight station we handled for the same month, 5,389,063 lb., or 2694 tons, with eleven day and two night employees, with a payroll of \$1,136.63 or at a cost of \$0.422 per ton.

I should like to get the benefit of the experience of other companies in handling these matters.

## Some Safety Car Objections Answered\*

### Operating Data from Widely-Scattered Points Refute Criticisms as to Inapplicability of One-Man Car for One Reason and Another

BY GARDNER F. WELLS  
Consulting Engineer, New York City

**M**Y FIRST experience with the one-man car dates back to the seventies. This was in Los Angeles, which at the time had a population of about 7,000. The cars seated ten or twelve people each and the motive power was one mule.

My attention was next called to the one-man car in 1915, at Fort Worth, Tex. One day the manager of the local street railway stated that a company had been organized to operate about twenty-five jitneys in competition with the street cars. The next day they began operation and at the end of two weeks there were more than 200 of them. At the end of a month the railway was losing about \$2,000 per day.

It happened that C. O. Birney was in town at the time, and he advised the railway management to build some light-weight cars for one-man operation and to give frequent service with them. Mr. Birney was soon given the opportunity by Stone & Webster, the Brill Company and the General Electric and Westinghouse Companies to develop his idea. Today the Northern Texas Traction Company at Fort Worth is operating practically all city lines with safety cars. The company operates two interurban lines, but the city lines produce about 60 per cent of the gross receipts. Due to the good car service and regulation of the jitneys by the city the latter have practically disappeared. The company is prosperous, as is shown by the accompanying figures.

For the year ending September 30, 1919, the earnings and expenses were as follows:

Gross earnings.....	\$3,093,226
Operating expenses and taxes.....	2,022,830
Net earnings.....	\$1,070,395
Income from other sources.....	115,000
Balance.....	\$1,185,395
Interest charges.....	299,995
Balance for reserves, replacements and dividends..	\$885,400

Thus the company is earning nearly four times its interest charges. The preferred and common stocks amount to \$7,150,000 and after deducting interest

charges there was left a sufficient amount to pay a reasonable return on them and to leave a balance more than enough to take care of all depreciation.

During 1917 the United States Housing Corporation financed the building of a number of safety cars for electric railway companies that served certain war industries. Among these was the Connecticut Company, in connection with which safety cars were introduced in Bridgeport on Feb. 2, 1919. The Oak Street-South Park line was completely equipped with them, requiring nine cars, replacing four double-truck cars which had been operated for a part of the day and five for a part. A ten and twelve-minute service was given with the large cars, whereas a five-minute service is now being given. The riding on the line has increased more than 100 per cent. The earnings per car-mile are about 30 cents, while total operating expenses and taxes amount to about 18.5 cents. The company is now planning to extend the use of safety cars as rapidly as is practicable.

That the cars have been well received by the public is evidenced by the following, from the Bridgeport *Herald*:

When the Connecticut Company first announced that it was to put into use the one-man trolley system on the streets of Bridgeport there were some pessimistic individuals who claimed that the idea was not practical in the Park City owing to the crowded condition of the streets and the traffic congestion.

Last Saturday the one-man trolleys made their first appearance and a week ago they started running regularly on the Oak Street-South Park lines.

People now have had time to judge the value of these cars. Traffic officers state that traffic is easier to manage than it was with the big cars, and the general public seems to feel that it is getting more frequent and better service despite the fact that the cars have not been put on all lines.

The police who do traffic duty point out the fact that rather than hold up traffic these cars facilitate it, as they pick up speed a great deal quicker than the average trolley which is bigger and more cumbersome.

If the cars continue to be as great a success as they have the past week, there is no doubt that they will become a permanent feature of the Connecticut Company.

With further regard to increased earnings there is apparently a rule that receipts increase at the same rate as service. This rule would, of course, not apply in cases where from one to two-minute headway is being given, but does seem to work where the headway has been over five minutes, as is shown in the following tabulation, based on information obtained from the American Electric Railway Association, Nov. 1, 1918:

	Per Cent Increase in Car-Miles With Safety Cars	Per Cent Increase in Receipts
Tampa, Fla., one one line.....	29	30
Tampa, Fla., on another line.....	51	51
El Paso, Tex., on one line.....	48	50
El Paso, Tex., on another line.....	40	36
Seattle, Wash.....	21.7	29
Jacoma, Wash., on one line.....	20	25
Tacoma, Wash., on another line.....	3	17
Gary, Ind.....	62	46

The American Electric Railway Association stated on Oct. 4, 1919, that six companies reported 51.1 per cent in receipts for 53.4 per cent increase in car-mileage, one company reported 71.2 per cent gain for 79 per cent increase and Bridgeport reports 100 per cent gain for 100 per cent increase.

The principal "stock" objections to the one-man car are: (1) the car is too long, (2) it is too short, (3) it is too light, (4) it is too heavy, (5) it cannot be operated in heavy snow storms, (6) it will delay traffic and cannot be operated through congested districts, (7) the door arrangement is wrong, (8) it is homely.

\*Abstract of paper read at New York City meeting of New York Electric Railway Association, Dec. 10, 1919.

As to the first five of these items it was Mr. Birney's idea that a car should be built which would meet average rather than maximum conditions. The heavy double-truck city car with large drop platforms was built with only rush-hour business in mind and because it was so expensive to operate during non-rush hours the headway was cut down as much as possible. In the average city an individual car is usually overcrowded for only a part of one trip in the morning, and a part of one trip in the evening. Why, then, should several tons of useless weight be hauled around for the rest of the time?

A study of traffic conditions in a large city was made recently by the writer to ascertain the average and maximum car loads. Traffic checks were made on all lines at places where the heaviest riding occurs, and it was found that at the point of maximum travel on only slightly more than 6 per cent of the trips run did the cars carry more than sixty passengers, which is the total capacity of the Birney car. All of the lines were considerably under the saturation point as far as headway is concerned. It is therefore obvious that the traffic as now being handled by two-man cars, weighing 30,000 lb. or more, could easily be handled with one-man cars weighing 15,000 lb. with only a slight increase in headway. Furthermore, any increase in headway would increase traffic.

The objection that the Birney car is too long and too heavy has been made by those who want to swing to the other extreme from the old type of heavy car. It may be possible that a smaller and lighter car would do better than the present car in some isolated cases, but such a car would not take care of average conditions so well.

The chief objection made to the lightness of the car is that it could easily be damaged in a collision. Experience has proved, however, that there are not so many or so serious collisions with safety cars as with the old types of cars, owing principally to the ease with which they can be handled.

Before the safety cars were put into operation at Bridgeport great care was taken by the Connecticut Company to train the operators as to the proper handling of them. The men were especially drilled in the prevention of collisions. They have made an excellent record with respect to damaged front ends. The nine Bridgeport cars have operated more than 222,000 car-miles in six months with only six pull-ins on account of damage to front ends by reason of collisions.

As to the delaying of traffic it is noticeable that in congested districts wherever the safety cars have been operated there has been an entire absence of unfavorable criticism in regard to their ability to move readily over the most congested part of the lines. For example, in Seattle safety cars operate for about  $1\frac{1}{2}$  miles on Second Avenue. This is the most heavily traveled street in the city and carries so much traffic as to have rendered desirable the rerouting of certain lines in the endeavor to relieve congestion. Safety cars, operating in conjunction with older types of cars on other lines, maintain schedule and crowd cars of other types.

In Kansas City a thirty- to forty-second headway is maintained through the congested district during the rush hours. The Kansas City Railway reports that "we have had no difficulty in making our schedule speed or our headway even in the hottest part of the downtown district."

In regard to Richmond, the following is an extract from the *ELECTRIC RAILWAY JOURNAL* of Nov. 1, 1919:

In Richmond the eighteen safety cars in operation at present make up the complete equipment on two lines. For a distance of  $1\frac{1}{2}$  miles through the center of the city these two lines run over the same tracks as five other lines on which the cars are all of the double-truck type, and there is also a very heavy grade. These conditions have presented no difficulties and the safety cars have not in any way delayed the double-truck cars.

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

In Bridgeport safety cars operate over about  $\frac{1}{2}$  mile of Main Street. The city has a population of approximately 175,000 and downtown traffic is concentrated along this one narrow street, producing very heavy congestion. A traffic check was made at the time of peak travel on an average day and it was found that there passed over the intersection of Main and Fairfield Streets a total of 1,261 vehicles per hour, including street cars. The distribution of travel was 58 per cent in one direction and 42 per cent in the other. The width of Main Street at this point is 38 ft. and of Fairfield Street 33 ft. Safety cars operate over this intersection, without "dragging the line." They are handled more easily than the double-truck cars that operate over the same tracks. There is apparently no reason why safety cars cannot be operated advantageously in the largest cities in the country, as far as street congestion is concerned, for there are few places where there is heavier street traffic than on Main Street in Bridgeport.

As to the door, the principal objection to the present type is that it is too small. The suggestion is that two doors would serve the purpose better, one for entrance and the other for exit. Now it is the maximum rather than average conditions upon which this idea is based. Taking into consideration all stops throughout the day, probably 95 per cent do not involve more than two or three passengers at one time. Why, then, should a complicated mechanism be installed to take care of the remaining 5 per cent of the stops, where there is heavy travel? As a matter of fact, even for handling heavy loading and unloading a single door is superior to two doors on a safety car, for more time would be lost through the manipulation of double doors and the confusion caused by simultaneous loading and unloading and the consequent inability of the operator properly to collect his fares than through the simple single-door operation and the queue system of loading and unloading. In any event the places where there is heavy loading and unloading are usually congested points, where the cars are as a rule delayed longer by street traffic than by passengers. Again, the addition of second doors on double-end safety cars would increase the weight of the car by about a ton, and it would double the maintenance of doors and door-controlling mechanism.

With further regard to the operation of safety cars through snow storms, the matter is very well disposed of in a statement recently made by the management of a property situated in the extreme Northeast, where safety cars are being operated and where there is plenty of snow. In this the opinion is expressed that passenger cars should not be bought with the idea of operating them successfully as snow plows. Even in such a climate as this the percentage of time per annum when cars operate under conditions that require them to remove

any considerable amount of snow is small. In this region the railway operators propose to protect the cars by removing the snow, and it is their belief that this is the proper way to protect the equipment of passenger cars no matter what the type is.

Finally, as far as the appearance of the car is concerned a street car at best is not usually considered a work of art. However, the comparative smallness of the safety car is an advantage from this standpoint.

To return to Los Angeles (after a lapse of forty years), according to a report of the California Railroad Commission just issued, the engineers of that commission have recommended that 400 one-man cars be purchased and put in operation on most of the lines of the Los Angeles Railway Corporation. They estimate that these cars will save \$625,000 per annum and will pay for themselves in about four years. I assume that these savings do not take into consideration any additional revenue that would be procured by increasing the service with safety cars, so that presumably still better results can be looked for if the service is increased.

The foregoing is written with the idea of showing, in a general way, how the safety car will improve net earnings and how it will work under severe conditions. As has been pointed out many times, however, it is not a cure-all. It has shown remarkable results though and it is believed that it will prove to be one of the principal factors in helping to put the urban electric railway business on its feet again.

## "Automatics" on the New York State Railways \*

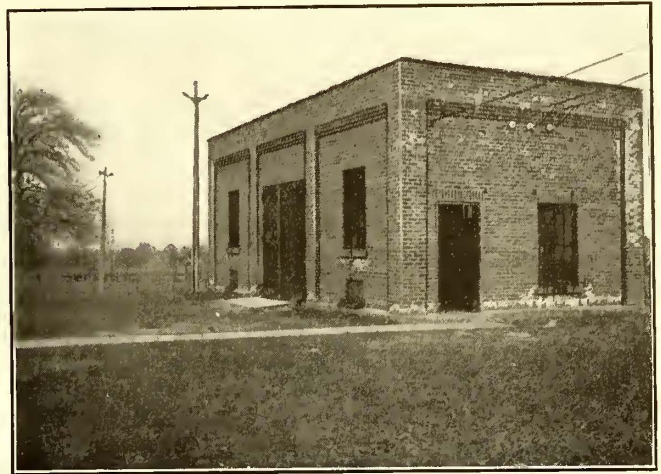
**A Résumé of Experience With Automatic Substations at Williamson and Manlius Center, Showing Annual Savings of More Than \$3,000 Each**

BY C. L. CADLE

Chief Engineer New York State Railways, Rochester, N. Y.

ABOUT the middle of 1916 the New York State Railways planned the installation of an automatic substation to replace a floating storage battery on its Rochester & Sodus Bay line at Williamson, N. Y., and contracted in May, 1917, for this equipment. About the same time it contracted for similar equipment for its

\*Abstract of paper read at New York City meeting of New York Electric Railway Association, Dec. 10, 1919.

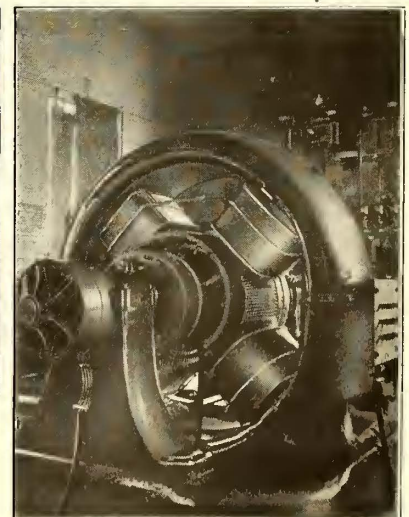
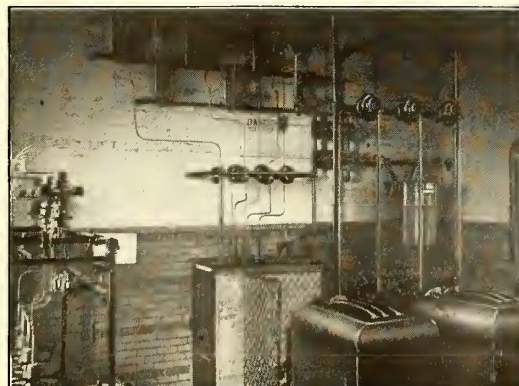
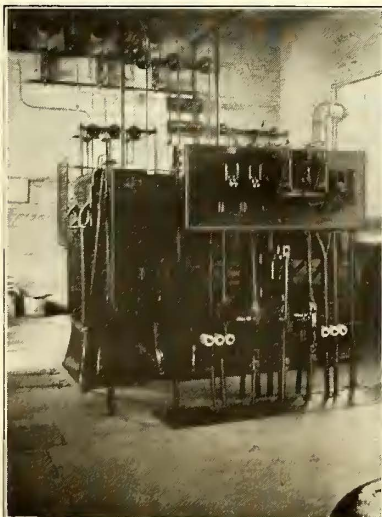


WILLIAMSON AUTOMATIC SUBSTATION, NEW YORK STATE RAILWAYS

Manlius substation on the Oneida line, the West Shore electrification between Syracuse and Utica.

To obtain a satisfactory location at Williamson it was necessary to choose a site other than that used for battery purposes on account of the location of the transmission line with relation to the railroad. The building which now houses this equipment was designed specifically for automatic equipment, and the cost data following give a good indication what a substation completely new costs, at 1916 prices. The railway had previously lost one of its substations by fire, but had on hand, after the insurance adjustment, the frame of a 300-kw. rotary converter. This frame, together with a spare armature and three transformers, constituted the basis of the substation equipment. It was supplemented by the purchase of field cores, brush-holders, oil switches and the automatic control apparatus.

Shortly after the station was put into operation it was found economical to install a remote-control connection with the dispatcher's office in Rochester, approximately 30 miles away. This was accomplished by using the relay of a Gill selector in conjunction with the dispatcher's telephone line to permit the cutting out of the station during the night hours when no cars were in operation. This will account for a number of cases in the accompanying "interruption statement" where the station was in operation all night due to failure of the dispatcher to cut the station in or out at the prescribed time.



VIEWS IN WILLIAMSON SUBSTATION AT LEFT, BANK OF TRANSFORMERS. ABOVE, OIL SWITCH AND AUXILIARIES. AT RIGHT, REHABILITATED ROTARY CONVERTER

TABLE I—DATA ON WILLIAMSON AUTOMATIC SUBSTATION

Non-automatic substations on line operates hours per day.....	18
Automatic substation operates (as for week ending Nov. 29), hours per day.....	9
Saving in operating time, hours per day.....	9
Per cent. of time automatic station operates, as compared with non-automatic stations.....	50
Cost of land.....	\$553.50
Cost of building.....	5,424.63
	\$5,978.13
Cost of automatic substation equipment.....	\$7,593.55
Cost of labor to install.....	1,746.71
Total.....	\$9,340.26
Annual charges, exclusive of land and building:	
Fixed charges and depreciation at 10 per cent.....	\$934.02
Repairs to equipment, estimated.....	200.00
Inspection 1½ hours per day at 45c. per hour.....	246.60
Total yearly expense.....	\$1,380.62
Annual gross saving:	
Labor of three men at 45 cents per hour, eight hours per day.....	\$3,942.00
Relief operator, seventy-eight days per year, eight hours per day at 47½ cents per hour.....	296.40
Saving in power, estimated:	
Nine hours per day, running light, at 8 kw.-hr. per hour, or 72 kw.-hr. per day; 72 kw.-hr. per day for 365 days, or 26,280 kw.-hr. at 0.9 cents per kilowatt-hour.....	236.52
Total gross saving.....	\$4,474.92
Annual charges.....	1,380.62
Annual net saving applicable to automatic equipment.....	\$3,094.30
Number of years to cancel original cost.....	3

TABLE III—DATA ON MANLIUS CENTER AUTOMATIC SUBSTATION

Substation operated non-automatically, hours per day.....	20½
Substation operated automatically, hours per day.....	13
Saving in operating time, hours per day.....	7½
Per cent of non-automatic running time substation operates automatically.....	63.5
Cost to install automatic equipment.....	\$3,400.00
Freight.....	42.00
Miscellaneous material, conduit, wire, etc.....	275.42
Total.....	\$3,717.42
Labor cost.....	483.20
Total cost to install.....	\$4,200.62
Annual charges:	
Fixed charges and depreciation, at 10 per cent.....	\$420.06
Repairs to automatic equipment (estimated).....	100.00
Labor cost to inspect, one and one-half hours per day, at 45 cents... ..	246.60
Annual yearly expense.....	\$766.66
Annual gross saving:	
Labor of three men at 45 cents per hour, eight hours per day.....	\$3,942.00
Relief operator seventy-eight days per year, eight hours per day, at 47½ cents per hour.....	296.40
Saving in power estimated, 7½ x 8 kw., 60 kw.-hr. per day, 21,900 kw.-hr. per year at 0.92 cent.....	201.48
Saving in coal for heating substation.....	200.00
Gross saving.....	\$4,639.88
Annual charges.....	766.66
Net annual saving.....	\$3,873.22
Number of years to cancel original cost.....	1.1

TABLE II—INTERRUPTIONS AT WILLIAMSON AUTOMATIC SUBSTATION FROM AUG. 1 TO NOV. 30, 1919

Date	Time		Duration of Interruption		Cause of Interruption
	From	To	Hr.	Min.	
8-14	5.45 a.m.	8.00 a.m.	2	15	Relay trouble.
8-6	5.20 a.m.	7.33 a.m.	2	13	Overspeed device tripped out d.e. breaker.
8-7	8.10 a.m.	8.35 a.m.	..	25	Oil switch clutch out of adjustment.
8-17	7.35 a.m.	8.00 a.m.	..	25	D.e. contactor did not close, cutting machine online.
8-19	12.29 a.m.	15.57 a.m.	..	28	Overspeed device tripped out d.e. breaker.
8-20	8.30 a.m.	12.00 m.	15	30	Operating coil on oilswitch burned out.
8-21	5.20 a.m.	11.30 a.m.	6	10	Operating coil on oilswitch burned out.
8-23	5.20 a.m.	12.00 m.	18	40	Operating coil on oilswitch burned out.
8-29	5.20 a.m.	8.00 a.m.	2	40	Overspeed device tripped out d.e. breaker.
Total interruptions for Aug....			48	46	
9-7	5.20 a.m.	7.35 a.m.	2	15	Overspeed device tripped out d.e. breaker.
9-26	5.20 a.m.	7.35 a.m.	2	15	Remote control not cut in by dispatcher.
9-29	7.00 a.m.	12.00 m.	15	00	Rotary armature grounded.
9-30	5.20 a.m.	12.00 m.	18	40	Rotary armature grounded.
Total interruptions for Sept....			38	10	
10-4	5.20 a.m.	7.40 a.m.	2	20	Remote control not cut in by dispatcher.
10-5	6.45 a.m.	11.00 a.m.	5	15	Open in 1 external, resistance of No. 29 relay.
10-15	5.20 a.m.	7.45 a.m.	2	25	Remote control not cut in by dispatcher.
10-15	1.25 p.m.	12.00 m.	10	35	Open circuit in rotary armature.
10-16	5.20 a.m.	11.00 a.m.	5	40	Open circuit in rotary armature.
Total interruptions for Oct....			26	15	
11-19	5.20 a.m.	7.55 a.m.	2	35	Remote control not cut in by dispatcher.
11-11	12.50 a.m.	5.35 a.m.	4	35	No. 2 relay stuck in, allowing rotary to run.
11-11	8.05 p.m.	12.00 m.	3	55	No. 2 relay stuck in, allowing rotary to run.
11-12	12.00 m.	1.30 a.m.	1	30	No. 2 relay stuck in, allowing rotary to run.
11-15	12.57 a.m.	5.40 a.m.	4	33	No. 2 relay stuck in, allowing rotary to run.
11-16	5.20 a.m.	7.40 a.m.	2	20	Remote control not cut in by dispatcher.
11-22	1.00 a.m.	5.20 a.m.	..	..	Machine cut in and out several times as dispatcher did not cut out remote control.
11-28	5.20 a.m.	8.05 a.m.	2	35	Armature in No. 2 relay stuck open.
11-29	8.45 p.m.	12.00 m.	3	15	D.e. breaker out.
11-30	12.00 m.	7.30 a.m.	7	30	D.e. breaker out.
Total interruptions for Nov....			32	48	
Grand total.....			146	9	

TABLE IV—INTERRUPTIONS AT MANLIUS CENTER AUTOMATIC SUBSTATION

MAY 1, 1919, TO DEC. 2, 1919  
Caused by opening of d.e. circuit breaker (non-automatic)

	Hr.	Min.
5-13.....	1	5
5-15.....	1	48
5-18.....	13	0
5-23.....	1	23
6-4.....	..	12
7-6.....	2	50
7-15.....	2	50
8-31.....	..	55
9-1.....	1	32
9-3.....	1	41
9-17.....	1	7
10-3.....	1	3
10-12.....	3	44
10-18.....	1	6
11-9.....	1	15
11-11.....	1	25
11-16.....	1	17
11-17.....	1	44
11-20.....	1	9
11-30.....	1	3
Total.....	41	9

Caused by armature shaft sticking in bearing

7-14.....	..	26
7-15.....	2	50
7-17.....	5	40
7-18.....	1	5
7-20.....	2	40
7-31.....	2	53
8-9.....	3	0
8-20.....	4	20
8-21.....	1	45
8-22.....	..	20
Total.....	24	59

Due to trouble with automatic equipment

	Hr.	Min.	
5-14.....	2	24	Thermostat on resistance grids opened due to too low setting.
6-1.....	7	46	Resistance in relay No. 36 circuit burned out. See note.
6-14.....	..	26	Relay No. 26 stuck.
Total.....	10	36	

NOTE.—Resistance furnished with polarized relay too low; 4,000 ohms substituted for 3600 ohms.

The Manlius substation, which is located approximately 5½ miles east of the Syracuse city line, was equipped at the time of the West Shore electrification with two 300-kw. rotaries. After it had been in operation for a few years changed condition of the traffic load dictated the removal of one rotary to another location. This remaining machine was operated, previous to the installation of the automatic equipment, by three men working on eight-hour shifts.

These two stations are of particular interest due to one having been built especially for an automatic operation, while the other is an adaptation of a manually-operated substation to automatic control.

The automatic equipment at Williamson eliminates the operation of the rotary 50 per cent of the time during which it would otherwise have been operating and at Manlius 36.5 per cent. At Williamson this produces an annual saving of \$236.52 in power cost and at Manlius \$201.48.

Between May 1 and Dec. 2, 1919, there was a total of about seventy-seven hours' interruption at the Manlius station, forty-one hours of which was due to the opening of the direct-current circuit breaker from sudden overloading; twenty-five hours was due to electrolysis of the armature bearing causing the bearing babbitt to adhere to the armature shaft, and ten and a half hours was chargeable directly to the automatic equipment. At Williamson there were interruptions totaling 146 hours between Aug. 1 and Nov. 30, 1919. These, while affecting the station, were not serious and did not require the immediate attention that would have been given had the station been in a more important location. However, it is to be expected that, with the installation of new equipment, troubles will occur during the first

few months of operation, but these will be eliminated through experience with the apparatus.

The principal items of interest at this time in regard to automatic substations are: (a) cost to install, (b) reliability of operation and (c) saving in operating expenses. These data for the New York State Railways are summarized in the accompanying tables. The illustrations give a general idea of the equipment in the substations and the layout of apparatus.

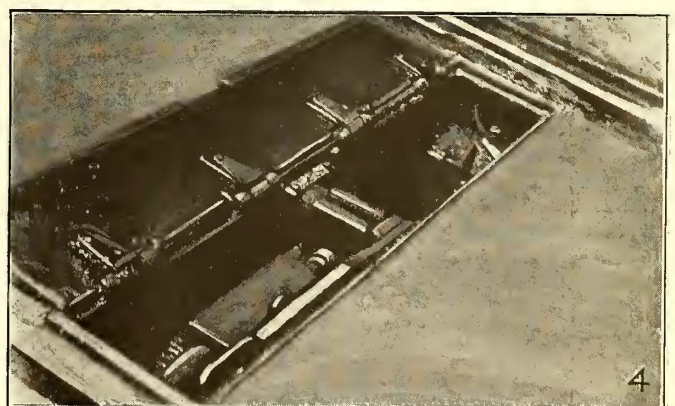
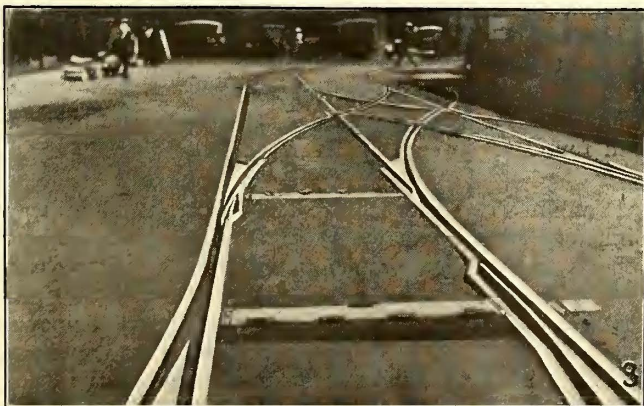
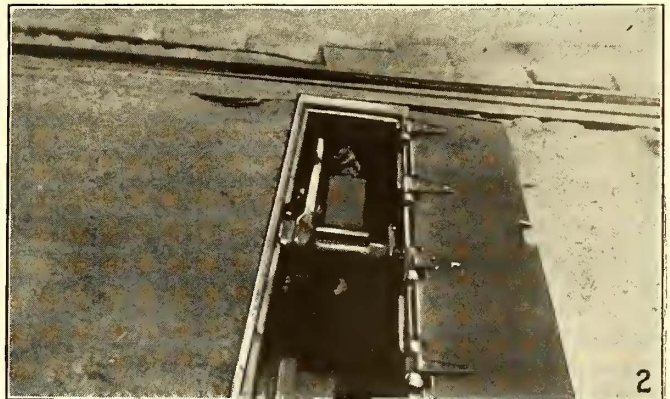
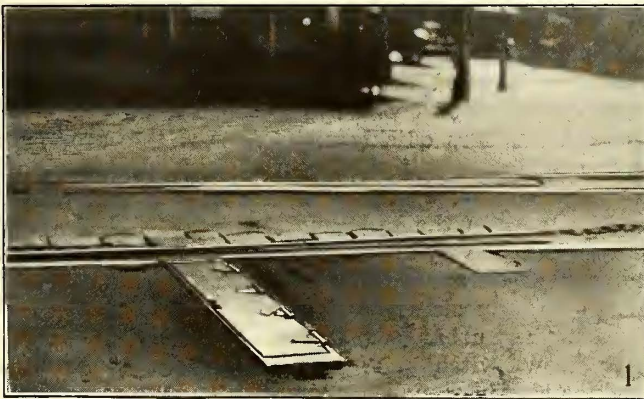
## Using Lever Throw-Type Track Switches for Safety

**At Locations Where Traffic Conditions Make It Dangerous to Use a Switch Which Must Be Held in Position, the Use of a Throw-Over Switch Has Advantages**

BY CLIFFORD A. ELLIOTT

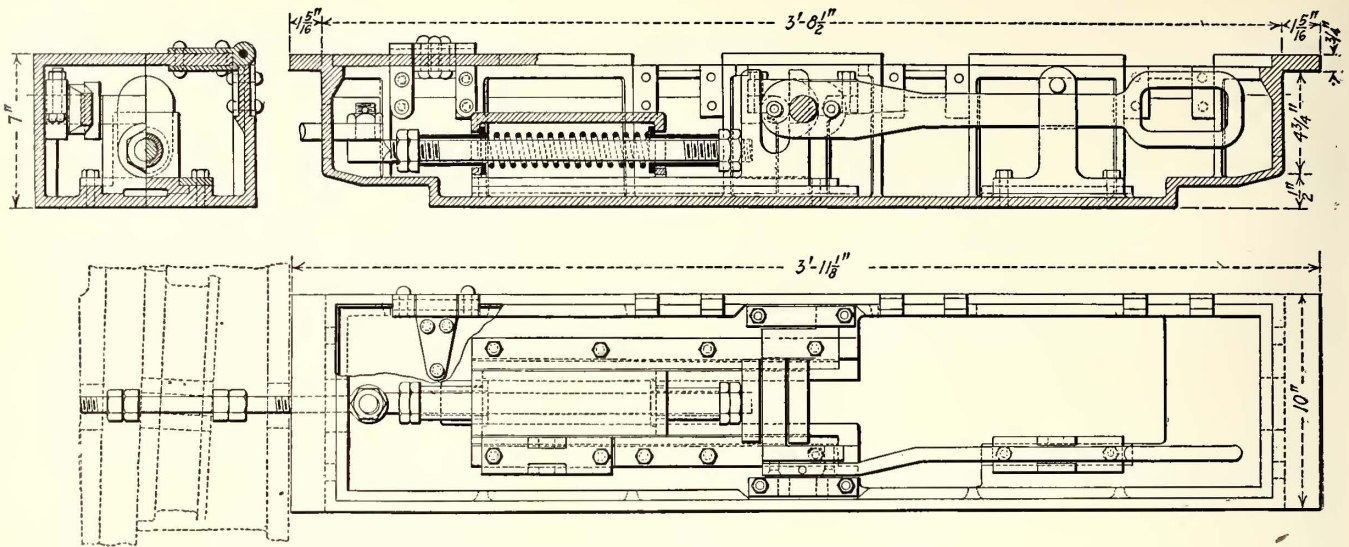
Cost Engineer, Pacific Electric Railway, Los Angeles, Cal.

SEVERAL years ago the Pacific Electric Railway found it advisable to adopt a type of switch on its tracks different from the type, commonly known as the chain-pull type, then in use. This change was rendered necessary due to the rapid increase in the number of automobiles passing the points where switches were installed and to meet increasingly difficult operating conditions. Where large special track work layouts exist at busy street intersections the trainmen are placed in a hazardous position while holding switches of the chain-pull type, especially where train operation is used. At many locations the space between the pull-box and the curb line is very limited and as it is necessary for the trainmen to hold the chain-pull switch in position



INSTALLATIONS OF LEVER-TYPE THROW-OVER SWITCH

1—Switch Box Outside of Track. 2—Interior of Switch Box Outside of Track. 3—Switch Boxes Located Between Rails at Passenger Terminal. 4—Interior of Switch Box Between Rails.



ASSEMBLY OF GROUND THROW-OVER SWITCH

from the box until all trucks of the train have cleared the turnout, he frequently has to keep this position for a considerable time. His position prevents any attempt to guard himself against auto speed violators who are liable to misjudge his position in the street and run him down. If to avoid injury the trainman releases the chain-pull switch before all tracks of the train clear the turnout derailment is unavoidable.

To provide for these conditions a new lever throw-type of track switch was designed by the railway engineering department and was made in the company's shops. The accompanying views illustrate this type of switch. The switch mechanism is made of cast steel,

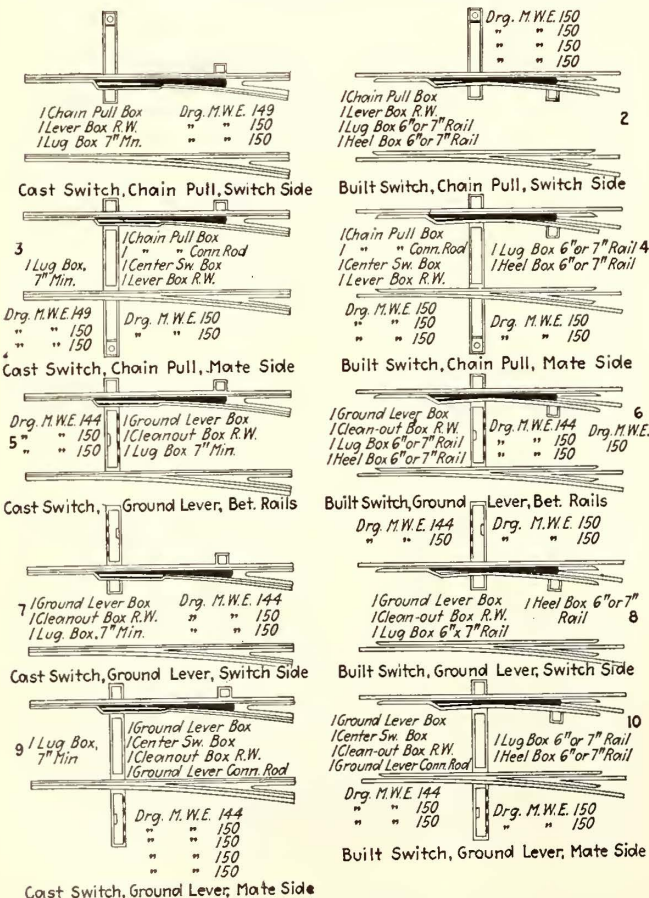
the housing box of wrought iron or steel, and the box cover of a steel plate. The switch-box shown in the illustration is 4 ft. long, 10 in. wide and 7 in. deep.

For the convenience of all concerned in ordering the proper type of switch for any definite location, a standard drawing has been prepared giving the different parts that are necessary to be ordered to meet different arrangements and conditions. Each arrangement is given a symbol number and when placing a requisition with the store department the roadmaster is required only to specify the symbol number and all necessary detailed parts are furnished.

This company uses the positive type of throw-over switch extensively in terminal yards where the clearance between operating tracks is insufficient to permit switchmen safely and efficiently to perform the switching operations. In such cases the lever throw-type of switch is installed between the rails. Yard men are provided with iron hooks which enable them to lift the switch-box covers quickly and to throw the lever over to the desired position with the least possible delay. Accompanying views show the lever throw-over switch applied between the rails and also located outside the rails as is necessary at busy street corners. Where local and interurban service is given over the same line the switch is set positive for the local line, while the less frequent interurban service requires operation of the lever-throw switch before the train can turn into the track as scheduled. In such a case the trainman would first throw the lever and then step onto the curb so as to be clear of vehicles, while the train clears the switch. He then can return and throw the lever back to its former position.

The maintenance and care of this type of switch has been found to be comparatively slight.

Franklin T. Griffith, president Portland Railway, Light & Power Company, Portland, Ore., has just been appointed chairman of the committee on water-power development of the N. E. L. A. The committee proposes to undertake an investigation of the water-power resources of the country, both developed and undeveloped. The study will be made respecting the practical application of pending national legislation on the subject and of the economic advantages which could be obtained through a more general interconnection of water-power systems.



SWITCH STANDARDS ARRANGED FOR CONVENIENCE IN ORDINARY PARTS

## C. E. R. A. Holds Two-Day Session

Important Subjects of Electric Railway Express and Economy of Car Operation Considered at Central Electric Railway Association Convention, Held at Grand Rapids, Mich.

**T**HE Central Electric Railway Association met at Grand Rapids, Mich., for its fall meeting on Thursday and Friday, Dec. 4 and 5. A report of the meeting follows and abstracts of some of the papers appear elsewhere in this issue.

The executive committee met during Thursday forenoon and elected two new supply members to the association. A. Swartz, general chairman of the Interurban freight and motor truck competition committee, reported progress in the work of his committee. The Indiana sub-committee made its report at the summer meeting of the association in June. The Michigan sub-committee has reported to Mr. Swartz, and the Ohio sub-committee has not yet reported, but is making progress. Mr. Swartz urged the management of the various interurban properties to look well to their short-haul freight, as this is most likely to be taken over by truck competitors. At the invitation of Harry Reid, president, Interstate Public Service Company, Indianapolis, the executive committee set the place for the annual meeting of the association as Louisville, Ky., and the date as Feb. 26 and 27.

On Thursday afternoon the convention was called to order by President J. F. Collins, general manager Michigan United Railways, Jackson, and the delegates were officially welcomed to the city by the mayor of Grand Rapids. The secretary of the local Chamber of Commerce then gave a brief address of welcome, during which, among other things, he said, "Franchises must no longer be a political football but must be a business transaction." The mayor and the Chamber of Commerce of Grand Rapids believe in a square deal to public utilities. If the various utilities throughout the country are to be placed upon a satisfactory basis and are to obtain the financial income which they need, assistance must come directly through the Chamber of Commerce of a city and through no other local organization.

E. B. Burritt, secretary of the American Electric Railway Association, extended greetings to the Central Association on behalf of the national organization. Mr. Burritt said he believes the officers of the American Electric Railway Association should attend the Central Electric Railway Association and other state association meetings almost as faithfully as those of the national association. He spoke of the work accomplished by the American Association at Washington. The resulting publicity was most helpful. The work carried on in the conduct of these hearings has been a big strain on the association, and at the Atlantic City meeting a committee on dues was appointed. This committee has since reported and suggests that the dues to the American Association be based upon a percentage of the operating revenue. Nobody wishes to see the American Association go backward, but wants it to maintain its leadership of the industry. Mr. Burritt also announced the midyear meeting of the American Association to be held at Cleveland, Ohio, Jan. 8, at the Hollenden Hotel.

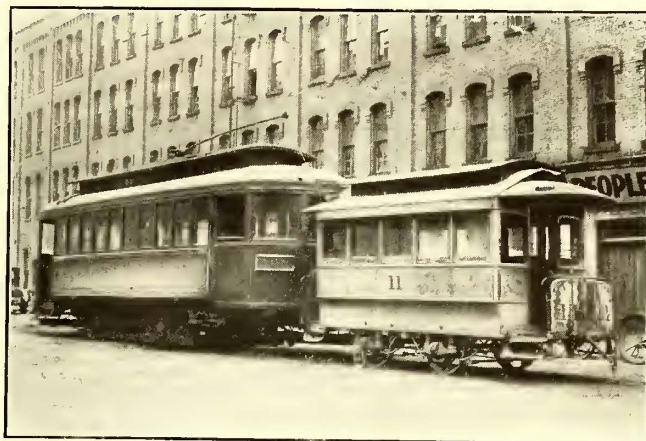


EXHIBIT OF HISTORIC CAR TYPES AT GRAND RAPIDS

Following the regular business, a nominating committee was appointed to report at the next meeting of the association. It included F. D. Carpenter, chairman, president Western Ohio Railway Company, Lima; C. L. Henry, president Indianapolis (Ind.) & Cincinnati Traction Company; W. S. Rodger, general traffic manager Detroit (Mich.) United Railway; S. D. Hutchins, Westinghouse Traction Brake Company, Columbus, Ohio, and W. H. Bloss, Ohio Brass Company, Mansfield, Ohio.

### DIVISION OF OPINION ON ADVISABILITY OF PICK UP AND DELIVERY

"Electric Railway Express" was the subject of a paper presented by C. J. Munton, general manager, Fort Wayne & Northwestern Railway, Kendallville, Ind. and written discussions on the paper were presented by S. L. Vaughn, trainmaster, Grand Rapids, Grand Haven & Muskegon Railway, J. F. Starkey, general passenger agent, Lake Shore Electric Railway Company, Sandusky Ohio, H. A. Nicholl, general manager Union Traction Company of Indiana, Anderson, and C. J. Laney, traffic manager Northern Ohio Traction & Light Company, Akron. Each of these discussions appear in abstract elsewhere in this issue.

Following the presentation of the written discussions, the meeting was thrown open for general discussion. F. W. Brown, traffic manager Michigan Railway, Kalamazoo, said that the handling of express in the manner followed by the old-line express companies was very unsatisfactory. The handling of package express as outlined by Mr. Laney may be more feasible. Mr. Brown believes, however, that the pick-up and delivery feature is a mistake, as such service is foreign to the average electric railway man. This end of the express business should be handled by a separate company. The handling of packages on passenger interurban cars has in many cases largely overcome the loss incurred by the withdrawal of the American Express business. The rate of this class of service on the

Michigan Railway is double the first-class freight rate, but the handling of packages has not in any way interfered with passenger service. Also, there is no direct cost attributable to this service, as the same number of men are required in a crew as is usual for handling baggage, etc.

W. S. Rodger said that the class of business outlined by Mr. Brown is very profitable for those roads which have the proper facilities. Mr. Rodger does not favor the pick-up and delivery feature.

C. L. Henry said that the subject is one of the most important that has come before the association for a long time. He hopes that the association will continue the study of express handling and would like to see all the papers presented on the subject printed in pamphlet form. The consensus of opinion, he said, seems to be that if all the interurban roads were under one management, or were combined into one company, the handling of through freight and express could be worked out to great advantage. Mr. Henry is not convinced that the pick-up and delivery feature is a good thing, but believes that it does not necessarily follow that the association should not give that phase of the work very serious consideration and carefully investigate the possibilities of such service. In Indiana, Mr. Henry believes the interurbans have already made up the loss of the business taken away by the American Railway Express Company by the station-to-station service now in effect.

#### ORGANIZATION OF A SINGLE ELECTRIC RAILWAY EXPRESS COMPANY FAVORED

He suggested that an organized express company to handle the freight and express of all the interurban lines in the Central Association might be formed, and such possibilities are well worth investigating. He then said he would like to see President Collins put in motion an organized effort to see what actual physical obstacles stand in the way of through express service and to have published a full and intelligent statement of the results of the investigation.

Later President Collins announced that a committee to carry out this suggestion would consist of H. A. Nicholl, chairman, W. S. Rodger, E. F. Schneider, F. W. Brown, and J. H. Crall.

#### ORGANIZATION OF ELECTRIC EXPRESS COMPANY DISCUSSED

E. F. Schneider expressed himself on being opposed to the idea of handling baggage and express on passenger interurban cars. He believes this interferes with passenger service. There is no question but that interurban express business is profitable. C. L. Henry said that the greatest trouble now existing is in the fixing of rates for through business. The formation of a single interurban express company would eliminate this. C. J. Laney said that another difficulty with handling through express is that many small interurban roads do not operate their sub-stations after 2 a.m. These properties would not realize sufficient income on the express passing over their tracks to warrant the addition of several extra men to the substation force.

C. J. Munton stated that the indications are that an interesting investigation will result from the papers and discussions presented on the subject of electric railway express. The situation as outlined by the written discussion of C. J. Laney is probably true at

the present time. The interurban lines should, however, begin now to put their properties in such order that through express business can be handled without any transfer of the commodities. With the nucleus which the interurban roads of the Central Association now have, E. F. Schneider believes that a single electric railway express company could be formed. Such a company could determine the connections and other changes in tracks, etc., which would be necessary to handle through express to the best advantage.

Closing the discussion on electric railway express M. B. Lambert, Westinghouse Electric & Manufacturing Company, said that it is up to the railway companies to give the local chambers of commerce and other business interests the facts. The American Association is doing a big work along this line. The information which it collects is sent throughout the country over the Associated Press wires. The American Association wishes to pick out men all over the country to whom publicity material may be mailed for local distribution.

At the close of the Thursday session President Collins announced that on the track adjacent to the hotel several cars had been placed for the inspection of the delegates. Included in these was a horse car of the bygone days, one of the first electric cars of the Grand Rapids Railway, and one of the latest type of steel city cars of that company. There was also one of the first interurban cars purchased twenty years ago by the Michigan Railway and in comparison with this one of the latest type of steel interurban cars purchased by that company.

#### ELECTRIC RAILWAY EXPRESS ALSO SUBJECT AT BANQUET

On Thursday evening a banquet followed by an informal dance was held at the hotel. The speaker at the dinner was L. G. Macomber, traffic commissioner of the Toledo Commerce Club. Mr. Macomber first outlined the interurban situation in Toledo while the city was without street-car service, and then gave some comprehensive figures relating to the possibilities of motor-truck competition in the handling of express. In June of this year the interurban lines emanating from Toledo, exclusive of the Ohio Electric Railway, handled out of Toledo 16,000,000 lb. of merchandise, and 12,000 passengers. During the period in which the interurban lines were not allowed to enter the city reports show that practically all of this merchandise business was handled in some other manner.

Mr. Macomber paid a high compliment to the cooperation which the Toledo Commerce Club has received from the officials of the interurban companies. As soon as it was known that the street cars had been removed from Toledo and that the interurban cars would not be permitted to enter the city, steps were taken to find a terminal at the city limits into which all lines could be brought. This could not be accomplished, and an effort was then made to locate a terminal within the city where freight could be received and dispatched to the city limits by means of motor trucks. The Highways Transport Committee agreed to furnish the motor trucks, and the rate was set at 8 cents per 100 lb. Tariffs were also arranged through the Interstate Commerce Commission, and had the street cars not resumed service in Toledo, it was expected to begin handling of express and freight in this manner on Dec. 8.

Passing on from the Toledo situation Mr. Macomber-



said that the interurban railway is in a position to serve a small city better than is the steam road. The growth of a community depends upon its transportation facilities. The interurban has gradually replaced the steam road for jobbing service. Today, it is not a question of cost of express service as much as it is a question of the service itself. For a reasonable haul the interurban need expect no competition from the steam road, as the steam lines cannot make any money on express or freight hauled a distance of less than 60 miles, and this service does not become attractive to the steam lines for a distance of under 120 miles.

#### INTERURBANS HAVE REASON TO FEAR COMPETITION OF 5-TON TRUCK

Mr. Macomber quoted some figures on motor-truck service for a 25-mile haul, with a 2-ton truck, at 22 cents, this being the average for the first four freight classifications. In this case the cost of operation would amount to \$15.52 and the cost of gas, oil, tires, etc., \$5, or a total of \$20.52, leaving a balance of \$1.50 for investment, expenses of driver and helper, etc. If a full load could be carried in both directions the truck operators might make money, but in general the interurban lines need fear no competition from the 2-ton truck.

Interurban railways have reason for apprehension from competition with the 5-ton motor truck, which is the usual truck used for this purpose. To fight this competition the interurbans must improve their service, especially as concerns terminal facilities. The average business man is now figuring the cost of handling goods from his warehouse rather than giving consideration only to the amount of the railway transportation charge. Delay at the warehouse is extremely expensive to the manufacturer. Trucks are sometimes delayed at interurban terminals as much as four hours, which represents a loss to the manufacturer of \$20.

The interurban railway operator should make a very careful study of the actual cost of handling freight and express and of the elements which enter into this cost. The time is opportune to invite into conference the traffic men of the localities through which the companies operate and to secure their co-operation. Consideration must be given to two very important subjects: First, the quality of the service, and second, the cost of the service.

#### ECONOMIES IN CAR OPERATION CONSIDERED

"Economies In Car Operation" was the subject of a paper presented on Friday morning by F. R. Phillips, superintendent of equipment, Pittsburgh (Pa.) Railways Company. Following Mr. Phillips' paper, written discussions were presented by very nearly every interested department. "A Conductor's View" was presented by Charles Connely, conductor Grand Rapids, (Mich.) Grand Haven & Muskegon Railway, "A Motorman's View" by J. A. Sunderland, motorman Terre Haute, Indianapolis (Ind.) & Eastern Traction Company, "A Dispatcher's View" by R. E. Harris, train dispatcher Michigan Railway Company, Jackson, "A Master Mechanic's View" by Terence Scullin, master mechanic Cleveland (Ohio) Railway Company, "A Claim Adjuster's View" by J. W. Giltner, assistant claim agent Northern Ohio Traction & Light Company, Akron, and "A Superintendent's View" by A. G. Snell, superintendent Union Traction Company of Indiana. Abstracts of these papers will be printed next week.

The papers show a marked interest, on the part of the men who directly control the details of operation, in the possibilities of obtaining notable economies. They give the impression that if the several departments will co-operate along the lines outlined by Mr. Phillips and continued by the contributors to the discussion there is warrant for belief that operating expenses can be materially reduced.

Following the papers and written discussions, F. R. Phillips stated that he feels that other associations could well initiate the example of the Central Electric Railway Association as regards enthusiasm and co-operation. He believes the electric railway situation is much brighter in aspect and that the silver lining of the cloud is beginning to show.

M. B. Lambert said that T. Scullin in his written discussion left an important thought. Mr. Lambert moved that the Central association appoint a committee, to include a representative of each department of the railway company to study the subject of possible economies in car operation and to issue a printed report. In answer to a question from President Collins concerning what the return circuit should be, Mr. Lambert replied that the amount of feeder and return depends entirely on the analysis of the problem. The cost of feeder, bonding, etc., must be determined, and as a rule it is economy to have the least drop possible both in feeder and return.

Electric railway companies must resort to a scientific analysis of operating problems and to publicity, said Mr. Lambert. The thing that most affects the operating cost is the maintenance of equipment. The average general manager apparently does not have a complete appreciation of this. The position of the master mechanic must be lifted out of the rut. This is the mechanical age, and provision should be made in every shop for the technically trained man to advance through the mechanical department.

#### ECONOMY IN POWER CONSUMPTION AT CAR VERY IMPORTANT

L. E. Gould, Economy Electric Devices Company, emphasized the ability of the motorman to keep the energy consumption at a minimum both in acceleration and retardation. The curves for each are about the same.

Fast application of the brakes above a certain point is not profitable from a power-saving standpoint and will not increase the speed of operation. The urements taken in a test on a line of 100 cars with all cars equipped with Economy meters and with power stations also so equipped has shown that from 8 per cent to 30 per cent of the power was being lost at the car before the meters were installed. The installation of the meters on a line of 8000 cars with sixty cars equipped and power measured has shown a saving of 25 per cent in brake shoes and 16 per cent in energy on the cars equipped with the meters.

C. L. Henry suggested that all of the papers presented at the Thursday and Friday sessions be printed in the form of a pamphlet and circulated among the member companies. Secretary Neereamer was instructed to carry out this suggestion. After an expression of thanks to all who had delivered papers at the meeting, the convention was adjourned until the next meeting of the association at Louisville, Ky., on Feb. 26 and 27.

# C. E. R. A. Papers on Freight Haulage

Symposium of Opinions by Authorities in Central Electric Railway Association Territory, Initiated by a Paper by C. J. Munton—The Contributors Include Managers and Passenger and Freight Agents

**T**HE feature of the Dec. 4 afternoon session, of the Central Electric Railway Association meeting, held at Cleveland, Ohio, on that and the following day, was a paper prepared and read by C. J. Munton, on "Possibilities of Electric Railway Express Service." It was discussed by representatives of several departments of the electric railway. Abstracts of the paper and written contributions to the discussion are given below.

## Possibilities of Electric Railway Express Service

Extension of Service Now Given Would Be Profitable—The Results of a Recent Questionnaire Are Published

BY C. J. MUNTON

General Manager Fort Wayne & Northwestern Railway

**I**NTERURBAN electric railways in general have but one commodity to sell, and that commodity is transportation in all its forms from limited passenger service to the switching of steam railroad carload shipments which are occasionally turned over to us.

In my discussion of this subject, I shall view the existing interurban electric railways in the Central territory in the light of one system rather than an aggregation of many railways, each with its management and complement of officers functioning as best they may under existing conditions. It is my unqualified belief that were it possible to combine and centralize the management of the electric railway companies now operating in the Central States under four or five managements, it would be of benefit to the public and of profit to the owners. The territory now being served by the existing electric railways would gain by reason of the broader policy of management which would surely obtain in the way of co-ordinated transportation service in all its phases, and the owners would profit by the economies to be obtained under centralized management.

This, however, is entirely aside from the purpose of this paper, and I believe a system of electric railway express service can be established under proper conditions which will provide express service similar in character to that now being provided by the American Railway Express Company.

Electric railway companies already have their investment in tracks, terminals and power-house equipment, and with some additional express equipment could undertake the handling of a large volume of those commodities usually shipped by express. A large number of interurban electric railways operate some form of package freight or express service, and a considerable number of electric railways provide both classes of service.

It is unnecessary to discuss the existing system of dispatch freight which provides in a limited manner for the shipment of nearly all articles of commerce over

one or more connecting electric railways by means of through billing, in accordance with provisions of public tariffs approved by proper regulating commissions. We are all more or less familiar with this class of service and I believe will agree that with increased terminal facilities and rolling stock and in some cases a modification of existing franchise restrictions, this class of service can be greatly extended and expanded to the mutual benefit of the public and the industry.

### EXTENT OF SERVICE POSSIBLE

In considering the subject of electric railway express, let us visualize for a moment the territory served by continuous lines of electric railways in Ohio, Indiana and Michigan and extending into Kentucky, New York, Pennsylvania, Illinois and Wisconsin. This system of electric railways connects a greater population and larger industrial and commercial centers than is connected in the same manner in any other country in the world. Why should not electric railway carriers make a strong bid for the business of the shipper who wants an express package delivered from Buffalo or Pittsburgh to Cleveland, Toledo, Detroit, Grand Rapids, Columbus, Cincinnati, Indianapolis, Chicago or Milwaukee?

Take a map of the Central electric territory and glance at the large industrial centers located on electric railway lines which could act as feeders to the main trunk lines. Why should there not be established a system of trunk express lines operating between the principal cities in the Central States, let us say from Pittsburgh to Cleveland, from Cleveland to Cincinnati via Columbus and Dayton, from Cleveland to Detroit via Toledo, from Detroit to Grand Rapids, from Toledo to Indianapolis, from Indianapolis to Chicago and from Chicago to Milwaukee. With the establishment of such a system of trunk express lines, other lines would act as feeders and bring in a large volume of express business.

There are those who have given some study to the subject and believe that it would not be profitable to establish a pick-up and deliver service in every town and hamlet in which there might be an express office. It is undoubtedly true that it would not be profitable to establish a pick-up and deliver service in towns of less than a certain population. Even in large industrial cities such a service could well be confined to certain districts beyond which, if it were established, there would have to be a system of zone charges for such service. It ought to be entirely feasible for electric railway express service to enter into competition with existing express service and it should be possible to provide a better service at rates not in excess of those now charged.

During the month of October a brief questionnaire was mailed to a number of electric railways in the Central Electric territory. The questions and answers received are as follows:

*Does your company handle express shipments under contract with the American Railway Express Company?*

In answer to this twenty-nine companies, of which nine had never handled old-line express, replied that their contracts had been cancelled after the express companies had been consolidated under the American Railway Express Company. Five companies replied that they were still handling express under contract with the American Railway Express Company but that the revenues received had been very largely reduced and in some cases had nearly reached the vanishing point.

*What were the earnings from this service for six months ending June 30, 1918, and six months ending June 30, 1919?*

Of thirty-four companies replying, twenty gave their total earnings for six months ending June 30, 1918, as \$127,796 and for six months ending June 30, 1919, as \$17,938 or a decrease for the two six-month periods compared of \$109,758, nearly \$220,000 annually. It must be born in mind that most of this express business was carried upon the regular passenger cars of the companies providing the service.

*Does your company handle "local" express shipments?*

Twenty-four companies replied yes; ten, no.

*If so, do you operate pick-up-and-deliver or station-to-station service only?*

Twenty-four companies replied they were handling station-to-station service only.

*Is this service handled on passenger cars or on express cars provided for the purpose?*

Twenty-four companies replied that the service was provided on passenger cars.

*How frequent is your express service?*

As a rule the answers indicated that the service was provided on all regular passenger cars.

*What were the earnings from "local" express service for twelve months ending June 30, 1918, and twelve months ending June 30, 1919?*

Of twenty-four companies handling "local" express, twelve gave their total earnings for twelve months ending June 30, 1918, as \$138,995, and for twelve months ending June 30, 1919, as \$200,454, an increase for the year ending June 30, 1919, of \$61,459. To my mind, these figures are highly significant.

The average revenue derived under contract with any of the old-line express companies provided that the electric railways were to receive 40 or 45 per cent of the gross revenue accruing to the railway on a basis of the number of miles it carried the express matter, as compared to the entire mileage the parcel was hauled. In other words, if a parcel traveled 1000 miles and was carried over four roads and if the revenue from carrying the parcel was \$10, the earnings accruing to the railways on a basis of 45 per cent of the gross revenue would be as follows:

First road, 400 miles, \$1.80; second road, 500 miles, \$2.25; third road, 30 miles, 13½ cents, and fourth road, 70 miles, 31½ cents. On the basis of receiving 45 per cent of the gross revenue, twenty electric railways in the Central States received approximately \$220,000 annually for providing space on their passenger cars which was used by the old-line express companies.

I believe the time has come when we owe it to the properties with which we are connected that we carefully consider some plan by which we develop an express service on the electric railway properties entrusted to our care. I believe that it is a subject

which should be carefully investigated by competent authorities and that this association should take active steps to cause such an investigation to be made. Because of the fact that electric railways operate more frequently, they should be able to provide a more flexible service which should appeal to the public.

We have service to sell and why should we not wholesale it in large quantities rather than retail it in small amounts?

## Interurban Express\*

### Future Field of This Service Is Outlined—Pick-up and Delivery Service Not Recommended

By H. A. NICHOLL

General Manager Union Traction Company of Indiana

EXPEDITED freight shipments, being consignments forwarded at rates and under conditions that are familiarly known in Central Electric Traffic Association territory as "merchants' dispatch freight" but designated by the public as "interurban express," are now designated in Indiana by tariffs filed as "express freight."

Express freight carried on passenger cars differs from the ordinary freight to the extent that the hourly passenger service of the average interurban line is open to this traffic, and it differs from express, as the word is commonly used in connection with the old-line express companies, to the extent that it has no pick-up or delivery service in connection with such shipments.

This service, in some form, has been rendered by traction lines for many years and, in fact, its inception probably came with the operation of the first interurban car. As early as 1900 it had gained some recognition as a transportation means superior for certain kinds of merchandise to any other form. As long ago as 1898, express service, with pick-up and delivery, was given by some electric lines, and to a degree was profitable.

The service has rapidly gained favor with the public, the demand being constant and persistent. In fact, the business obtained by the traction lines has been so great as to tax the facilities available for this purpose. The reason for this is the excellent service rendered by the operation of small units at frequent intervals, the lack of details in office routine, cumbersome checking, multi-billing and other such transactions, which make possible a quick and informal delivery, and a dependable, every-day service which is so recognized by the commercial and industrial world.

Great care must be exercised in order not to burden the traffic with such details of operation as would tend to slow up the service and thus destroy the very thing that is so highly prized by the shipping public. It has its limitations, and in order to maintain the advantages now enjoyed, efforts should be made constantly to secure rapidity of transactions, economy in manner of handling and improvement of facilities for taking care of the business.

#### RATES

The rates allowed in Indiana are now uniform, being based on one and one-half times the first-class local freight rate for the same distance. Where a shipment moves over two or more lines, an additional 20 per cent

\*Abstract of paper presented at meeting of the Central Electric Railway Association, Grand Rapids, Mich., Dec. 4 and 5, 1919.

may be added to the rate, and as freight rates under the Disque scale have become uniform all over the country, express rates as a consequence may be uniform for like distances in all sections. It would seem to the writer that the rates now in effect approach very nearly the ideal basis as an acceptable proposition to the shipping public, being higher than parcel post but not as high as those of the old-line express companies.

Progress is being made toward the broadening of "express freight" (without the pick-up and delivery service). Recently, after a hearing before the Public Service Commission of Indiana pertaining to the uniform basis for express rates, and at the time the present rates and conditions were granted, a meeting of the operating and traffic officials of the various Indiana lines was held. At this meeting it was decided to place in effect a joint express freight tariff to cover all the connecting electric lines in the State for the purpose of handling through traffic. The compilation of rates was placed in the hands of a committee. It was further arranged at this same meeting that a complete set of division sheets or percentages be compiled to cover all of the connecting lines within the State, to be used as a uniform set of divisions jointly by all lines. This subject was also placed in the hands of a committee, and it is hoped that this committee will shortly be able to make a report. Therefore, it will be seen that extension of rates and divisions to other states will be a comparatively easy matter.

#### REVENUES AND EXPENSES

As to the proportion of revenues received which may be considered net profit, few, if any, of us can at present make any positive statement. The profitability of the traffic can only be gaged, comparatively speaking, with its big brother the freight service, as I do not believe that today many roads attempt to apportion operating expenses to the extent that "express freight" service is charged directly with its proportion of operating costs. This will undoubtedly come in time, when it may be possible to gain a reasonable knowledge of earnings and expenses properly belonging to this class of traffic. However, it should cost but little, if any, more to carry a ton of express matter than it does a ton of freight, as the transaction is practically the same in both instances. At the present time it is costing our company \$3.07 per ton for freight, and our revenues for express are \$11.15 per ton. Therefore, it seems reasonable that there is a nice margin of profit in the handling of express matter without the pick-up and delivery service.

In looking over some figures recently obtained covering old-line express operations for the period of six months ended Dec. 31, 1918, we find that direct costs chargeable to the pick-up and delivery system of the old-line express company amount to 28 per cent of the gross operating expenses, not counting any portion for loss and damage, superintendence, maintenance of buildings, rents of buildings, miscellaneous and other expenses. This being the case, it would seem to the writer that a larger per cent of costs than indicated might be saved to the old-line express companies, and is being saved by the electric lines, by not having the pick-up and delivery service.

#### BEST FIELD FOR ELECTRIC EXPRESS

The electric express freight for short hauls has a great advantage over the old-line express companies,

but for longer distances it would appear that the old-line express companies have the advantage over the electric lines, on account of the operation of through trains on fast schedules. This advantage should be particularly marked now when all the express companies are operated under one head and are able at junction points, on account of their consolidated facilities, to handle and transfer express matter more quickly and cheaply than it would be possible for the electric lines, without a vast expenditure of money on the part of the electric lines and without closer affiliation and co-operation.

Another advantage which the steam roads have over the traction lines for the handling of express matter between points distant to each other is the fact that the steam road trains are operated continuously night and day without any break in the service, which does not occur on electric railways, which have only an accommodation day service for the territory served.

Old-line express companies have such a volume of business on account of their operation all over the country that they can use the pick-up and delivery system more profitably than the electric lines, who only have the territory covered by their own lines to draw from. They also do a considerable amount of their business in the transportation of valuable packages; also of money, either by travelers' checks, money orders, or by the actual shipping of the money itself. This business they are able to handle in a very satisfactory and practical way, which in my opinion would not be possible by the electric railway, first on account of the operating service described, and second, because we do not have the high-grade, experienced agents and officials to take care of the business. If we entered the field to compete fully with the old-line express companies, we should be expected to take care of this part of the business, and a failure to do so would weaken our position.

#### CO-OPERATION NECESSARY FOR THROUGH BUSINESS

In reference to co-operation, this is a very vital factor in the handling of through business by more than one line. It has been the writer's experience that there are so many conditions prevailing on various electric lines that it is difficult to perform through service of any kind under 100 per cent co-operative conditions.

At the present time none of the electric lines, to my knowledge, has sufficient equipment, nor is the equipment in general so standardized that it can be operated with dispatch and economy in interline service. On account of the nonstandardization of the electrical equipment, it is not an easy matter for proper repairs to be made on foreign cars. It is true we have our interchange agreements for the operation of through cars, which not only cover the per diem and mileage charges and in some instances cover the cost of making repairs, still, under the conditions now prevailing, even these standards and charges are not sufficient to cover the situation and permit the operation of through trains with any degree of satisfaction. Of course we understand that between the larger terminals it might be desirable and thought necessary by some that the express business be handled in individual trail cars that could be pulled by regular passenger or freight trains, and in this way some of the aggravating difficulties such as the repairs of motors and other electrical apparatus be done away with; but if this method were

followed, on account of the location of connecting tracks and the schedules prevailing on the different lines, the delay in transferring the trailer from one road to another would be so great that the service would not be of much value as compared to the old-line service.

#### COMPETITION OF MOTOR TRUCK

Another factor to be considered, not only by the electric lines with the service they are offering but also to some extent by the old-line express companies, is the motor truck as it is operating today. From the strides made in this class of transportation in the past few years, neither we nor the old-line express companies dare pass over the matter lightly. We try to make ourselves believe that the operators of those trucks cannot exist on the revenues they are now receiving and with the expenses they are under. The fact remains, however, that they not only do exist, but that they are increasing their business rapidly throughout the country, the number of vehicles employed in this class of service probably having increased in the last few years several hundred per cent. The same theory was used as regards the existence of the jitney, but this pest is still in evidence, and possibly to as great an extent as ever in certain localities. Details of motor truck operation which we have been able to gather indicate the lowest possible operating cost is about 25 cents per ton-mile haul, which is far in excess of the revenue received by the electric railways. The motor trucks not only charge the same rates as the electric railways do for freight, but as an additional inducement, they perform the duties of the dray at both ends of the line. This service, which is becoming more dependable and reliable every day, cannot be otherwise than attractive to and be favored by the shippers, but it is difficult to understand how it can be performed at a profit.

#### CONCLUSIONS STATED

In conclusion I will state that I believe in the extension of the present express freight business to all electric lines, and that it eventually will prove a profitable source of revenue.

Let's put in the system as far as we can with the facilities at our command, and see what results we obtain. If there should be any considerable through business between important terminals, of course through motors or trail cars with messengers can be installed as the occasion demands.

I am opposed to the proposition of pick-up and delivery service in connection with our express freight service at the present time;

First, because of the expense of the service.

Second, because the volume of traffic is not great enough to justify the installation of this feature.

Third, because we can get all the business we can handle without it.

[NOTE.—It will be interesting to compare Mr. Nicholl's arguments against pick-up-and-delivery service with the points made "pro and con" at the New York City meeting of the New York Electric Railway Association last week and repeated elsewhere in this issue. While this feature of the electric railway express business was not as fully discussed as at Grand Rapids the general tenor of the discussion seemed to favor the auxiliary service. One speaker, F. W. Watts, said that his company, which gives this service, thought of abandoning it, but after careful analysis found the business profitable.—ED.]

## Possibilities of Electric Express Service\*

The Author Recommends a Pick-Up and Delivery Service and Gives Statistics of the Business of His Property

BY J. F. STARKEY

General Passenger Agent  
Northern Ohio Traction & Light Company

THERE is no chance for an argument that it is the desire of those financially interested in electric properties to work out some method by which added revenues may be obtained, and naturally we turn our attention to the express service and the revenues derived thereby as the theme for thought and discussion. Originally all properties placed their tariff rates, not only on express but for freight and passenger as well, at altogether too low a figure, and in many instances it has been a real fight to obtain the advanced rates we now enjoy. Many of these are still inadequate, considering the fearful ascent of operating cost, the summit of which I fear is not yet reached.

Mr. Munton cites the fact that the gross sum received by twenty companies for the six-month period ending June 30, 1918, was about \$128,000, and for the six months ending June 30, 1919, it was about \$18,000 or a total for the twelve months of approximately \$146,000, these figures representing the revenues from the operation of the American Railway Express. Further on he gives us the total revenues from twelve companies under the "local" express plan for the year ending June 30, 1918, as about \$139,000, and for the year ending June 30, 1919, as approximately \$200,000. These figures indicate either that these lines are not doing a large enough volume of business or else their rates are ridiculously low.

Mr. Munton quotes some lines as believing that it would not be profitable to institute the "pick-up-and-deliver" form of express. With those who so reported I beg to take issue. True, very little revenue is derived from those places we term as "hamlets," yet this is true of other forms of transportation, because the business is not there to be had by any form of transportation. Yet we believe that it is well to have a uniform method of doing this, as well as any other part of our business, at every station, whether great or small.

Let me quote briefly some figures from the electric package service on our line. During the month of October, 1919, the pick-up-and-delivery service yielded a gross income of \$54,385, the operating expenses being \$18,413. The net revenue was \$35,971, and this on a mileage of about 160 miles. We have an interstate service (carload) between Akron and Canton, Ohio, on the N. O. T. & L. Ry. to Detroit, Mich., using motors and trailer, leaving Akron about 6 p.m. every day in the week, Sunday excepted, and arriving at Detroit about 9 a.m. the following day. The rate per hundred-weight for this service is, from Canton \$1.35 and from Akron \$1.25. Our proportion is 60 cents, the remainder going to the other lines interested. This service has proved satisfactory to the shipper and profitable to us. I might add that there is no delivery beyond the station at Detroit.

I feel that there is little chance of success or satis-

\*Abstract of paper presented at meeting of Central Electric Railway Association, Grand Rapids, Mich., Dec. 4-5, 1919.

faction in the matter of long-distance express service unless through service be established, and even in this event the utmost care must be exercised that no unnecessary delays in transit occur. It is better not to accept consignments than to disappoint the consignor and consignee and discourage them to the extent that they feel like withdrawing even the local shipments. It is not so much the cost of shipment as it is service.

I do not believe that it is a wise thing to use limited trains for merchandise shipments, because if any considerable tonnage is handled there must necessarily be delays at stations, and for patrons of limited trains nothing is more annoying than delays. Oftentimes they are content to be moving slowly—but they do want to be moving.

I agree with the author of our paper today in most he has said, and especially in that we must be constant in our efforts to bring added revenue to the coffers of our respective properties. Let us not allow the sentiment to die with this meeting.

## Obstacles to Electric Express\*

Slow Running Time and Many Interchanges Are Cited as Difficulties to a Comprehensive System

BY CHARLES J. LANEY

Traffic Manager Northern Ohio Traction & Light Company

FOR sake of argument, let us take issue with Mr. Munton's paper and point out some reasons why this is not the time that the organization of an electric railway express company would be a profitable venture nor beneficial to all interurban lines that operate in the Central Electric territory. It is true that the pick-up and delivery feature added to our freight departments would attract additional business to some of the larger roads, but I cannot see that the organization of an electric railway express would be the final answer on account of the numerous small electric lines that make up the routes between large commercial centers. These small lines are not financially able to maintain the equipment and service necessary to make the electric express a financial success. The proportion of rate that the small lines would receive would not compensate them to the extent of warranting the financing of any new project.

In establishing the electric railway express the chief factor in its success, after all of these operating conditions are made uniform, is competition with the old line express companies or the steam roads. Mr. Munton has pictured to us several trunk-line arteries that would make the electric railway express the main line to be fed by small intersecting interurban lines. Let us take his first route, and analyze the operating conditions.

### *Cleveland to Pittsburgh*

Cleveland to Ravenna via the Northern Ohio Traction & Light Company, 48 miles, time, three and one-half hours, on account of the slow operation in Cleveland and through Akron. The Cleveland, Alliance & Mahoning Valley from Ravenna to Warren, 28 miles, one hour. The Mahoning & Shenango Railway & Light Company, Warren to Youngstown, 16 miles, time, one hour. The Youngstown & New Castle Railway, Youngstown to New Castle, 15 miles, one hour, where a connection is made with the Pittsburgh-Harmony Line, and all express

matter must be transferred because that line has a 5-ft. gage. If one hour is allowed for transfer and three hours to Pittsburgh, we have consumed ten and one-half hours and operated over five roads.

The time of the old-line express company over the Pennsylvania between Cleveland and Pittsburgh is three and one-half hours. Now, what is the answer? The shipper will not recognize the electric railway express on this trunk line.

### *Cleveland to Cincinnati*

The Big Four Railroad operates a direct line from Cleveland to Cincinnati, a distance of 253 miles, in seven hours. The electric route is as follows:

Cleveland, Southwestern & Columbus Railway to Bucyrus, 113 miles, six hours.

Columbus, Marion & Bucyrus to Marion, 18 miles, forty-five minutes.

Columbus, Delaware & Marion to Columbus, 51 miles, two and a half hours,

allowing thirty minutes for loading and unloading at Delaware. At Columbus we should allow at least one hour for loading and unloading.

Ohio Electric Railway to Dayton, 75 miles, three hours, where we should allow one hour for loading and unloading.

Cincinnati & Dayton Traction Company to Cincinnati, 45 miles, two and three-fourths hours,

allowing thirty minutes for loading and unloading at Hamilton.

This is a total of 322 miles, time sixteen hours fifty minutes, and then the cars arrive only at the city limits of Cincinnati.

What is the answer to this route? These two trunk-line routes cannot be changed to speed up an express service on account of physical conditions, and individual policies of the separate lines, due to different managements. These conditions, to a certain extent, will obtain on the other trunk-line routes mentioned by Mr. Munton.

### WILL CONDITIONS BE MORE FAVORABLE LATER?

We cannot compete with steam road operation on long-haul express service. You will say that the unsatisfactory operation of steam roads through federal control and the embargoes and delays of express matter by the old-line express company make this the opportune time for the electric railways to establish their own express system.

When the steam lines and express companies return to their separate owners, which will be in a very short time, the traffic departments of those companies will effect a new organization, and as a result competition will be keener, and every pound of freight and express matter will be solicited and the public be advised of electric railway difficulties.

Mr. Munton points out that he has been advised that it would not be necessary to establish a pick-up and delivery service in all of the towns and probably in only the large commercial centers.

If you establish the electric railway express and are in competition with the old-line express companies, you must place in effect the same service as they offer or you won't get the business.

After all, the public regards express service as that having the pick-up and delivery features at origin and destination, together with quick dispatch.

There is in existence an agency which handles express matter on electric lines only, known as the Electric Package Agency, which operates on all interurban lines, except one, diverging from Cleveland. This is not an electric railway express company, incorporated and hav-

\*Abstract of paper presented at meeting of Central Electric Railway Association, Grand Rapids, Mich., Dec. 4-5, 1919.

ing power to make contracts, but an agency operated by five lines on a co-operative basis and is a success financially to the roads for whom it acts as agent. It was established twenty years ago as the only freight carrying method of the interurban roads radiating from Cleveland.

It is a success because its business is a part of each road, its executive committee being the general manager of each road represented. The electric package revenue of each road is the earnings of each road after operating expenses have been deducted. So you can see that it is a department, so to speak, of each road represented.

Investigation was made several years ago, and it was found that the income to one road of this agency was more than the equivalent of 50 per cent revenue contract with the old-line express company. This agency is so operated at the present that I doubt very much if a contract offered by any electric express company would be attractive enough to discontinue its operation.

In the State of Michigan where three roads constitute the bulk of the electric railway mileage, the electric express might probably be profitable. Indiana could possibly operate such an express company on its large lines, but to take in the whole Central Electric territory I agree with Mr. Munton that if it were possible to combine and centralize the management of all interurban lines under four or five heads, then the electric railway express would be an added source of revenue on account of broader policies obtained and co-ordinated transportation service. Until then I cannot see where the small roads, operated by existing policies and under individual local conditions, will be benefited financially by the establishment of an electric railway express.

## Possibilities of Express Business\*

### Expand Express Business to Include Fast Freight and Baggage Service, Both with Pick-up and Delivery

BY S. L. VAUGHAN

Traffic Manager, Grand Rapids, Grand Haven & Muskegon Railway, Grand Rapids, Mich.

LET us see when the express business first came into being. In 1839 William Harnden started in the business between New York and Boston. He arranged with the railroad and steamship lines to carry his messengers and their packages, and soon after extended his service between New York and Philadelphia. By 1850 he was operating in some of the Southern states. In 1840 Alvin Adams started in to compete, and in 1854, through a consolidation of four small companies, the Adams Express Company came into being. The American Express Company came into existence in 1850, and Wells Fargo & Company started in 1852. In April, 1915, the mileage of steam road, electric road, steamboat lines and stage lines in the United States covered by the express companies was 290,000 miles, 50,000 miles of which was steamboat, electric railway and stage. The Great Northern and Northern Pacific Railways have express companies in their own organizations.

#### SERVICE ON ELECTRIC LINES

Of course, we are most vitally interested in Michigan, Ohio and Indiana. I am known among a great many of

my shipping friends as "Express service at freight rates," for the reason that in times past that was my slogan in advertising my freight service, both locally and to and from Chicago and Milwaukee. I am not using that slogan now, but I really believe we are doing as well as the express companies, in time and service, for the rates paid. The terminal service of our new company is one of the problems to be worked out. I believe that we should have freight at certain rates as now, which the consignor delivers to us and the consignee calls for; another class high enough to cover the cost of pick-up and delivery between slow freight and the higher express or passenger train rate. The middle class would meet our truck competition. We are handling now, every night out of Muskegon on freight train at freight rates, shipments that leave Grand Rapids at 11:30 p.m. via express on the Michigan Central. You will ask the reason. Because the last express train on the steam road out of Muskegon is at 3:30 p.m.

In April, 1909, we made a contract with the American Express Company to handle its business between Grand Rapids, Grand Haven and Muskegon; the Adams was operating on the Grand Rapids & Indiana and Grand Trunk Railways. Our first-class freight rate at that time was 17 cents per hundred and our contract called for 25 cents per hundred. The first nine months our earnings on this business were \$243; the first year, 1909, \$835; in 1910, \$2,074; in 1911, \$3,843; in 1916, \$11,491; 1917, \$20,578. In 1918 for the first six months (the contract was canceled on July 1) our earnings amounted to \$11,506. We want this business back! How can we get it?

As a comparison, I must not overlook our local express business at the present time. Our rates are 75 cents for a package weighing 1 lb. to 100 lb. between any stations. The earnings on this business for six months ending Oct. 30, 1919, were \$1,584, not much in comparison to our earnings on the American Express. It has been hinted that there is no excuse for express companies as an organization, because, as they now exist, they are a wheel within a wheel, and the express business should be handled by the railroads.

#### COMPETITION FROM PARCEL POST

A strong competitor of the express business is the parcel post, a great amount of which consists of shipments which formerly were handled as freight on which the electric lines received regular freight revenue and which now fill up our space as parcel post, on which the revenue is very small. We are compelled by law to make it possible for a competitor to use our service at a much less revenue than we derive from our regular freight business. Let us get the parcel post and mail into the express classification.

Parcel post was established on Jan. 1, 1913, and limited to 11 lb. In August, 1913, the limit was increased to 20 lb., in 1917 to 50 lb. and in 1918 to 70 lb., so you will see that the government is engaged in the express business under an assumed name.

Another line of work for the Electric Railway Service Company, which I think might be made very profitable and I am sure would be appreciated by the traveling public and not hard to accomplish, would be the picking up and delivering of baggage from the house in one city to the house in another. Think this over as a new asset.

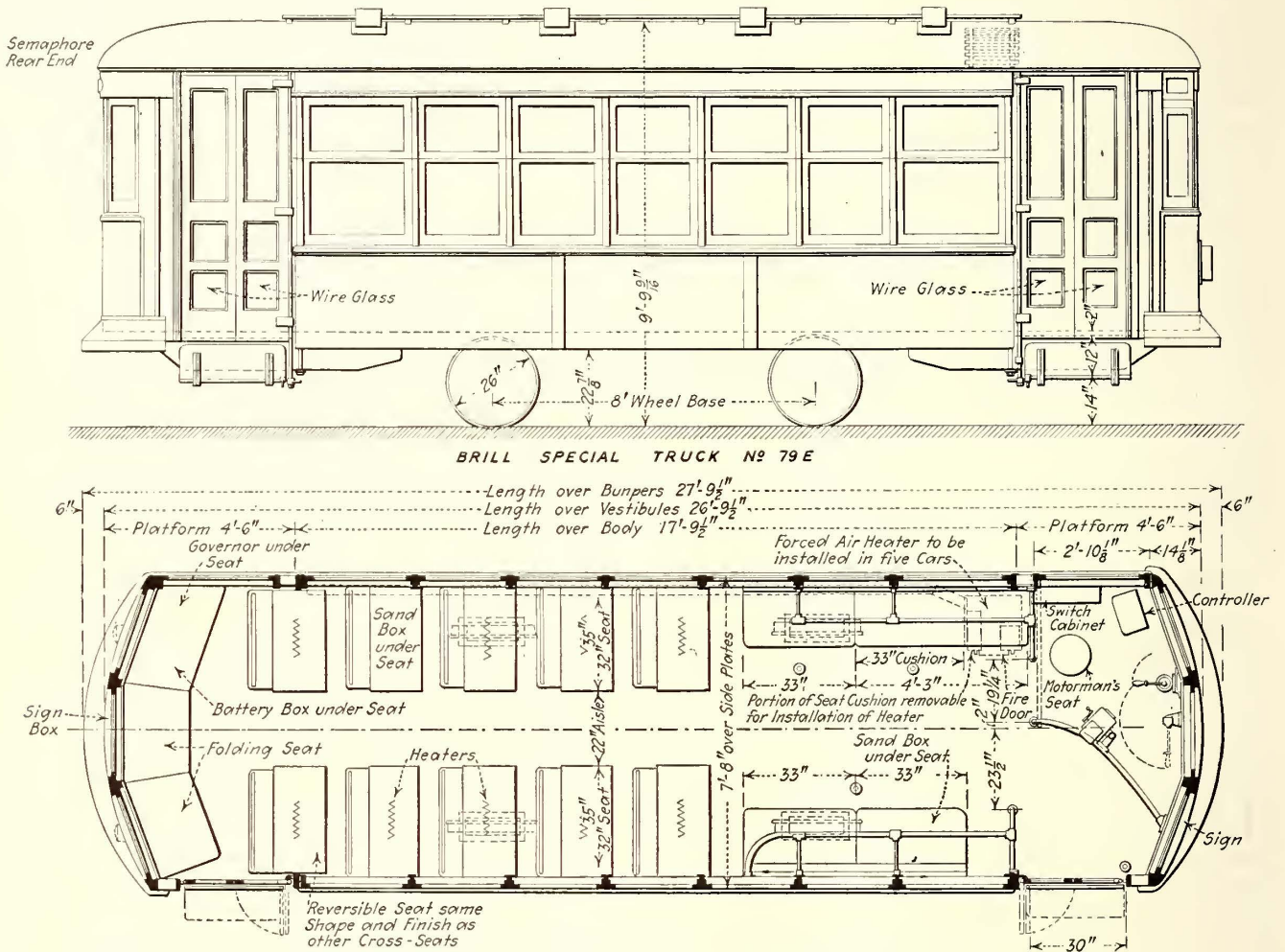
\*Abstract of paper presented at meeting of Central Electric Railway Association, Grand Rapids, Mich., Dec. 4 and 5, 1919.

# Changes in Kansas City Safety-Car Design

## Sixty-five Cars Which Are Soon to Be Delivered Will Differ in Some Details From Those Now in Service

REFERENCE has been made several times in the columns of the ELECTRIC RAILWAY JOURNAL to the installation of twenty-five safety cars at Kansas City, to the success of their operation and also to the changes which were to be incorporated in the design of the sixty-five new cars now on order. Plan and elevation drawings for these sixty-five cars, delivery

one side and 5 ft. 6 in. long on the other have been placed at the front end. It is believed that this arrangement will help to eliminate congestion at the entrance and exit. Because of the hilly condition of Kansas City stanchions for the use of standing passengers are placed in front of the longitudinal seats. These stanchions are made of aluminum as is also the railing which prevents passengers from crowding the motorman and interfering with the operation of the car. The usual type of seat has been replaced by a cushion seat, the cars will have inside sheathing and there will be headlining. It is believed by the arrangement that these alterations will increase the



ELEVATION, FLOOR PLAN AND INTERIOR ARRANGEMENT TO NEW KANSAS CITY SAFETY CARS

of which was expected to begin about Nov. 20, are given here and will indicate the interesting changes which have been made.

Mentioned briefly a few of the alterations from the previous design include the use of a 28-in. rather than a 26-in. wheel. The distance of the first step above the rail is reduced from 16 in. to 14 in. by placing wheel housings under the seats and by the use of a very slight ramp in the floor of the front platform. Some of the structural members have been strengthened by the use of gusset plates and additional cross-bracing. The front and rear decks have been slightly altered so as to cover the bumpers and thus prevent passengers from riding thereon. The truck bolster bearing arrangement has also been changed.

As for inside details the seating arrangement has been changed so that longitudinal seats 7 ft. long on

comfort afforded to the passengers and make the cars more attractive to the public.

It will be noted from the drawings that provision has been made for a stove heater at the front of the car. It is planned to make a trial of such heaters on five of the cars while the remainder will each utilize twelve electric heaters. The length and width of the standard safety car has been maintained but the Kansas City car will weigh approximately 16,000 lb.

From 500 to 600 lb. additional has been placed in the underframing and the coupling arrangement has been changed so that the coupler is concealed. A 5-in. channel has been added to either end of the car for a bumper instead of the original 3-in. bumpers and a covering of thin sheet steel has been added to prevent boys from riding on the rear of cars as they did with the previous type of construction.



# Philadelphia Conditions Analyzed

City Director of Transit Twining Criticises Recent P. R. T. Proposals and Discusses the Five-Cent Fare Situation in That City — Comparative Figures Are Given with Previous Years and Other Cities

ON NOV. 14, City Transit Director William S. Twining of Philadelphia presented an extended report to the joint Councilmanic committees of finance and street railways, giving his reasons for opposing the leasing of the city's Frankford elevated railway to the Philadelphia Rapid Transit Company and the proposed amendments of the 1907 contract. In this report, Director Twining includes a discussion of the 5-cent fare situation in Philadelphia which has attracted so much attention recently. On this point he said, in part:

## DISCUSSION OF SERVICE AND FARE

"Mr. Mitten declared before the Federal Electric Railways Commission in Washington that 'co-operative effort is here found adequate to overcome obstacles seemingly insurmountable elsewhere.' As showing evidence of such effort he has stated, 'passengers carried per trainman increased 120 per cent—1910 to 1919. Public patronage increased from 288 to over 400 rides per capita.' Number of trainmen employed decreased 15.6 per cent. Total passengers per annum increased 72.3 per cent. Maximum number of cars operated increased 17 per cent. Passenger receipts per revenue car-mile increased from 27.2 cents to 38.4 cents, or 42 per cent. If we analyze these data we find the key to the 5-cent fare.

"Let us take the 120 per cent increase since 1910 in passengers carried per trainman, which Mr. Mitten points out as showing efficiency of management and co-operation of the trainmen. This increase in Philadelphia can be ascribed to the following changes:

"1. Larger, more modern and inviting cars. The average number of seats per surface car operated in 1910 was approximately thirty-four. At present the average is approximately forty-seven and one-half, an increase of 40 per cent.

"2. Increase in average speed of cars from 8 m.p.h. to 9 m.p.h. This increase in average speed was accomplished by cutting down the lay-over time and running time, the skip stops, etc.

"3. Elimination of lines of light traffic, thus raising the average of the other lines. Some of these lines are Race and Arch Streets lines, Callowhill Street line and Green Street and Fairmount Avenue line. Besides the elimination of these lines, in many cases routes were shortened and free transfer privileges given in lieu of the former direct route. This device contributes to the reduction in the average rate of fare, upon which Mr. Mitten has laid so much stress in his recent statements.

"4. Arrangement of runs and tripper service so as to reduce the total number of trainmen employed to a minimum.

"5. Rerouting and turning back of lines and withholding of service so as to reduce car mileage to a minimum. The expense of operation and therefore the net income vary quite naturally with the number of cars operated and car mileage; therefore, if the service be

deficient in any particular, the net income as reported will be higher than it should be. The comparison of cars operated and car mileage in Table I bears upon this question:

TABLE I—SHOWING CARS OPERATED AND CAR MILEAGE IN PHILADELPHIA

Years	Gross Earnings	Per Cent Increase Over 1913	Normal Maximum Cars Operated	Per Cent Increase Over 1913	Car-Miles Passenger Service	Per Cent Increase Over 1913
Year to June 30:						
1913.....	\$23,927,179	.....	2,101	.....	82,941,432	.....
1914.....	24,255,813	1.37	2,126	1.19	82,911,808	0.04
1915.....	23,843,606	†0.35	2,019	†3.90	79,598,337	†4.03
1916.....	25,839,344	7.99	2,072	†1.38	80,184,402	†3.32
1917.....	28,553,614	19.34	2,215	5.43	84,058,042	1.35
1918.....	30,443,951	27.24	2,172	3.38	84,918,481	2.37
Year to Dec. 31:						
1918.....	31,704,428	32.50	2,174	3.47	84,892,061	2.35
1919*	35,000,000	46.28	.....	.....	87,000,000	4.89

\* Partly estimated. † Decrease.

"This shows that while street railway travel has increased about 46 per cent since 1913, the company has increased its service only 5 per cent.

TABLE II—GROSS REVENUE AND INCREASE PER ANNUM PHILADELPHIA RAPID TRANSIT COMPANY

Years Ended June 30	Gross Revenue	Annual Increase	Per Cent Increase Over Preceding Year	Average Per Cent Increase Since 1903	Average Per Cent Increase Since 1915
1903.....	\$15,436,573	.....	.....	.....	.....
1904.....	16,096,363	\$659,790	4.27	4.27	.....
1905.....	16,374,626	278,263	1.73	3.00	.....
1906.....	17,711,599	1,336,973	8.16	4.72	.....
1907.....	18,292,080	580,481	3.28	4.36	.....
1908.....	18,557,503	265,423	1.45	3.78	.....
1909.....	18,797,993	240,490	1.30	3.36	.....
1910.....	18,501,357	396,636*	1.58*	2.66	.....
1911.....	21,529,469	3,028,112	16.37	4.36	.....
1912.....	22,700,692	1,171,223	5.44	4.49	.....
1913.....	23,927,179	1,226,487	5.40	4.58	.....
1914.....	24,255,813	328,634	1.37	4.29	.....
1915.....	23,843,606	412,207*	1.70*	3.79	.....
1916.....	25,839,344	1,995,738	8.37	4.15	8.37
1917.....	28,553,614	2,714,270	10.50	4.60	9.43
1918.....	30,443,951	1,890,337	6.63	4.73	8.50
1919.....	33,730,414	3,286,463	10.78	5.12	9.07

\* Indicates decrease.

"6. A change in the riding habit of the public due to the great changes in living conditions, making people ride more often, thus creating loading of cars at all hours. It is stated by the company that the rides per capita upon its system had increased from 288 in 1910 to more than 400 at present; in other words, each man, woman and child rode on an average 400 times in 1919 against 288 times in 1910. Besides this big increase in the riding habit, the population itself has been greatly increased since 1910. The company has not provided the facilities and service to keep up with this rapidly growing traffic (see Table I), and it is a fact that the overloading of cars is just as acute as in 1910, when Mr. Mitten 'found a lot of junk on the streets.'

"A traffic count of the loading of the company's cars taken during the Christmas rush of 1910 shows that of the passengers carried out of the central business district 45 per cent were required to stand. A similar count in October, 1919, shows that 40 per cent of the riders stood. This percentage will, of course, be in-

creased during the Christmas rush of the present year. Rush-hour loading conditions, therefore, are little better now than during the heaviest period of 1910, when conditions were notoriously deplorable. The large number of passengers who are required to stand during the non-rush hours of the day is a noticeable feature of present loading conditions. A comparison of loading conditions in 1915 and 1919 shows that the company is now carrying 44.7 per cent more passengers out of the business district during the maximum evening rush hour with only 14.5 per cent more seats. The result is that while 24.5 per cent of the riders were required to stand in 1915, 40.1 per cent were required to stand in October, 1919.

"7. Counting of all double fares and transfer passengers twice. The data which the company has presented as to passengers carried average fare per passenger and rides per capita are based upon counting all free transfers, exchange, double fare and joint fare passengers twice and including employees riding free as passengers. Mr. Mitten in his answers to questions claimed that the 'average fare per passenger' has decreased from

TABLE III—COMPARISON OF TRAFFIC AND FACILITIES ON ALL SURFACE AND SUBWAY-SURFACE LINES OPERATED IN BUSINESS DISTRICT FOR MAXIMUM HOUR (EVENING RUSH) IN YEARS 1915 AND 1919

	North Philadelphia Lines	South Philadelphia Lines	West Philadelphia Lines	Total All Lines Operated in Business District
Passengers:				
1919.....	59,363	29,734	21,049	110,146
1915.....	39,911	20,373	15,776	76,060
Increase, 1919 over 1915, per cent.	49.0	46.0	35.5	44.7
Cars:				
1919.....	758	345	256	1,376
1915.....	611	310	240	1,161
Increase, 1919 over 1915, per cent.	24.0	11.3	6.7	18.5
Seats:				
1919.....	37,160	16,972	12,916	65,748
1915.....	29,768	15,464	12,173	57,405
Increase, 1919 over 1915, per cent.	24.8	9.6	6.2	14.5
Passengers per seat:				
1919.....	1.60	1.75	1.63	1.67
1915.....	1.34	1.32	1.30	1.33
Increase, 1919 over 1915, per cent.	11.9	32.8	25.5	25.5
Per cent of total passengers not provided with seats:				
1919, per cent.....	37.5	42.8	38.6	40.1
1915.....	25.4	24.2	23.1	24.5

Data from Street Corner Observations by Department of City Transit in May 1915, and October, 1919.

"In order to determine the amount of service being rendered to the riding public upon the Philadelphia Rapid Transit Company's surface system the Department of City Transit has made observations which are of interest, especially when compared with similar observations of previous years. These observations have been taken in the evening rush period and include all routes operated in the business district. Since the maximum traffic hour is included in this period a comparison of the facilities and traffic of the system under peak load may be made.

"The total number of passengers carried from the business district during the maximum hour in May, 1915, was 76,060. They were transported on 1161 cars having 57,405 seats, hence 18,655 or 24.5 per cent of the total passengers were standees. In October, 1919, the total number of passengers carried from the district had become 110,146 in the maximum hour, an increase of 44.7 per cent over 1915, while the number of seats provided increased from 57,405 to 65,748, or only 14.5 per cent. It is therefore evident that the rate of increase in traffic has been about three times the rate of increase in service. The number of standees in 1919 has mounted to 44,398, which is 40.1 per cent of the total riders. These figures serve to show the decrease in the amount of service per passenger over a period of the present management of the company.

"It is also interesting to compare the present maximum conditions with those existing under the former management in 1910, when conditions were generally declared deplorable and have been repeatedly made example of by the present management.

"In the report submitted to the Pennsylvania State Railroad Commission by Ford, Bacon & Davis after investigation of the system compelled by numerous complaints, comparable figures are given. (Vol. II, page 143). This report shows the results of a traffic count taken from Dec. 19 to 23, of 1910. These figures therefore represent conditions existing during the Christmas rush, the heaviest traffic period of the year. The number of passengers carried from the business district during the maximum evening hour was 58,841 and the number of seats operated 29,220, and thus the number of standees was 24,621, or 45.7 per cent of the total passengers. It is therefore shown that with the present ratio of 40.1 per cent of passengers standing, the car-

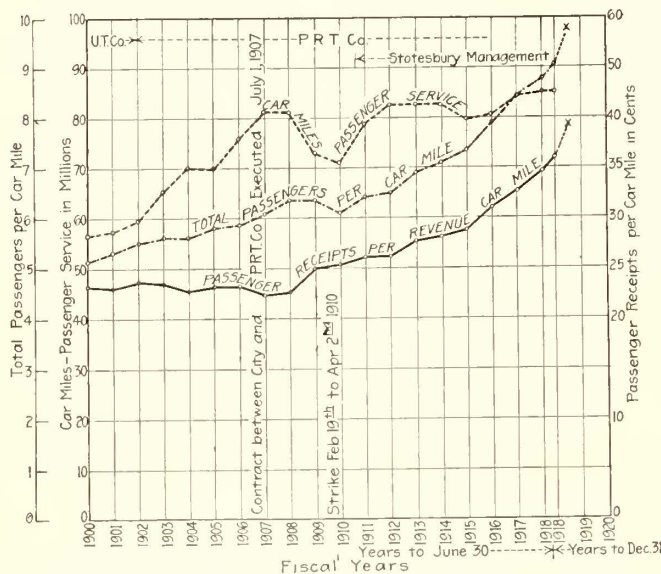


DIAGRAM SHOWING OPERATING STATISTICS OF PHILADELPHIA RAPID TRANSIT COMPANY

4.13 cents in 1910 to 3.98 cents at the present time, having dropped to as low as 3.91 cents in the years 1915, 1916 and 1917. He claims also that during this period the saving to passengers by this 'reduction in fare' amounted to \$7,941,983. These figures are of course entirely fanciful, as all know that the rates of fare are 5 and 8 cents and the average somewhat more than 5 cents. The calculation of a reduction in the 'average fare per passenger' from 4.13 to 3.98 cents is possible principally because a greater proportion of the passengers are now required to use two cars to reach their destination than in 1910. As a matter of fact, the average fare is higher now than in 1910, as shown in the following statement:

"In 1910, 333,253,830 passengers paid a 5-cent fare. In 1910, 97,846 passengers paid a 4.167-cent fare (six tickets for 25 cents). In 1910, 21,285,569 passengers paid an 8-cent fare. The average fare paid in 1910 was 5.18 cents.

"In 1918, 545,082,641 passengers paid 5 cents. In 1918, 43,791,710 passengers paid 8 cents. The average fare paid in 1918 was 5.223 cents.

loading conditions during the maximum rush hour are little better than those existing during the heaviest period of a year when the service was deplorably deficient."

COMPARISON OF INVESTMENTS IN TRANSIT FACILITIES, PHILADELPHIA AND BOSTON

In commenting on the question of capital investment in transit facilities, Mr. Twining points out that the Philadelphia Rapid Transit Company from Jan. 1, 1911, to June 30, 1919, had invested capital to the extent of \$21,500,000, of which about \$2,500,000 has been in rapid transit, while during approximately the same period (July 1, 1910, to Dec. 31, 1918) the Boston Elevated Railway increased its capital investment by \$35,129,610, of which \$31,401,014 was for rapid transit facilities. From the tabulation of these data, Mr. Twining points out that a comparison of the increased revenues and additional capital investment in transit facilities in these two cities would be as shown in Table IV.

TABLE IV—SHOWING COMPARISON OF INCREASED CAPITAL TO INCREASE IN GROSS REVENUE, BOSTON AND PHILADELPHIA

	Increase in Annual Gross Revenue, 1910-1919	Increased Investment in Capital on Facilities Supported	Ratio of Increase in Investment to Increase in Gross Revenue
Boston Elevated Railway.....	\$5,081,985	\$35,129,110	\$6. 91
Philadelphia Rapid Transit Company..	12,200,945	21,475,000	1.76

Continuing, Mr. Twining said:

"It is seen from the above table that in Boston the investment in the period has averaged \$6.91 for each dollar of increase in revenue, while in Philadelphia the Philadelphia Rapid Transit Company has invested only \$1.76 for each dollar of increase in revenue. On the basis, therefore, of increase in revenue, the Boston investment has been at a rate nearly four times as great as Philadelphia Rapid Transit.

"If the Philadelphia Rapid Transit Company had provided capital at the rate shown above for Boston, the investment for the period instead of being \$21,475,000, would have been more than \$80,000,000, and the fixed charges upon the additional \$60,000,000 at 5 per cent would have been \$3,000,000 per year. The addition of \$3,000,000 to its present fixed charges would make operation upon a 5-cent fare impossible. Besides increasing the fixed charges, the operation of the added facilities would have been accompanied by increased operating expenses. These might have been easily as much as \$6,000,000 per year, or a total of \$9,000,000, requiring the company to earn \$44,000,000 this year and calling for a fare of at least 7½ cents, assuming no loss of riding from increase of fares.

"This comparison shows conclusively that the 5-cent fare in Philadelphia is due to an almost complete stoppage of transit development as compared with Boston and other large cities.

THE EFFECT OF DEAD CAPITAL ON THE FARE

"In my judgment, public utility companies should keep the total amount of borrowed money in the business at all times as low as possible and should be forced to divide all surplus earnings which result from a reasonable rate of fare between a dividend fund and an amortization fund. By the action of such a fund the cost of service should require the minimum proportion of the fare for the support of the capital. That I am not

alone in this view I quote from a recent article by Prof. Dexter Kimball:

"We are now beginning to look upon industry as a means to support human life, not as a source of private, corporate or State profit."

"Judge Gray, of Massachusetts, in 1869 expressed the same view in regard to the functions of street railways as follows:

"The accommodation of travelers, of all who have occasion to use them at certain rates of fare, is the leading object and public benefit for which these special modes of using the highway are granted, and not the profit of the proprietors. The profit to the proprietors is a mere mode of compensating them for their outlay of capital in providing and keeping up this public easement."

"All capital invested in obsolete or superseded apparatus or equipment should be amortized, and only such money as is now active in the carrying on of the business should be entitled to draw interest or dividends. In other words, dead capital, like the superseded equipment, should not burden a public utility business and hamper the working capital. In the Philadelphia Rapid Transit Company much equipment and apparatus—horses, cars, rails, etc., purchased and their cost capitalized during the horse car, cable car and early electric periods, have long since disappeared, but the capital

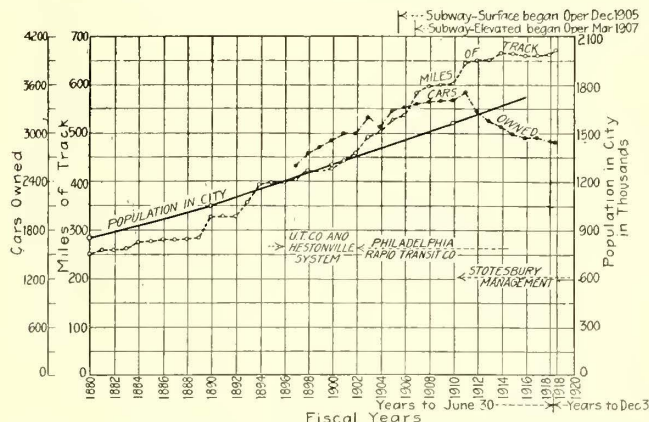


DIAGRAM SHOWING POPULATION OF PHILADELPHIA AND MILES OF TRACK AND CARS OWNED BY P. R. T.

invested in those discarded facilities, although actually dead and representing nothing but a memory, still rides on the back of the capital now working. The active capital is forced not only to earn its own interest but must carry a load of dead capital besides. In the Philadelphia Rapid Transit Company's capitalization there exists today at least \$40,000,000 of dead but unamortized capital drawing from the net earnings of the system an average of at least 10 per cent, or \$4,000,000 annually. Is it any wonder that the company finds it difficult to increase its working or active capital when the old capital must be given its pound of flesh before the new and active capital can be fed. In addition to being inactive capital, a part at least of the Philadelphia Rapid Transit capitalization is what is known as 'water.' This only aggravates a bad matter, and with this load, whether it be dead capital or water, the company finds itself unable to support the necessary capital burdens which the increasing traffic demands. New capital can only be supported by unencumbered profits, and such profits are now exceedingly speculative on 5-cent fares.

"Since Mr. Mitten came here eight years ago, he has

discarded at least 1000 cars, six or more power plants, five battery substations, carhouses and considerable mileage of track and distribution system, amounting in the aggregate to several millions of dollars, but aside from comparatively small renewal appropriations, this capital invested by the underlying companies still draws the same return as when this equipment was active and used in the service of the public.

"The reason why the company must ask the city to buy up its exchange business, why the contract-lease was rejected by the Public Service Commission and why so much difficulty is contemplated in arriving at a new lease, is because the company's capitalization has been allowed to pile up, property deteriorate and disappear without the establishment of depreciation or amortization funds and a pyramid of leases built up which, for 999 years, make the superseded property more potential in controlling the company's service and fares than the property now used in public service."

## Mail Pay Hearings in Washington

### Interstate Commerce Commission Listens to Arguments For and Against Increase of Payment to Electric Railways

FINAL argument was heard at Washington, D. C., on Dec. 5 by the Interstate Commerce Commission in the appeal by the electric railways for additional compensation for handling the United States mails. The American Electric Railway Association was represented by S. S. Ashbaugh. The post office department was represented by Joseph Stewart. In all, there was an attendance of twenty-eight, but the appearances except for counsel were not formally noted. All of the commissioners except Mr. Eastman were in attendance. The morning was given over to the presentation of the case of the railways. At 2 o'clock the session was resumed with Mr. Stewart presenting the case for the Post Office Department. After he had concluded, Mr. Ashbaugh was heard in rebuttal.

#### MR. ASHBAUGH EXPLAINS RAILWAY'S POSITION

In opening Mr. Ashbaugh referred to the very serious condition which confronts the electric railways and cited a number of specific cases. He also referred to the general social unrest. He said that the proceeding in which he appeared was not an ordinary lawsuit. It was a congressional hearing. Congress had found the Interstate Commerce Commission in existence and had referred the matter to it for settlement. Mr. Ashbaugh said that carrying the mail was a government obligation. It was not a matter of contract. The electric railways felt themselves unjustly dealt with, but they had not begun suit because they desired to keep the matter out of the courts. The railways were not obliged to carry the mails at a loss. The pay they received for carrying the mails was a matter of negotiation. The statute of 1918 did not increase the Interstate Commerce Commission powers, but merely modified the penalties with respect to refusal to carry mails. He said the jurisdiction of the Commission was fixed (1) by statute and (2) by the act of the Postmaster General in 1896. Mr. Ashbaugh made no complaint against any individuals. He did not impugn anybody's motives. As regards parcel post, Mr. Ashbaugh said that parcel post limits were fixed by law at 11 lb., but that under his discretionary powers

the Postmaster General raised the limit to 70 lb. Mr. Ashbaugh questioned the postmaster's authority to do this. He said, however, that if the postmaster had this authority, then the Interstate Commerce Commission had some rights in the premises.

The mails carried on electric railways had never paid their way. The whole drift of the argument at the sessions held through the summer was that the railroads merely wanted fair play for a fair service. Mr. Bamberger at Salt Lake City had said that he would not consider mail service at present rate, but that he would gladly do so at fair rates and under proper regulations. This was the crux of the whole matter. In referring to a specific instance, Mr. Ashbaugh said that the Connecticut Company had stopped its railway mail service. That company had been paid \$6,000 a year by the government for the service, and the postmaster was now paying \$18,000 a year for the same kind of service by other means. Mr. Ashbaugh went into a long disquisition about the handling of mails in cities and the inconvenience which resulted to passengers. He said there was no authorization for side and terminal service, but that the electric railways had been called upon to perform a great deal of such work. This side and terminal service was much more costly to the electric railways than was similar service to steam railroads.

The Eastern Massachusetts Street Railway had been relieved of such work by the Post Office, but only because its men had threatened to strike. One of the commissioners asked if there would be any objection to side and terminal service if it was adequately paid for. In reply Mr. Ashbaugh said that the railways had no objections to performing this service if the companies had control of the work. The companies wanted only what they actually paid out for this kind of service.

Mr. Ashbaugh contended that the Post Office had burdened the electric railways by their appeal to farmers and others to ship by mail. In consequence, legitimate express business had been reduced considerably. Mail trains were used to put this class of matter through to terminals to the detriment of regular business of the railways. On passenger cars the electric railways were willing to carry three pouches of 50 lb. each. If the car facilities would permit, the companies would be willing to carry seven pouches. They were, however, opposed to carrying mail sacks during rush hours. The electric railways wanted to co-operate with the Post Office Department. Mr. Ashbaugh also cited the specific case of unreasonableness by the Post Office Department in Kansas City. In Indianapolis parcel post had been given precedence over all other matter, and the companies there had been deprived of the express business.

Mr. Ashbaugh said that the mails should be carried under reasonable regulations and the pay should be three times what it was at present. The electric railways wanted a rate for passenger cars covering the cost of operation plus a return on the equipment used in the service.

Baltimore, Kansas City and Omaha were the only cities that still had independent mail cars. An electric railway could not be properly paid at weight for a haul of, say, 1.5 miles. Mr. Ashbaugh said that to his knowledge copper, salt, sugar and other commodities had been shipped by parcel post, thus making the

service a nuisance to the railway. The specific rates of pay suggested by the electric railways were referred to on pages 57, and 59 of the brief of the railways. In Kansas City, the Kansas City Railways was paid \$25,000 a year for independent mail operation. Mr. Ashbaugh said that the cost for motormen and conductors alone in that city was \$5,000 or \$6,000 more per year than the operating income. For the year 1919, the electric railways asked retroactive pay at three times the present rate.

Mr. Ashbaugh pleaded for experimental service at the new rate for a period of six months. The electric railways were entitled to retroactive pay. In conclusion, Mr. Ashbaugh said that it was not worth the time of the electric railways to go into the matter if the brief of the Post Office Department represented what the department considered as a fair statement of its side of the case.

Exhibits bringing the matter down to the latest date were introduced as documents 156 and 157. The rates proposed by the Post Office Department viewed operating costs in the wrong way.

#### MR. STEWART SPEAKS ON BEHALF OF POST OFFICE DEPARTMENT

Mr. Stewart for the Post Office department reviewed the recent Post Office legislation. He said that the parcel post act had been passed by the Congress after a country-wide agitation. Congress knew what it was doing. The rates were fixed, and the conditions were generally known. The Post Office Department acted merely in an administrative way. All this legislation, however, was past history. The Post Office department was a servant of the people. The postmaster has some discretion, but he worked under the rules laid down by the statutes. No officer of the department so far as Mr. Stewart knew, had ever sought to justify the payments made to the electric railways. The policy of the department had been to relieve the companies of side and terminal service. In many cases the electric railways had appealed for relief to the local post office instead of going direct to the department. Mr. Stewart said that where appeal had been made direct to the department, the disposition was to correct the matter complained about.

At this point, Mr. Ashbaugh repeated that even where appeal had been made direct, relief had not been forthcoming. Mr. Stewart said there might be some such cases, but that the disposition of the department was to be fair. He admitted the absurdity of some of the present rates. When testimony was being taken throughout the country in the present case many things were disclosed that had not previously been known to the Post Office. According to Mr. Stewart there had never been a time when all the companies had come before Congress. In 1916 and 1918, however, Congress did act. At present the necessary machinery for a satisfactory adjustment of the matter is in existence.

Mr. Stewart then said there were three classes of service, city, suburban and interurban, and then described them and the basis of the present pay. He said there were 279 routes at the 3-cent rate and nineteen at the 4-cent rate. There was much misunderstanding about the 4-cent rate. He said that it would naturally appear that all lines would think they were entitled to the extra rate. Haulage must be very heavy and the number of points must be great to justify any

increase in rate. Nineteen electric railways were on the steam railroad rate basis of pay. The carrying of the mails was an incidental service to the electric railways. In fact, in most cases it was so incidental that it was usually coupled up with other service, such as freight. He said that some of the electric railways wanted steam railroad line rates, claiming similarity to steam railroad service. In this they were not justified. Mr. Stewart contended that the evidence of the carriers was persuasive and suggestive but not conclusive. He thought the reports on file with the Interstate Commerce Commission ought to be taken as a basis for cost rather than facts brought out at hearings. Defects were radically apparent.

The government was ready to take up side and terminal service. The department was also willing to cooperate with respect to the character of the mail. The Post Office had tabulated I. C. C. records for nineteen carriers that submitted general statements and had concluded that the figures of cost were too great. The matter of compensation by the Post Office department was one of deduction. If a loss were involved to the carrier in any particular case, the carrier should receive more. He did not think the commission had any retroactive authority.

In rebuttal, Mr. Ashbaugh said that the trouble with the conclusions of the Post Office Department was that it had taken such figures as would get a low rate and fortifying itself with testimony here and there, had come to the conclusion that the rates should even be reduced. It was difficult, he said, to determine the pouch compensation on passenger cars but it was not difficult to determine the compensation for the individual car. In Baltimore, Kansas City and Omaha, the companies operating individual cars paid out more for wages and actual operation than they receive as compensation, not taking into consideration overhead and other charges. It seemed to him that when the government had not offered any other testimony than that of Mr. Prentiss, apparently prejudiced, the Post Office had not proved its case.

#### ABSTRACT OF RAILWAY BRIEF WHICH WAS PRESENTED BY MR. ASHBAUGH

Mr. Ashbaugh in his brief, which consisted of seventy-nine printed 6-in. x 9-in. pages, reviewed the situation, covering in detail the issue involved, side and terminal service, pouch, sack and parcel post in both city and interurban service, cost of operation in city and interurban service and proposed compensation for services rendered. He also took up the cost of operation of independent and apartment car service and proposed new rates of compensation.

The electric railways as outlined in the brief—asked:

*First.* That the rule of the Post Office department—requiring the railway companies to perform side and terminal messenger service be wholly abrogated.

*Second.* That the Postmaster General be directed to pay to each electric railway such sums of money as have since July 1, 1916, been paid out directly by it in compliance with the order to perform such service, and to charge the same as a part of the expenses of the fiscal years respectively.

The basis and rates proposed and urged for pouch, sack and parcel post service on both city and interurban lines by the electric railways are:

*Rate 1.—Closed pouch and sack service.*—Basis to be three pouches or less on one passenger car, except by agreement with the railway. Each loose parcel if carried to be counted as one pouch or sack, each pouch or sack, or loose parcel over three, counted together, carried under agreement on one passenger car at one time, is to be transported at one-half the rates given per pouch. The minimum annual compensation for any route to be \$300.

Length of route	Rate per Pouch or Sack
3 miles or less.....	20 cents
Over 3 and less than 6 miles.....	22 cents
Over 6 and less than 8 miles.....	23 cents
Over 8 and less than 10 miles.....	24 cents
Over 10 and less than 12 miles.....	25 cents
Over 12 and less than 14 miles.....	26 cents

For each additional 2 miles or fraction thereof, 1 cent increase per pouch.

*Rate 2.—Parcel Post on Express and Freight Cars.*—Rate to be 75 per cent of that proposed for closed pouch sack service on passenger cars. The limit of weight for any single piece to be 70 lb. The weights of pouches and sacks for Rates 1 and 2 shall not be more than 50 lb. and their dimensions shall not exceed—

Pouches (Cylindrical)	Sacks (Rectangular)
No. 2....15 x 36 in.	No. 1....11 x 19 x 32 in.
No. 3....12 x 30 in.	No. 2....11 x 18 x 20 in.
No. 4....11 x 22 in.	No. 4.... 8 x 13 x 15 in.

*Rate 3.—Independent Cars.*—A rate of 2.5 cents per linear car foot mile, plus an annual charge of \$500 per car was suggested.

*Rate 4.—Apartment Cars.*—A rate of 2.5 cents per linear car foot mile, plus an annual charge of \$250 per car was proposed.

### Publicity Bureau Assumes New Duty

THE Illinois Committee on Public Utility Information which was inaugurated about April 1, 1919, under the auspices of the Illinois Gas Association, the Illinois State Electric Association and the Illinois Electric Railways Association, has been obliged to form a new department to meet requests for reliable public utility information from public schools, universities and colleges of the State, as well as from civic organizations, commercial clubs and public speakers. This department will furnish information dependable both scientifically and historically free of charge, but will take no part in controversies, or controversial subjects.

Since the formation of the committee all classes of public utility information has been collected and indexed for the use of the various utilities throughout the State, and a weekly bulletin has been sent out to hundreds of newspapers with the idea of keeping the public utility conditions constantly before the public, and through the columns of the newspapers to educate the public to the financial needs of the utilities and to the magnitude of these industries.

A series of informational bulletins is now being issued also for school purposes, and supplementing this the committee is having prepared authoritative brochures upon each branch of the utility industry. The school bulletins are being prepared with the idea that they may be used by debating societies and in English and current topic classes. The scope and importance of the work may be gaged by the fact that 345 public school principals in Illinois as well as universities and colleges have requested the Illinois Committee to send them copies of these bulletins.

## Reinforced Suspension for Sheet-Steel Gear Cases

By Interlocking and Welding Together the Sides, Cover and Reinforcements, a Channel-Shaped Suspension Is Built Up To Provide Increased Strength

THE use of sheet steel for gear cases came into favor in the campaign that was started several years ago to reduce the weight of electric cars. Manufacturers of railway motors were anxious to comply with their customers' demands for lighter equipments, and the malleable iron gear case in use at that time appeared to offer a fruitful field for reducing weight.

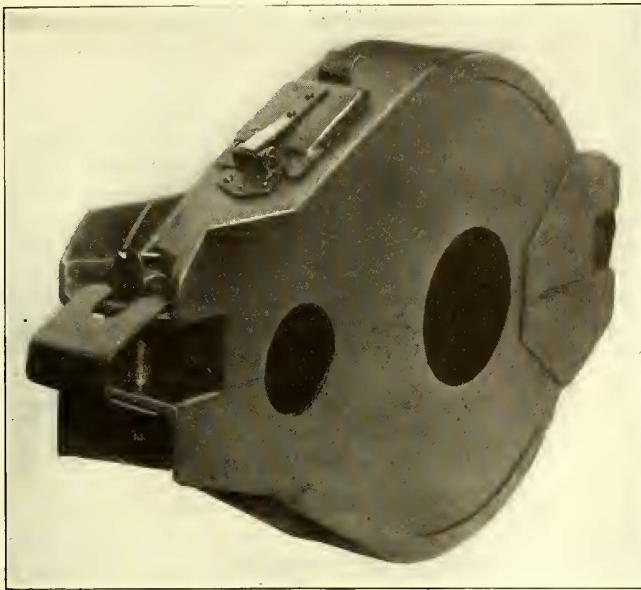
In design and construction the sheet-steel gear case has presented problems that were not thought of with the old malleable iron type. A gear case for an electric railway motor must of necessity be overhung and supported from the end of the motor. The necessary



SPOT WELDING REINFORCEMENT TO GEAR CASE

brackets or lugs for effecting this support are subjected to severe shocks and stresses from the jolting of the car over crossings, special track work and track in run-down condition, and often receive severe blows from the pavement or roadbed when clearance is small. The severity of these conditions is the determining factor in the life of gear cases and they must be designed so as to withstand the most severe conditions.

The method of suspension and the construction of the suspension members of gear cases have an important bearing on their ultimate life. The two-point end suspension which is now universally used with late-type railway motors, throws less strain on the gear case and its supports. This comes about through the increased flexibility provided for the case, effective if it should strike an obstruction, and through the elimina-



A COMPLETED GEAR CASE

tion of excessive lateral vibration. The accompanying half-tones show the latest type of gear case as constructed by the Columbia Machine Works & Malleable Iron Company, which illustrates the points made above. Several new features have been incorporated in its design to overcome the trouble of breakage at the points of support. Increased strength at these points is obtained by extending the sides and cover so as to form the suspension members and reinforcing these with sheet-steel brackets and plates so shaped as to interlock with the sides and cover. By spot-welding all parts together and by additional welding along the entire edges a strong construction is obtained.

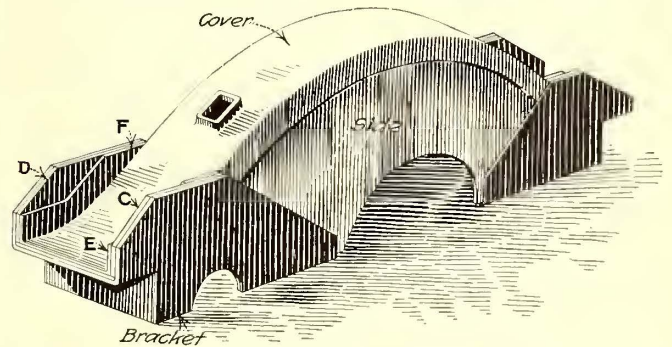
All parts are punched from sheet steel and are then bent to the shape desired. The two sides of each half of the gear case are split at the suspension ends. The bottom parts of these end portions are turned inward

as indicated at *A* and *B* in the illustrations. These turned-in portions abut against each other in the assembled case and increase the strength as well as effectively closing the ends to keep out dirt and water. The upper portions of the ends *C* and *D* are left extended so as to serve as supports for the case when assembled.

The cover is notched and bent so as to provide flanges in two directions along the edges. The flanges of the center portion extend down and outside the side members and are fastened to them by welding or riveting. At the ends the flanges are bent up as indicated at *E* and *F* and fit inside the sides.

As a reinforcement to this end construction of the sides and cover a bracket is employed which extends back along the sides of the gear case and crosses over underneath the end portion of the cover. This bracket is made in one piece as indicated in the accompanying illustrations. By splitting the bracket near the end, the sides are turned up leaving a channel shaped support as a reinforcement for the suspension. An insert plate is fitted across the end between the cover and the bracket so that three thicknesses of metal are provided at this point.

After the various parts are assembled and welded to-



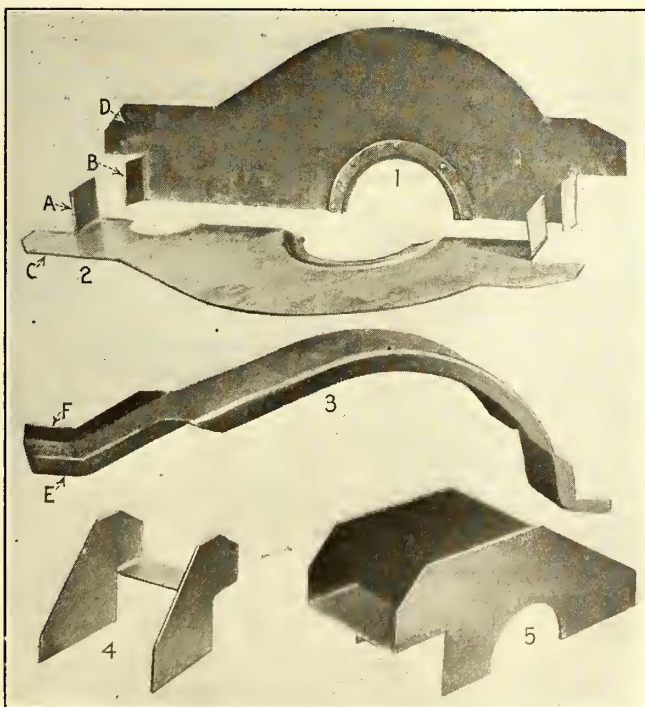
DETAILS OF GEAR CASE

gether, the suspension ends of each half of the gear case take the form of a channel-shaped support which has three thicknesses of steel on each side and across the end. As the sides and top are extended to form this channel the weight of the gear case and any strains resulting from vibration or shock are transmitted through uninterrupted supports and not through joints which may loosen at seams or through the shearing off of rivets.

The construction of the suspension for the two halves of the gear case and for each end is substantially the same with the exception of the shape and dimensions of the parts concerned. Safety straps are provided at each end to support the lower half of the gear case should the nut come off the connecting bolt.

### Volt-Ammeter for Signal Maintenance

A new form of volt-ammeter especially designed for signal engineers, supervisors and other work where a highly accurate instrument is not considered warranted has recently been placed on the market. The Roller-Smith Company, New York City, has brought out such a little instrument, which weighs 20 oz. and is only 5 x 4 x 2 in. in dimensions. This is a direct-current instrument with uniform scale division, and "dead beat" needle characteristics. It has a simple zero adjuster and is entirely self-contained.



PRINCIPAL PARTS OF GEAR CASE

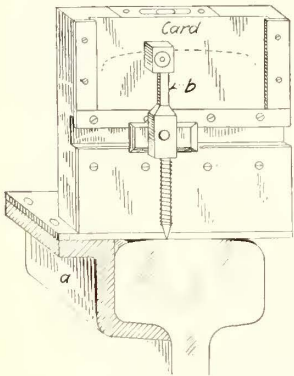
Nos. 1 and 2, sides; No. 3, cover; Nos. 4 and 5, reinforcements

# Making Accurate Measurement of Rail Wear

## Description of an Instrument\* to Provide a Means of Plotting the Outline of the Surface of a Rail While in Position in the Track

BY ALEXANDER D. FERGUSON  
A. M. E. I. C.

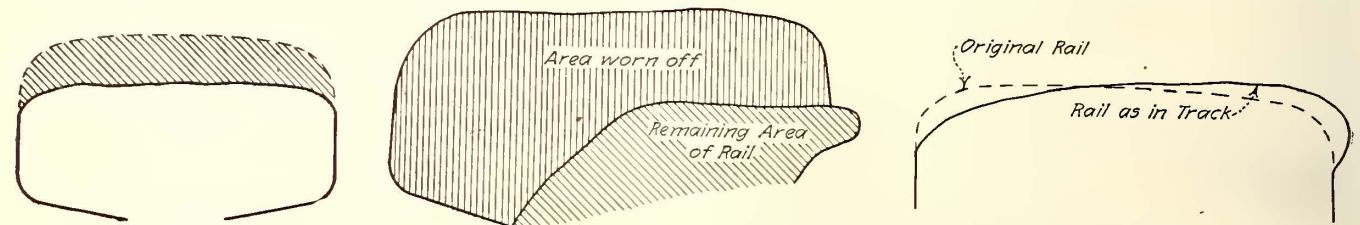
**D**URING the appraisal of the properties of the Winnipeg Electric Railway and subsidiary companies, it was necessary to determine the depreciation of the tracks, especially in regard to rail wear. After a complete inventory of the track had been finished, it was decided that an accurate measurement of the wear should be made. This measurement was rendered particularly difficult as the rails were set in strong sets. To measure the rail wear accurately without necessitating the removal of these sets, the writer devised the instrument shown in an accompanying sketch, which consists essentially of a framework on which is mounted a vertical rod, the lower end of which is pointed and the upper end provided with a block for holding a pencil. Horizontal movement of this vertical rod takes place by having a support which operates in a slot across the instrument. For holding the instrument in position a casting is provided at the bottom which fits against the underside of the rail head. A level gage at the top shows when the instrument is level.



INSTRUMENT FOR RECORDING GRAPHICALLY THE SURFACE OF A RAIL

The instrument is set, as indicated in the accompanying illustration, by means of set screws. A plain card is inserted in the card rack at the top of the instrument and a pencil record of the top of the rail section is obtained by moving the movable portion horizontally across the instrument, free vertical motion being had at the same time. The pencil records an exact tracing of the top of the rail as it is in the track.

This operation is repeated on a new rail section of the same weight as the one first measured, using the same card, so that the new rail surface will be superimposed on the first as indicated in the second illustration. The



AT LEFT, REGULAR WEAR OF RAIL SECTION: CENTER, WEAR FOUND ON 70 LB. A.S.C.E. OUTER RAIL ON A CURVE; AT RIGHT, SECTION OF 60 LB. A.S.C.E. RAIL, SHOWING ROLLING ON OUTER PORTION

shaded area between these two lines represents the rail wear and a record of it can be accurately taken off by a planimeter.

In the course of making the measurements referred to, many interesting charts were obtained. Three of these

\*Other similar types of rail head scribers were described in issues of the ELECTRIC RAILWAY JOURNAL for Nov. 20, 1915, page 1042, May 12, 1917, page 876 and March 22, 1919, page 592.—Eds.

are shown herewith and illustrate to a very marked degree the unexpected wear that is obtained in some cases, especially on curves.

This instrument has proved invaluable for appraisal work of this character, and the writer believes that its use would be of value to companies for making a record of track conditions over their systems. Such a record could be arranged to show the rail wear at certain specified points, and by taking these measurements at convenient intervals a record of the rate of rail wear would be obtained. A graphic representation of the condition of the track could also be arranged without considerable difficulty.

At present the instrument has been used only on T-rail sections, but it can be readily remodeled for use with girder sections.

## Losses Due to Combustible in Refuse

**A**MONG the many valuable reference charts prepared by the engineers of the Westinghouse Electric & Manufacturing Company, particularly for use in connection with boiler-room practice, the accompanying illustration is very instructive in showing how the combustible in the refuse carries off energy that should be

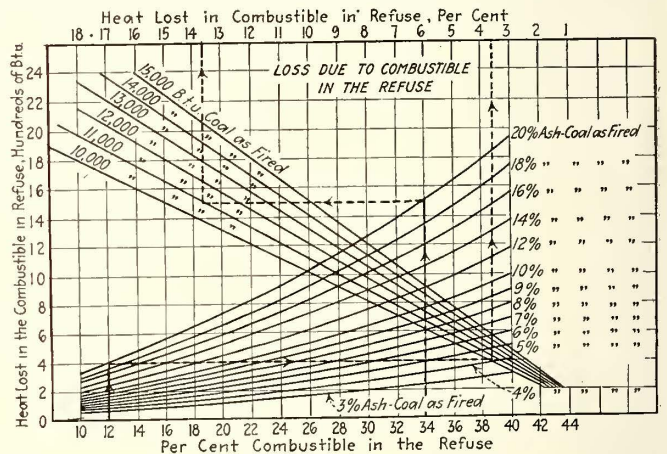


CHART FOR CALCULATING EFFECT OF ASH IN COAL

utilized. Two examples of the use of the chart are indicated by the heavy lines with arrow heads. In Case 1, starting with 12 per cent combustible in the refuse, and assuming 20 per cent ash in coal and 11,000 B.t.u. per pound in the coal as fired, the percentage of heat in the combustible works out as about 3.7. Similarly, 34

per cent combustible in the refuse with the same coal shows 13.6 per cent of the heat to be lost in the combustible in the refuse.

The basis of calculation of the chart is this:

Let  $x$  = per cent of coal as fired, and also the weight of ash in 1 lb. of coal as fired.

$y$  = per cent of combustible in refuse.



Then the per cent of ash in the refuse is  $1-y$ , and the ratio of combustible to ash is  $y \div (1-y)$ .

Since from 1 lb. of coal there is in the refuse a weight of ash equal to the weight of ash in the coal as fired (neglecting the ash carried over into the boiler) the weight of combustible in the refuse is

$$\frac{y}{1-y} \times x.$$

The combustible in the refuse may be considered as carbon, of which the thermal value is 14,550 B.t.u. per pound. Then the number of heat units lost per pound of coal is

$$\frac{y}{1-y} = x \times 14,550.$$

The per cent loss, referred to the coal as fired is

$$\frac{x \times y \times 14,550}{(1-y) \times B. t. u. \text{ in coal as fired}}$$

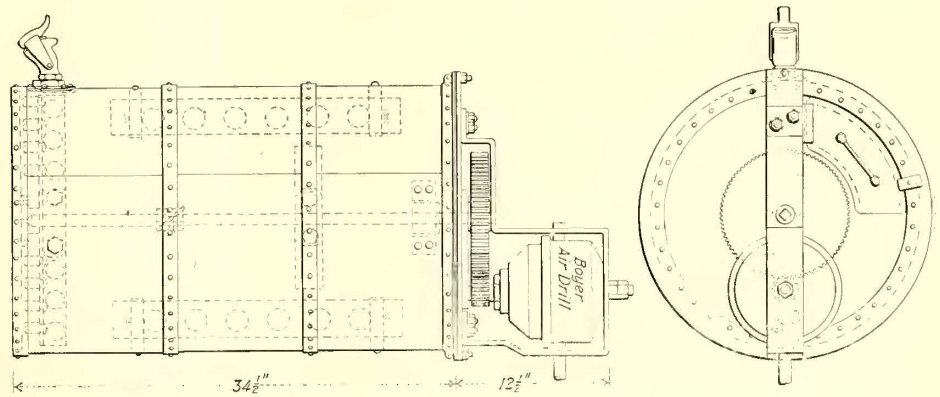
## Paint Mixer Driven by Remodeled Air Drill

By Using a Self-Contained Device Driven by an Air-Drill Mechanism, Paint-Mixing Has Been Made Attractive in Brooklyn

THE mixing of paint for car painting is considered as a somewhat tedious job, especially when it is necessary to perform the various operations by hand. For several years the Brooklyn Rapid Transit Company has had paint mixers operated by central broached shafts upon which an ordinary controller handle was fitted to rotate the interior parts. These tanks were of sheet-iron construction with riveted bands, and were  $34\frac{1}{2}$  in. long by approximately 2 ft. in diameter. Their capacity is 50 gal. each. The construction of the interior stirring mechanism is shown in an accompanying illustration. Two baffle plates extend out from the sides of the tank. These are  $23\frac{3}{4}$  in. long by 3 in. wide and are perforated with 6 holes,  $1\frac{1}{4}$

in. in diameter. The center paddle shaft is  $1\frac{1}{4}$  in. square, except at the points which are used as bearings at the top and bottom. The bottom is turned down to 1 in. diameter and rests in an angle iron support. The top bearing is  $1\frac{1}{16}$  in. diameter, and consists of a hole in a flat piece of strap iron. The center paddles are mounted on this shaft and the construction of the center portion is arranged to clamp the square part of the shaft firmly.

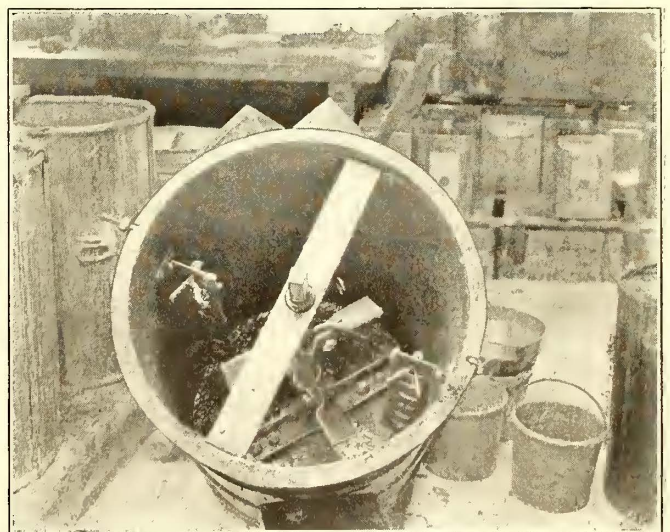
As already stated, the first construction of these paint mixers provided for hand operation by the use of an ordinary controller handle. In an endeavor to reduce the tediousness of the operation and make paint-mixing more attractive, the assistant superintendent of the Fifty-second Street "surface" repair shop conceived the idea of using the mechanism from a Boyer air drill to drive the paint-mixing paddles. This air drill is mounted in a strap-iron framework, and arranged to drive the rotating paddles through a pinion and gear. This is necessary in order to provide for the best operating speed of the air drill, and at the same time insure against too rapid stirring. The air-drill frame is constructed of strap-iron  $\frac{3}{8}$  in. thick by 3 in. wide. The air drill pinion and gear are so mounted in this that the entire driving mechanism is self-contained. The base strap which fits to the top of the tank extends over the edges and is slotted to receive two latches. These latches consist of a threaded I-bolt and nut. The center of the gear is broached to fit the top of the driving shaft, and the entire driving mechanism can be readily lifted off and fitted to another tank as desired. An air connection



AIR DRILL DRIVING MECHANISM FOR PAINT MIXER



GROUP OF PAINT-MIXING TANKS



INTERIOR OF PAINT-MIXING TANKS

is provided convenient to the stand on which the paint mixers are located, and a short length of hose will reach any tank and provide for the operation of the air-driving mechanism. One air-driving mechanism thus serves for all of the tanks and the man in charge can perform other duties at the same time that the paint is being mixed.

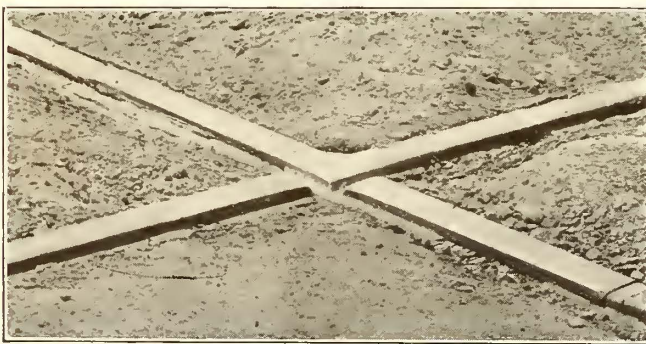
As evidence of the effectiveness of this mixer, it is possible to break up and prepare for use 265 lb. of white lead and color pigment together with 17 gal. of oil turpentine and japan after one hour's mixing.

## Milwaukee Thermit-Welded Crossings Are Long-Lived

Crossings Are Welded in Company's Shops in Halves to Facilitate Handling and Reduce Number of Welds Required in Field

**M**ARKED savings, both in lower first cost and longer life, have been effected by the Milwaukee Electric Railway & Light Company in reclaiming old and building up new crossings by means of thermit welding, as compared with installing new special work. This company, which was the pioneer railway to make Thermit welded crossings, has installed a considerable number of them in Milwaukee. A recent inspection showed that, after service tests extending in some cases for more than five years, these crossings are standing up in fine shape.

The Milwaukee method of making up a double-track square crossing without bolts or joints is shown in one of the accompanying illustrations. The two halves of the crossing were first separately built up at leisure at the railway shops in order to facilitate handling and reducing the number of welds to be made in the street. The half-crossings were constructed by building up each component cross by Thermit welding, thus requiring eight welds for each half-crossing. These halves were then transported to the job, thus leaving only four

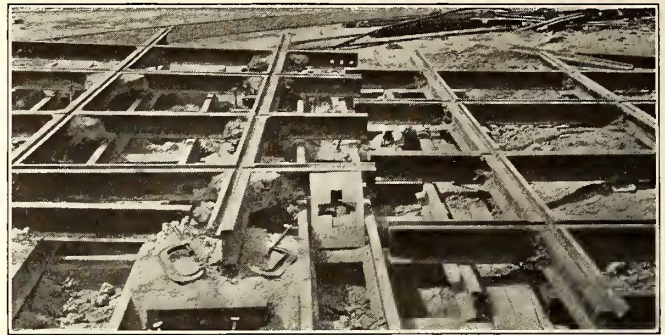


THERMIT FROG AFTER FOUR AND ONE-HALF YEARS SERVICE

remaining joints to be welded to complete the crossing, in addition to the sixteen welds which connected the crossing to the adjoining ordinary track.

Another illustration shows a series of chrome-nickel electric-steel frogs welded by the same company into a half-crossing. It will be noticed in this case that the rail arms of different unit frog pairs were welded together instead of the crosses themselves, so as to form a half-crossing from four units.

The third illustration shows another Thermit-welded frog in Milwaukee, where the 4½-year service test speaks for itself. The frog was installed in April, 1915,



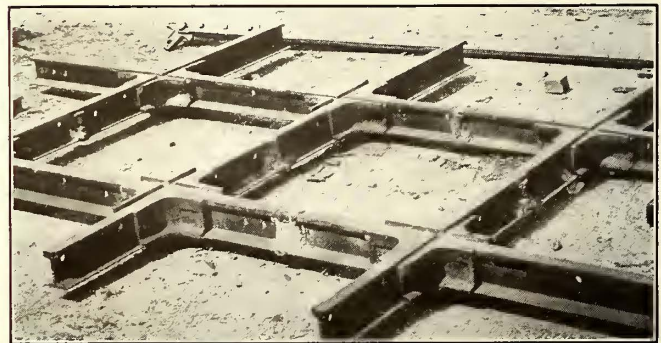
DOUBLE TRACK SQUARE CROSSING MADE IN HALVES WITHOUT JOINTS

in a crossing over which double-track cars were operated at from a one-half to a three-minute headway. In April, 1917, this frog was removed from the crossing and installed in another crossing to replace a broken cast-steel frog which had been installed in 1915, the same date as the original installation of the Thermit frog.

The cost of building up double-track crossings by Thermit welding averages around \$30 to \$40 per frog, including cost of rail, labor and welding material, or about \$480 to \$640 for the complete crossing.

## Measuring Boiler Draft Conditions

**M**UCH desirable information regarding the working of boilers can be obtained from an accurate knowledge of draft conditions. Thus a knowledge of the difference of pressure above and below the grate will aid in obtaining the best results from any particular class of fuel. Similarly, an increase in the pressure difference between the combustion chamber and the dampers will indicate that the boiler is becoming dirty. Draft measurements can of course be obtained by means of U-tubes connected to suitable points.



CHROME-NICKEL ELECTRIC STEEL LAYOUT WELDED INTO HALVES

These readings, however, are often rendered unreliable as evaporation and condensation vary the quantity of water present in the tube.

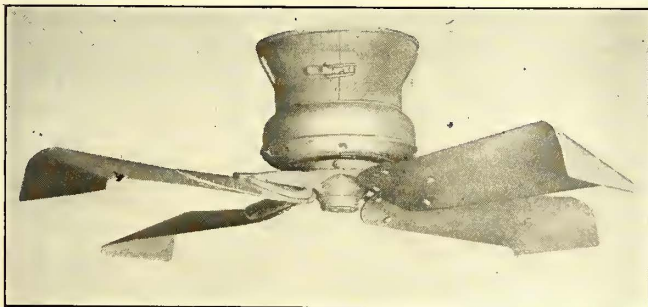
Among the newer draft indicators is one recently placed on the market by the Underfeed Stoker Company, Ltd., of Coventry House, South Place, London, England. This instrument gives accurate direct readings without the use of mechanism. The units are inclosed in a dust-tight case provided with a plate glass window. Each unit consists of a central glass tube connected at its upper end to the point at which it is desired to measure the pressure. The lower end of this tube

is open and dips into a large test-tube which is about half-filled with water and surrounds the central tube for the greater part of its length. To overcome the objection to a form of scale which will be affected by evaporation of the water and by condensation of the vapor, a floating scale in the form of a hydrometer tube is employed in the instrument. This scale, which is divided into inches and tenths with a central zero, is inclosed in a glass tube weighted so that it will float vertically in the water with the zero of the scale at the water level. This float tube rises and falls with the water in the tube so that the position of the surface of the water in the outer tube relatively to the floating scale is at all times a reasonably accurate measure of the pressure in the central tube. The float tube is kept central and prevented from adhering to the inner tube by a number of projections formed on the glass.

### 4000 Fans Ordered for Subway Cars

THE New York Municipal Railway Corporation recently placed an order for 4000 fans to be used in ventilating its subway cars, with the General Electric Company, Schenectady, N. Y. These fans are especially designed for railway service, which requires a particularly rugged construction to withstand shocks, jolts, and current surges resulting from gaps in the third-rail. The general outline and surfaces of the fan have to be smooth, also, in order to minimize the collection of dust and dirt and facilitate cleaning.

Each car is equipped with five single-coil fans connected in series across the line. The maximum line voltage specified is 750, the minimum 450, with an



SINGLE-COIL-TYPE 38-IN. CEILING FAN FOR N. Y. M. SUBWAY CARS

average of 575. Each fan is wound for 115 volts, and the watt-input is not to exceed 150. The speed of these fans is approximately 300 r.p.m. They will deliver air at a maximum velocity of 500 ft., measured 3 ft. below the center of the blade, and at a maximum of 300 ft. when measured 3 ft. from the floor of the car. This air velocity is required when operating under a normal voltage of 575.

The motor frame is designed for direct attachment to the car ceiling and, as already stated, crevices and external surfaces are eliminated to provide for convenient cleaning. A metal canopy completely incloses the top part of the motor, which contains the commutator brushes and brush rigging. All leads and connections inside the motor are securely anchored to prevent movement due to the vibration of the car, and all screws are provided with lock washers to prevent them from working loose. Both field and armature windings are made

with pre-treated cotton-covered enamel wire, thoroughly impregnated and baked with insulating varnish. Each motor has four steel poles and the field windings are series connected with the drum type armature. The commutators are slotted to a depth of 3-64 in.

The armature rotates on hardened steel thrust bearings completely immersed in oil, and the stationary shaft is lubricated by means of a spiral groove on the armature spider. A drilled hole in the spider casting provides for the return of oil to the main reservoir; consequently there is a continuous lubrication of the bearing. The motors can be readily oiled by removing the blade holder. All fans are finished in white enamel with nickel-plated trimmings to harmonize with the car interior.

## Association News

### American Executive Committee Approves Increase in Dues

A MEETING of the executive committee of the American Association was held at headquarters on Dec. 2 with First Vice-president Richard McCulloch in the chair, President J. H. Pardee being out of the country. Besides the chairman there were present C. Loomis Allen, W. I. Bartholomew, E. B. Burritt, J. K. Choate, W. H. Collins, Thomas Finigan, S. B. Hare, General George H. Harries, C. L. Henry, I. A. May, J. D. Mortimer, L. S. Storrs and T. S. Williams.

The principal business before the meeting was consideration of the proposed increase in dues. Plans for increasing the income of the association to meet the greatly augmented expenses had been prepared by a committee of which P. J. Kealy is chairman. After full discussion it was decided to submit to the mid-winter meeting a plan for a scale of dues for railway members, based on a minimum fee of \$50 with a maximum fee of \$2500 and a graduated scale between. For the year 1920, it is proposed that the dues be \$50 plus the factor 0.0002 multiplied by the gross income; and for the year 1921 and thereafter, \$50 plus the factor 0.00025 times the gross income. It is further proposed that payments be put on a quarterly or semi-annual basis if possible. Appended is a draft of the sections of the constitution as it is proposed to amend them to provide for the new scale.

The committee also discussed the matter of enlarged quarters for the association, but deferred action until the January meeting.

Secretary Burritt submitted a financial statement covering the association's fiscal year ended Oct. 31, 1919, which showed a gross income of \$115,411 and gross expenses of \$119,339, and this was approved.

The mid-winter dinner and meeting then came up for attention, and the program committee, through J. D. Mortimer, chairman, outlined the plan for the meeting. The meeting and dinner will be held at the Hotel Hollenden, Cleveland, D. B. Dean being chairman of the dinner committee. Local committees have already been appointed in Cleveland.

The question of the I. C. C. hearing on electric railway mail pay to be held on Dec. 6 was then discussed. Among other items discussed, but without definite

action, were co-operation between the association and interurban railways in promoting express traffic, the publication of a directory of manufacturer members and their products together with a list of electric railway officials and a possible association employment exchange, Mr. Mortimer then gave a short summary of the brief prepared by the committee of 100 covering its testimony presented before the Federal Electric Railways Commission in the Washington hearings. This brief was prepared by Bentley W. Warren, counsel for the association during the hearings.

INCOME AND EXPENSE STATEMENT  
ONE YEAR ENDED OCT. 31, 1919

<b>Revenues</b>		
Admission fees:		
Railway companies.....	\$ 200.00	
Manufacturing companies.....	880.00	
		\$ 1,080.00
Annual dues:		
Railway companies.....	\$42,193.50	
Manufacturing companies.....	9,818.50	
Individuals.....	1,431.00	
		\$53,443.00
Miscellaneous income		
Interest on deposits.....	\$ 324.58	
Interest on investments.....	131.79	
Sale of year book and proceedings.....	162.53	
Sale of "Engineering Manual" and binder.....	81.30	
Sale of "Cost of Urban Transportation Service".....	35.00	
Sale of "Bibliography on Valuation".....	5.00	
Sale of miscellaneous pamphlets.....	208.68	
Sale of convention exhibit space.....	27,998.55	
Sale of dinner tickets.....	7,495.00	
		\$36,445.43
<b>Aera:</b>		
Advertising.....	\$15,630.39	
Subscriptions:		
Railway companies.....	3,494.00	
Manufacturing companies.....	1,569.00	
Individuals.....	954.00	
Company section members.....	2,579.96	
Paid subscriptions.....	170.27	
Sale of extra copies.....	40.85	
Sale of binders.....	4.25	
		\$ 24,442.72
		\$115,411.15
<b>Expenses</b>		
<b>American Association:</b>		
Salaries.....	\$29,371.71	
Rent.....	4,562.06	
Postage.....	3,157.97	
Office supplies and expenses.....	1,514.30	
Express.....	73.02	
Telephone and telegraph.....	3,050.83	
Stationery and printing.....	4,190.06	
Repairs to furniture and equipment.....	68.10	
Traveling expenses of secretary.....	1,134.35	
Traveling expenses of special engineer.....	106.62	
General expense.....	1,963.80	
Exchange.....	104.04	
1918 Conference.....	62.85	
Miscellaneous pamphlets.....	1,596.69	
Mid-Year meeting.....	630.54	
Mid-Year dinner.....	6,109.90	
"Engineering Manual" and binder.....	242.21	
Proceedings (Engineering Association).....	225.58	
General convention expense (1919).....	9,500.23	
Convention exhibit expense (1919).....	17,320.89	
Convention entertainment expense (1919).....	3,203.67	
Executive committee.....	422.23	
		\$88,911.55
<b>Aera:</b>		
Salaries.....	\$12,203.27	
Postage.....	165.03	
Rent.....	678.00	
Telephone and telegraph.....	367.49	
Miscellaneous.....	71.50	
Discount.....	199.22	
Traveling expenses of staff.....	1,903.00	
<b>Magazine expense:</b>		
Printing.....	\$8,973.98	
Paper.....	3,236.97	
Cartage.....	32.43	
Mailing.....	558.33	
Cuts.....	486.65	
Express.....	38.46	
Binding.....	60.00	
		\$28,974.33
<b>Claims Association:</b>		
Hooper Holmes Bureau.....	\$ 1,424.85	
Expenses of representative attending executive committee.....	14.00	
		\$ 1,438.85
<b>Accountants' Association:</b>		
Expenses of representative attending meeting of National Association of Railway and Utilities Commissioners.....	\$ 14.00	
		\$ 14.00
		\$ 119,338.73

PROPOSED REVISED FORM OF SECTION XIV—FEES

XIV. (a) Companies seeking company membership in the Association shall pay an admission fee of \$10.

(b) Railway company members shall, for the year beginning Nov. 1, 1919, pay in advance, annual dues in accordance, except as to minimum and maximum, with the amount of their gross earnings from electric railway operation, during the preceding fiscal year of the respective members as follows:

Companies having gross receipts of \$50,000 or less, shall pay fifty dollars (\$50) per annum; companies having gross receipts of more than fifty thousand dollars (\$50,000) shall pay fifty dollars (\$50) plus 0.0002 times their gross receipts per annum provided that no company shall be called upon to pay more than \$2,500.

For the fiscal year beginning Nov. 1, 1920, and thereafter railway member companies shall pay in advance annual dues in accordance, except as to minimum and maximum, with the amounts of their gross earnings from electric railway operation during the preceding fiscal year of the respective members as follows:

Companies having gross receipts of \$50,000 or less, shall pay fifty dollars (\$50) per annum; companies having gross receipts of more than fifty thousand dollars (\$50,000) shall pay fifty dollars (\$50) plus 0.00025 times their gross receipts, provided that no company shall be called upon to pay more than \$2,500.

Manufacturer member companies shall for the fiscal year beginning Nov. 1, 1919, pay in advance, annual dues in accordance, except as to minimum and maximum, with the amounts of their gross earnings derived from the business of manufacturing or selling material or furnishing services to electric railways during the preceding fiscal year of the respective members as follows:

Gross receipts:	Rate
Under \$50,000.....	\$50
Between 50,000 and 100,000.....	70
Between 100,000 and 250,000.....	100
Between 250,000 and 500,000.....	150
Between 500,000 and 1,000,000.....	250
Between 1,000,000 and 2,000,000.....	450
Between 2,000,000 and 3,000,000.....	650
Between 3,000,000 and 4,000,000.....	850
Between 4,000,000 and 5,000,000.....	1,050
Between 5,000,000 and 6,000,000.....	1,250
Between 6,000,000 and 7,000,000.....	1,450
Between 7,000,000 and 8,000,000.....	1,650
Between 8,000,000 and 9,000,000.....	1,850
Between 9,000,000 and 10,000,000.....	2,050
Between 10,000,000 and 11,000,000.....	2,250
Between 11,000,000 and 12,000,000.....	2,450
Over 12,000,000.....	2,500

For the fiscal year beginning Nov. 1, 1920, and thereafter, Manufacturer member companies shall pay in advance, annual dues in accordance, except as to minimum and maximum, with the amounts of their gross earnings derived from the business of manufacturing or selling materials or furnishing service to electric railways during the preceding fiscal year of the respective members as follows:

Gross Receipts:	Rate
Under \$50,000.....	\$50
Between 50,000 and 100,000.....	75
Between 100,000 and 250,000.....	110
Between 250,000 and 500,000.....	175
Between 500,000 and 1,000,000.....	300
Between 1,000,000 and 2,000,000.....	550
Between 2,000,000 and 3,000,000.....	800
Between 3,000,000 and 4,000,000.....	1,050
Between 4,000,000 and 5,000,000.....	1,300
Between 5,000,000 and 6,000,000.....	1,550
Between 6,000,000 and 7,000,000.....	1,800
Between 7,000,000 and 8,000,000.....	2,050
Between 8,000,000 and 9,000,000.....	2,300
Over 9,000,000.....	2,500

# Bulletin News Page

Summary of the Principal Happenings of the Industry of Current Interest Since the Last Issue of This Paper Was Published

PRINTED DECEMBER 19, 1919

At the hearing before the Connecticut Public Utilities Commission on Dec. 8 and 9 on the zone fares charged by the Connecticut Company, the company produced evidence to show that during the first month of zone fares its revenue had increased \$128,000.

Dallas has recorded its first surplus under its new service-at-cost grant.

Abandonments of railway lines are announced from Idaho, Indiana and Louisiana.

Under the reorganization plan adopted by the Buffalo (N. Y.) Southern Railway the interest requirements have been cut from \$32,000 to \$6,000 a year.

The City Commission of Memphis, Tenn., has ordered the Memphis Street Railway to abandon the skip stop. The company has secured a temporary injunction restraining the city authorities from enforcing the order.

The Railroad Commission of California has confirmed the proposed changes in the plan for the reorganization of the Oakland & Antioch Railway. The attitude of investors toward electric railway securities made the change imperative.

The City Council of Oswego, N. Y., has authorized the Empire State Railroad to charge 7-cent fares in that city.

The Second Avenue Railroad, New York, has been unable even to pay the interest on its receiver's certificates. The holders of these securities are therefore asking for a receiver for the receiver.

The sale of the property of the ill-fated Southern Traction Company of Illinois under foreclosure has at last been confirmed.

The Cummins railroad bill laying down a general policy for the government with respect to the railroads will be rewritten. Electric railways are not included in the provisions of the measure.

Engineers reporting to security holders of the Chicago (Ill.) Elevated Railways see little hope for the company in the immediate future despite the present 8-cent fare.

The California Railroad Commission has denied the application of the Pacific Electric Railway for an increase in the rate for transporting petroleum and its products.

A municipal ownership referendum petition is being circulated in St. Louis, Mo.

The street railway commissioner of Youngstown, Ohio, has recommended the purchase of twenty-five one-man cars.

The suburban lines of the Detroit (Mich.) United Railway were damaged to the extent of \$250,000 in the recent severe storms in the Central West.

The Boston (Mass.) Elevated Railway has established a 5-cent fare on its line in Charlestown, Mass.

Pittsburgh's Mayor advocates that the present transit commissioner be displaced by a board of three with broader powers and jurisdiction.

The city of Ashtabula, Ohio, has purchased the local electric railway. The line will be operated under the direction of M. H. Turner, city manager.

The Columbus Railway, Power & Light Company, Columbus, Ohio, is preparing to ask for a 6-cent fare, according to a statement made on Dec. 12 by L. D. Hutchins, chairman of the board which is arbitrating differences between the company and its employees.

The Supreme Court of Massachusetts on Dec. 12 handed down two decisions in which municipal and state authorities were supported in their right to regulate jitney operation.

The Council of Detroit, Mich., has sustained Mayor Couzens in his veto of the procedure advocated by the local Street Railway Commission for the settlement of the local railway situation.

The Massachusetts anti-strike bill has been defeated. The committee on legal affairs of the House recommended such action. President Mahon of the Amalgamated Association opposed the measure.

The Minneapolis service-at-cost grant was defeated at the election on Dec. 9. There is much difference of opinion in regard to the reasons for the failure of the legislation.

The Canadian border towns opposite Detroit, Mich., have voted in favor of taking over the lines of the Detroit United System operated there.

The conference of Mayors, called by Mayor Couzens of Detroit, Mich., to be held at Toledo for the purpose of talking over the issues involved between the cities and the railway companies has been postponed.

Seven-cent fares went into effect on Dec. 1 on the lines of the St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo. The fare was formerly 5 cents. At the same time the trainmen received an increase in wages of 8 cents an hour.

A plan has been drawn up at conferences of the Public Service Commissioner of Greater New York, the Transit Construction Commissioner and representatives of the railways for eventual municipalization of the roads. The next step is to have the directors of the companies pass on the proposal. After that it is expected a formal proposal will be made to the city.

Stone & Webster report that even with an 8-cent fare there will be no surplus for the Interborough Rapid Transit Company, New York, before 1922.

The Pittsburgh valuation hearings have been closed by the Public Service Commission.

Another dividend has been passed. This time it is the Public Service Corporation of New Jersey. The payment is the one ordinarily made on Jan. 1 on the common stock of the company. President McCarter puts the losses of the company under the zone system at \$1,500,000.

Two million dollars is the amount at issue between the city and the company in the valuation proceeding involving the system of the Houston (Tex.) Electric Company.

The return allowed to the stockholders of the Cleveland (Ohio) Railway under the service-at-cost grant there has been advanced by arbitration from 6 per cent to 7 per cent.

The Public Service Railway of New Jersey began charging 7-cent fares on Dec. 7 under authority of the New Jersey Board of Public Utility Commissioners. One cent is charged for a transfer.

John Bauer, formerly chief of the bureau of accounts of the Public Service Commission, First District, has been appointed expert adviser on transit matters in the office of the corporation counsel of New York City.

The Cleveland (Ohio) Railways on Dec. 15 reduced its ticket rate from 11 tickets for 50 cents to six tickets for 25 cents. The cash fare remains at 5 cents.

# News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

## Municipalization Suggested

New York Companies Expected to Make Proposal to City Along Lines of Commission Suggestion

As a result of conferences held by Public Service Commissioner Lewis Nixon of New York City and Transit Construction Commissioner John H. Delaney with representatives of the local railways a plan has been drawn up for the settlement of some of the problems confronting the company. Included in it is a proposal to transfer title to the roads to the city. The matter now will go before the directors of the companies for consideration.

### TRANSFER OF TITLE TO CITY

In the proposal are contained many of the suggestions advanced publicly on previous occasions by Mr. Nixon. In substance the plan entails:

Transfer to the city of all titles held by the companies in railroad properties.

Guaranteed payment by the city of a reasonable rate of interest on fair appraisals.

Setting aside of 1 per cent for the purchase of the properties at the expiration of the thirty-eight years.

A sufficient increase in fares to meet these requirements.

All else connected with the plan are matters of detail, which it was agreed could be worked out if the companies agreed to relinquish control of their properties.

Mr. Delaney said there had been several conferences with representatives of the transit companies, and that Commissioner Nixon had been present at most of them. Mr. Delaney wanted it expressly understood that no proposal had been made by the companies, that what the city thought was the solution of the traction problem was set forth, and that if the concessions suggested were presented to the Board of Estimate they would have to be presented by the companies themselves.

### WAY OPEN TO CITY

Mr. Delaney explained that Article X of the dual system contract under which the city rapid transit lines are now operated points the way the city may travel in acquiring complete municipal ownership of all the rapid transit lines without overlapping the debt-incurring capacity of the city, and without violating restrictions placed upon the city in this respect by the State Constitution. He explained that this article permitted the Interborough Rapid Transit Company to obtain possession of the partly completed Steinway tunnel and to assign it immediately to the city.

Mr. Delaney said:

This principle could be applied to the acquisition by the city of the elevated railroads or any other transit property and complete municipal ownership be obtained on a basis which might be character-

ized as on credit terms, and full payment be spread over the period of amortization. Any contracts made on this basis should also secure to the city the privilege of taking possession at any time it saw fit by payment of the full purchase price agreed upon.

Concerning the surface lines Mr. Delaney said:

Representatives of these lines are asking the city to permit them to change an 8, 9 or 10-cent fare in order that owners of some of these lines may continue receiving as high as 18 per cent dividends. Large amounts of money have been spent in improving these lines which will revert to the owners if these excessive payments are not continued. The lines are hiding behind holding companies, and are enmeshed in a tangle of red tape. There is no doubt that the time has come when all of the wrongs committed against the interests of the people should be corrected.

Sounded previously on the general traction situation and the prospect of overtures being made for the settlement of the present difficulty, Mayor Hylan was quoted as follows:

Any proposition the transit interests may have to make to the city should be submitted to the Board of Estimate. They will find that the board is ready and willing to listen to them. Any matter of that sort will, of course, receive the most careful consideration.

## Conference of Mayors Postponed

The conference on electric railway matters suggested by Mayor James Couzens of Detroit to be held in Toledo on Dec. 8 was postponed because of the fuel crisis. The Mayors of a number of cities where electric railway matters are up for settlement were invited to attend. It is hoped a joint policy of procedure may be mapped out. Among the Mayors expected to be present were Mayor Couzens of Detroit, Mayor Schreiber of Toledo, Mayor Thompson of Chicago, Mayor Hoan of Milwaukee, Mayor Babcock of Pittsburgh, and a representative of Mayor Davis of Cleveland.

Henry L. Doherty, operating head of the Toledo Railways & Light Company, which took its cars off the streets of Toledo about a month ago, signified his intention to attend the conference and discuss the railway situation in general and Toledo's problems in particular.

Mayor Couzens has been giving much thought to the railway difficulties in Detroit, Cleveland and other cities recently and believes he will be able to unfold a plan of considerable magnitude. It is expected that Mayor Thompson of Chicago will make public at the conference, his so-called "People's Plan." In the opinion of Mayor Couzens the electric railways through the federal commission, have attempted to crystallize and nationalize their side of the question and he believes the municipalities should make an effort to unify the people's side.

## Transit Plans Outlined

Mr. Van Sweringen Shows Highly Developed Scheme for Handling Cleveland's Future Traffic

As a witness before the board of arbitration, hearing the request of the Cleveland (Ohio) Railway for an increase in dividends to stockholders from 6 to 7 per cent, O. P. Van Sweringen, of the Cleveland Union Terminals Company and the Cleveland & Youngstown Railway, gave considerable information in regard to the rapid transit plans, as developed by himself and associates.

Basing his statements on the belief that the population of Greater Cleveland will increase from 1,000,000 to 1,500,000 in ten years, he said the city's growth would require an addition of from 30,000 to 35,000 acres of land, 70 miles of rapid transit track construction and the expenditure of about \$50,000,000 for the work.

He said rapid transit was the only real solution of the city's transportation problem. The city's proposal to build a subway was not so much a matter of transportation as it was for the relief of the surface highway. Cleveland had reached a point where people must be carried from the residence districts to the center of the city by subway.

### SUBWAY COSTS ESTIMATED

The cost of subways to meet Greater less time than is now taken by the Cleveland's rapid transit needs, he said, would be between \$2,000,000 and \$3,000,000 per mile, while the cost of elevated railways would be about \$1,250,000 per mile.

The private right-of-way plan, adopted by the Cleveland & Youngstown road, was the most economical means of furnishing rapid transit facilities.

Mr. Van Sweringen said that interests with which he is connected do not expect to develop the entire transportation system for Greater Cleveland, but are willing to co-ordinate their interests with the Cleveland Railway or any other company, or the city, in case a subway is built. He further pointed out that certain sections of the city may be served by tracks on the rights-of-way of various steam roads which radiate almost from a common center in the city.

He declared, however, that the proposed new union station would receive attention first. That matter is in hand now. It will be developed as laid out in the franchise which the people have granted. Preliminary construction work will be commenced early in 1920.

## Minneapolis Grant Fails

Voters Reject Cost-of-Service Plan by Large Majority—Five-Cent Fare Will Continue.

The voters of Minneapolis, Minn., at the special election on Dec. 9, defeated the cost-of-service franchise proposed for the Minneapolis Street Railway, subsidiary of the Twin City Rapid Transit Company. The majority against the franchise was 7,572. The total number of votes cast was only 3000 less than the number cast in the last mayoralty election. The vote in favor of the franchise was 22,977, while that against it was 30,549.

### PRESENT FARE TO CONTINUE

Defeat of the franchise means that the company must content itself, for the present at least, with a 5-cent fare. Under the proposed plan the company would have been guaranteed a return of 7 per cent, and the fare would have been adjusted accordingly. The fare was to have remained at 5 cents for a three-months period, after which it was to have been advanced, if necessary.

An analysis of the company's records recently made by Marwick, Mitchell, Peat & Company, certified public accountants, indicated that under the cost-of-service plan the average fare for the first ten months of 1919 would have been 5.30 cents and for the month of October 5.22 cents. The company was prepared if the plan had been approved, to install a 6-cent cash fare with a ticket rate of 5.4 cents.

The election marked the culmination of efforts on the part of Mayor Meyers and the Socialist party to defeat the franchise. The Mayor opposed the plan from the start, contending that, while he favored the cost-of-service principle, the valuation of \$24,000,000 fixed for the company's property was too high. This valuation was lower, however, than the appraisal of the city engineer. Since he lacked power to veto the franchise ordinance, which was passed by the City Council early in September, Mayor Meyers applied to the District Court of Hennepin County for an injunction to prevent its submission to the voters. The application was denied, the court's decision being affirmed on Nov. 21 by the Minnesota Supreme Court.

### CAMPAIGN WAS SPIRITED

An active campaign was carried on both for and against the measure. The company issued numerous statements in its magazine, the *Rapid Transit News*, in which it explained its position and analyzed the proposed franchise. Several municipal organizations, notably the People's Franchise Bureau and the Car Riders' League, also advocated the measure, while the Anti-Franchise League opposed it.

The opponents of the measure centered their attack on the section of the franchise which provided that the city might purchase the railway property at the end of any five-year period.

They contended that too much power would thus be placed in the hands of the City Council, and that under the franchise a group of fourteen Aldermen could combine to buy the property for the city at any time without referring the matter to the people.

The Socialists formed the only solid element against the franchise. In a general way the vote followed the usual political lines, the strong Republican districts giving majorities for the franchise and those of Socialist sentiments going heavily against it. The third ward, which is suffering for want of new car lines, gave good majorities for the franchise in the upper precincts, but these were overcome by the adverse vote in the river districts.

Commenting upon the result of the election the *Minneapolis Journal*, which supported the franchise, said editorially:

The great mistake of the campaign just ended was that it was not longer in opening and longer in closing. There was not time for the people to study the issues carefully and make up their minds with cool consideration. Too many postponed study of the franchise until a few days ago, and then found themselves bewildered in the final storm of charge and counter-charge. When the people vote again on franchise or charter they should have from three to six months in which to familiarize themselves with all the details.

## Municipalization Authorized

As a result of the special election held on Dec. 6 in Windsor and eight other border towns, the Sandwich, Windsor & Amherstburg Railway, a branch of the Detroit United Railway that serves these border municipalities, will be taken over by the Ontario Hydro-Electric Power Commission.

Six of the nine municipalities concerned voted for the plan with sweeping majorities, while one only, the town of Anderdon, refused to support the proposed by-law providing for the purchase of the railway.

As the financial obligation to be assumed by each municipality was worked out proportional to its population, Anderdon's portion was less than 10 per cent of the total. This town's failure to ratify the by-law will not interfere with the purchase plan. The other municipalities concerned will assume Anderdon's financial obligation, the greater part to be borne by the city of Windsor. In Windsor the rate-payers' votes cast were practically forty to one in favor of municipal ownership.

Sir Adam Beck, chairman of the Ontario Hydro-Electric Power Commission, arranged matters with the Detroit United Railway officials, the purchase price agreed upon being \$2,100,000. This is exclusive of the power plant which furnishes electric light and power to the residents of Windsor and Walkerville in competition with the service of the Hydro-Electric Commission. Arrangements are being made in the Windsor Council providing for a vote on the proposed plan of taking over the power plant by that city at a cost of about \$190,000.

## Detroit's Mayor Sustained

His Veto of Railway Commission's Recommendations Upheld by the City Council

Mayor Couzens of Detroit, Mich., exercised his power to veto, and thereby defeated the action of the majority of the City Council by which they went on record at a previous meeting in favor of adopting the report of the Street Railway Commission. The Council favored authorizing the Board of Street Railway Commissioners to present a plan of settlement to the Council after negotiating with the Detroit United Railway with regard to extensions, and a plan of operating the system similar to the Tayler plan as it is now in force in Cleveland.

### PROTECT THE PEOPLE

As a two thirds majority was necessary to pass the resolution over the chief executive's veto, the attempt failed, five members voting for and four voting against the resolution.

In his veto message, the Mayor summarized his reasons for not favoring the rides-at-cost plan. He said in part:

As a responsible agent of the people I feel it my duty before presenting any proposition to them to analyze its every detail. I have conscientiously tried to ascertain how the recommendations of the Board of Street Railway Commissioners would meet with the people's wishes, as indicated in their various votes upon railway settlement, and fail to find where they agree in any instance.

The results of six votes of the Detroit electorate on various railway propositions, since November, 1906, were reviewed. In summarizing the Mayor stated that three of these agreements involved franchises; two were agreements providing for the purchase of the lines and both of these received a greater affirmative vote than the three proposals for franchises.

The message further stated that the Mayor believed it futile to submit another plan to the voters. If an affirmative advisory vote indicates that the public wants a Tayler plan franchise, it is proposed by the Mayor to negotiate while construction work is being carried on.

In reviewing conditions in Cleveland, the claim was made that the much needed extensions have not been obtained under the Tayler plan, and it was pointed out that the matter of extensions is paramount in Detroit.

### \$15,000,000 FOR CONSTRUCTION

Two propositions are now before the Council. One is the proposed ordinance providing for an issue of public utility bonds to the amount of \$15,000,000 for the piece-meal construction and the operation of a railway system. The other proposition calls for an advisory vote on the revised Tayler plan.

The old railway commission having resigned, the Mayor is without a commission. In regard to the appointment of a new commission, the Mayor says that such a commission will probably be named when the Council has determined upon a plan that will require the services of a commission.

## Anti-Strike Bill Killed

Massachusetts Measure Is Lost—Cambridge Subway Purchase Measure Passed—Jitney Regulation

Notable among the electric railway measures discussed before the present special session of the Massachusetts Legislature are bills concerning the relation of the electric railway employee to his employer and a measure which affects the affairs of the Boston Elevated Railway.

### LABOR OPPOSED BILL

The former bill was termed the anti-strike bill. It has been called revolutionary. Briefly the plan provided for continuity of service for lines under public control, the abolishment of strikes, and the arbitration of disputes. The terms of the proposed act were published in the *Electric Railway Journal* for Nov. 8, page 873.

W. D. Mahon, international president of the Amalgamated Association, and James H. Vahey, counsel, appeared in opposition to the bill. Quoting from President Wilson's speech of Dec. 2 "that the right of individuals to strike is inviolate and ought not to be interfered with by any process of government," Mr. Mahon intimated further that "there is no need of this legislation, because the street car men are filled with the American spirit, recognizing their duty and will not strike."

In rendering an opinion concerning the legality of this bill, the committee on legal affairs of the House concluded that it would be wise and expedient at this time to reject this measure and accordingly the anti-strike bill has been withdrawn.

It is worthy of special attention that the discussion of the so called anti-strike bill brought out little support on the part of the railways.

Of special interest to the city of Boston, as it concerns the welfare of the Boston Elevated Railway, is the bill providing for the purchase of the Cambridge subway. After the rejection of the Cambridge subway rental bill, which provided for the assumption of the subway rental by the communities served by the Boston Elevated Railway, a rental amounting to \$1,500,000 per annum, a bill providing for the purchase of the Cambridge subway was introduced and after special endorsement by Governor Coolidge was passed 114 to 34 by the House to be engrossed.

### DOUBLE BENEFIT SECURED

The bill provides for the purchase of the subway from the Boston Elevated Railway at a cost not to exceed \$8,000,000, the subway then to be rented to the elevated railway at a rate equivalent to 4½ per cent on the bonds to be issued by the State on account of the purchase of the property. The \$8,000,000 received by the Boston Elevated Railway is to be used for the purchase of rolling stock and other equipment, which otherwise could not be obtained. The Boston Elevated Railway, on the other hand, benefits by the

difference between the interest of 4½ per cent it will pay as rental and the relative high rate which it would be obliged to pay on bonds and stocks issued for new capital, necessary for maintenance and future development.

The committee on ways and means of the Massachusetts Legislature has reported favorably on a bill to regulate the operation of jitneys within the State and also similarly on a bill which provides for special permission for street railways to initiate fare changes, subject to approval by the Department of Public Utilities. Such a bill if passed will be of great benefit since delay in obtaining official sanction of fare schedule changes has in the past imposed considerable losses on the railways.

### \$621,715 in Improvements Authorized

Special Master Henry Lamm has authorized Rolla Wells, receiver of the United Railways, St. Louis, Mo., to expend \$621,715 during 1920 for the purchase of materials and the reconstruction of tracks. At the same time he allowed the receiver to pay a total of \$750,715 interest due on bonds on Jan. 1 and on Feb. 1. He also authorized Mr. Wells to buy 10 acres of land at Natural Bridge Road and the Kirkwood-Ferguson line at a cost of \$35,000 for the purpose of constructing loops on both Kirkwood-Ferguson and Natural Bridge lines, construct a fire escape at the company's offices at a cost not exceeding \$1,095, and construct a double-truck snow shovel.

### Recommends Transit Commission of Three

Mayor E. V. Babcock, in presenting the annual budget estimates to the City Council of Pittsburgh, Pa., on Dec. 8, urged that Council create a transit commission of three members to handle all city activities relating to transportation companies. To give the matter added force, the Mayor made it a special recommendation. The city of Pittsburgh now has a transit commissioner, but the Mayor recommended that he be displaced by a board of three with broader powers and jurisdiction.

In the budget estimates, an appropriation of \$22,200 was suggested for the commission. Of this amount, \$10,000 is proposed for an advisory service in connection with the subway which the people of Pittsburgh, at a bond election, authorized. If the Mayor has his way, the commission would be empowered to consider the future needs of the city, as well as present problems.

Mayor Babcock has in mind as one of the commissioners Attorney Charles K. Robinson, special counsel for the city in the traction litigations now pending. Engineers would probably compose the rest of the board.

E. K. Morse, the present transit commissioner whose position would be displaced by the board of three, recently issued his annual report. He attacked the proposed subway, which is an administration measure.

## Railroad Bill to Be Rewritten

Amendments Desired by Electric Railways Understood to Have Been Accepted

Interest in the Cummins bill is being dulled somewhat by the knowledge that the measure is to be practically rewritten in conference. The Esch Bill—the railroad measure which already has passed the House—was put through in half-baked form with the frank admission that the bill would not be recognizable when it emerged from conference.

While the Senate is making a conscientious effort to perfect the Cummins measure, it is a matter of common knowledge that many of the provisions, adopted after solemn and lengthy debate, must be sacrificed to meet the ideas of the House of Representatives. Every effort is being made at this writing to procure a vote on the bill on Dec. 20.

Section 10 of the Cummins bill provides for the consolidation of the railway properties of the United States into not less than twenty nor more than thirty-five systems. This provision has been vigorously assailed, but in all probability will stay in the bill. That section of the bill contains a proviso excluding electric railways from the scheme. Originally the proviso read "that street railways and interurban railways whose chief business is the transportation of passengers" shall be excluded. The wording was changed, however, and the following inserted: "That street, suburban, and interurban electric railways which are not operated as a part or parts of a general steam railroad system of transportation" shall not be included in the organization of railway properties which is proposed.

### Winnipeg Men Accept Wage Award

The employees of the Winnipeg (Man.) Electric Railway have decided to accept the award of the Mather's commission on the demand made by the men for an increased wage scale.

The schedule submitted to the conciliation board on behalf of the union was 60 cents an hour for the first six months; 65 cents an hour for the second six months, and 70 cents an hour for the second year and thereafter.

The award, which the men have accepted, gives 46 cents an hour for the first six months; 49 cents for the second six months; 52 cents for the third year and thereafter. It also provides for an eight-hour day, instead of nine hours as heretofore. The nine-hour rate was 39 cents, 41 cents, 44 cents, and 47 cents, respectively.

### Would Municipalize Guelph Road

The Ontario Hydro-electric Commission has made an offer in writing to the City Council of Guelph for the purchase of the Guelph Radial Railway at \$150,000 as on July 1, 1920, the road to be handed over free of all encumbrances. The offer is to be considered at a special meeting of the Council.



## News Notes

**Library for Its Employees.**—It is announced that the Monongahela Valley Traction Company, Fairmount, W. Va., will purchase a library for the use of employees who want to become proficient in the fine points of the relations of an electric railway to its public.

**Mayor to Push Subway Plan.**—The present Mayor of Cleveland, Ohio, has recently been re-elected. He has announced his proposed subway plan as the most important construction work of the coming two years of his administration. The city will probably be asked to approve bonds for this work at a special election early next year.

**City Purchases Railway.**—The City Council of Ashtabula, Ohio, passed an ordinance on Dec. 8 to purchase the property of the Ashtabula Rapid Transit Company. The purchase price is \$296,000. There will be a bond issue for \$350,000 secured by a first mortgage with interest at 6 per cent. The operation of the road will be under the direction of M. H. Turner, city manager.

**Buses for Broadway?**—Directors of the Broadway Association at their regular meeting on Dec. 15 appointed a transportation committee and voted in favor of the use of motor buses as the best solution of the transportation problem on Broadway, New York. The committee will make a report "concerning the street surface transportation on Broadway with a view of submitting the information to the entire membership of the association for a referendum vote and later to submit the question to the entire business population of Broadway."

**Cincinnati Linemen's Strike Quickly Adjusted.**—A brief strike of the linemen of the Cincinnati (Ohio) Traction Company, which went into effect on Oct. 18 after several days of unsuccessful negotiations between union representatives and company officials, was settled satisfactorily in two days' time. A 35 per cent increase was asked over the old wage agreement which was made just prior to the War Labor Board's award in 1918 and expired on Nov. 15, 1919. The men were granted a 20 per cent increase, which places them on practically the same basis as the men in other departments.

**Wants City to Take Line.**—The City Council of Seattle, Wash., has been asked by residents of the Greenwood Avenue district to buy the Greenwood Avenue line owned by the Western Washington Power Company, or to provide a good service arrangement under the 5-cent fare. Thomas F. Murphine, superintendent of the Seattle Municipal Railway, recently discontinued the

transfer arrangement between the Ballard North line and the Green Avenue line, asserting that the service was too irregular and that the city was getting the long end of the haul on a 50-50 basis. Since that time residents of the district have been forced to pay a 10-cent fare.

**Municipal Ownership Petition Circulated.**—Initiative petitions for a new railway municipal ownership ordinance are being circulated by members of the Citizens' Referendum League of St. Louis. The ordinance provides for the purchase or lease of the railways by the city and their operation without charge to passengers. A "competent person" with at least five years' experience must be appointed by the director of public utilities to manage the system. Employees are to be in the classified service. The cost of operation is to be met by general taxation.

**I. C. C. Recommendations Repeated.**—The annual report of the Interstate Commerce Commission was made public on Dec. 4 by Clyde Aitchison, chairman of the body. As many of the functions of the commission were curtailed by the Federal control of railroads during the last year, the report repeats mainly the recommendations of other years. These recommendations are that the power to award reparation for unreasonable or unlawful charges be vested entirely in the courts; that the powers of the commission be extended to holding corporations as well as those which actually operate interstate transportation lines and that railroad operating rules be standardized.

**Changes in Power Contract Too Drastic.**—At a hearing before the Public Service Commission of Missouri on the application of the Union Electric Light & Power Company to increase its rates of selling current to the United Railways, St. Louis, Mo., T. E. Francis, attorney for the railway, said his company also would ask for a modification of the contract. The power company is asking for an increase of \$178,750 a year. A recommendation by Bylesby & Company, Chicago, engineers employed by both companies, was offered in evidence. They suggest an increase of \$130,000. Mr. Francis said the railway would ask to have modified that provision of the contract which compels the railway to pay heavy penalties for overloading in peak hours.

**City Commission Recommends One-Man Cars.**—Street Railway Commissioner William L. Sause of Youngstown, Ohio, has recommended in a letter addressed to the City Council the purchase of twenty-five one-man safety cars to be used on the local lines. In addition to this Mr. Sause recommends that a fund be raised to rebuild lines and other equipment which come under the direction of the city under the new service-at-cost system. Mr. Sause thinks it very essential that the new cars should not replace the present larger cars in the ratio of one to one, but that one or more lines should be fully equipped, on which safety cars

should be installed in the ratio of about three new cars to two of the old.

**Washington Company Announces Labor Policy.**—Quoting from a decision of the War Labor Board in support of its position, the Washington Railway & Electric Company, Washington, D. C., has refused to deal exclusively with the Amalgamated Association or any other organization of which its employees are members. There will be no discrimination against any employee because of his membership in any labor organization, President William F. Ham of the company told a committee of the Amalgamated Association. This means the Brotherhood of Employees, of which a number of employees of the company are members, and other labor organizations that may come into existence through the action of the employees, is guaranteed an "open-door" policy in dealing with the company.

**Franchise Changes Requested at Cincinnati.**—A request has been made of the City Council of Cincinnati, Ohio, to repeal the franchises granted the Interurban Railway & Terminal Company by the former villages of Kennedy Heights and Pleasant Ridge and pass an ordinance granting the Cincinnati Traction Company the right to use the track. This would give the company the right to operate its North Norwood cars over the track without delay. The plan has been agreed upon between C. W. Culkins, Street Railway Commissioner, and the officials of the railways. The new franchise would give the Cincinnati Traction Company the right to operate more than 700 ft. of track on Montgomery Pike, between Kennedy Avenue, and the present terminus of the interurban line, so that the city service may be extended from Kennedy Avenue, if it becomes necessary to do so at some future time.

**\$250,000 Storm Damage at Detroit.**—By far the worst storm ever encountered by the Detroit (Mich.) United Lines, with attendant destruction of property and suspension of service, was that of the hurricane on the afternoon and evening of Nov. 29. Never before was the territorial area affected so extensive as this time. The financial loss to the company is roundly estimated at \$250,000. Within the city of Detroit the Detroit United Railway's lines escaped much serious damage. Service suspensions, while numerous, were not of long duration and were largely due to falling trees and limbs. The situation in respect to the interurban lines was decidedly worse. Out in the country the wind had full sweep and in addition to the damage and delays through the company's own overhead system collapsing in spots the condition was made much worse by poles of other utilities, heavily laden with wires, falling across the tracks of the company and breaking through its overhead system. The storm struck the Rapid Railway a terrific blow. This division was paralyzed for five days with the exception of service between Detroit and New Baltimore.

# Financial and Corporate

## Engineers Report on "L"

Even With Eight-Cent Fare More People Must Use Chicago Lines to Make Them Successful

The preliminary report has been made by the engineers who were retained by the protective committee representing the holders of the notes of the Chicago (Ill) Elevated Railways and instructed by the committee to make an independent investigation of the operating and physical condition of the system. In spite of the increased revenue derived from an 8-cent fare, the engineers recommend that no part of the increased earnings be used for payment of the 6 per cent interest on the \$14,000,000 of notes. Principal and interest on these notes was due on July 1. The notes are secured by collateral and the holders face the alternative of waiting an indefinite time for payment of the principal and interest or of taking action to sell the collateral. The engineers say in part:

We have made no audit of the company's books, nor have we attempted to analyze its accounts. The results of operation for the system from January to September, 1919, inclusive, and estimates for October, November and December, prepared by the company, are herewith presented. The estimates appear to us to be reasonable.

The table shows that the four companies will earn, over bond interest, etc., of underlying companies, about \$500,000 for the year 1919. No allowance, however, has been made for accrued depreciation and nothing has been provided for interest on Chicago Elevated Railway notes.

While on the basis of present earnings, with 8-cent fares on the elevated and 7-cent fares on the surface lines, and with the present wage scale, it would seem probable that for 1920 the balance after paying bond interest, etc., of the underlying companies, would be about \$1,500,000.

This balance is not applicable for interest on Chicago Elevated Railway notes for the following reasons:

It is our understanding that for a number of years the company has taken care of its current maintenance charges out of operating expenses. It also charged certain large renewals to the rehabilitation account, then a part of surplus account. The company has now closed its rehabilitation account, and all renewals are charged direct to operation. An adequate maintenance charge for this year would be about \$2,500,000, which, we understand, is about \$500,000 more than will be expended.

While the \$2,500,000 would probably take care of current maintenance and normal rehabilitation, it would not provide any funds for a replacement reserve. We believe such an account should be built up and that with a company of this size it should not be less than \$1,500,000, from which large replacements should be made and the fund kept practically constant.

### INTEREST MUST BE DEFERRED

It would seem, therefore, from the above, that it would be impossible to attempt to pay the 6 per cent on the \$14,000,000 notes at present. Even with the retention of the 8-cent fare the operating companies must look for increased riding on present facilities and must practice the greatest economies in operation to enable them in the near future to resume interest payment on the Chicago Elevated Railway notes.

The property as a whole is in first-class operating condition. The track and elevated structures were found to be mechanically sound. The cars and equipment, most of which are old, have been well cared for. The car repair shops, while of adequate capacity, are not equipped with modern machines.

The capacity of the loop is the limiting factor in the peak service. Our brief study would indicate that perhaps 20 per cent more people might be carried than at present by running additional cars on some of the trains and by lengthening some of the platforms. The growth of industry is now taking place outside, rather than inside the loop, which will help the company's earnings and will entail little, if any, increase in operating expenses and will call for practically no additional capital expenditures.

When the capacity of the loop is reached, drastic measures for handling the rapid transit traffic will have to be resorted to, and the shaping of plans for them can be undertaken none too soon. This company should take an active part in these negotiations, in order to protect its present large investment. While some of the lines have severe curves, where the possibility of derailment of cars, with serious results, always exists, still the company has had a fortunate experience in the matter of accidents.

The noteholders' protective committee is headed by Charles E. Mitchell of the National City Bank of New York. The Chicago members are R. Floyd Clinch of Crerar, Clinch & Company and George M. Reynolds, president of the Continental & Commercial National Bank. It is said that the committee will await the final report of the engineers and possibly the outcome of the pending litigation on fares between the Chicago Surface Lines and the city before recommending definite action to be taken by the noteholders.

## City Wants Service But No Responsibility

The city of Merrill, Wis., has petitioned the Railroad Commission for an order to prevent the Wisconsin Valley Electric Company from discontinuing the operation of its railway property in that city. Operation is now being continued under a thirty-year franchise granted in 1889. This franchise expires on Dec. 31. Early in the present year the company notified the city that it would not ask for a renewal of the franchise at its expiration. In fact, it offered to sell its entire railroad property to the city.

The company operates a number of utilities in the Wisconsin River Valley, including a railway in Wausau, and maintains several hydroelectric generating stations. Merrill is a city of about 10,000 population. The company says that the railway there does not produce sufficient revenue to pay operating expenses and cannot be made to do so at any reasonable rate of fare. The present fare is 7 cents.

The city of Merrill is asking that the company be compelled to continue operation on the grounds that the franchise does not expire on Dec. 31; that the thirty-year limitation applied only to the exclusive feature of the franchise; and that the company should not be allowed to discontinue service on a part of the utility when the property as a whole is a profitable one.

## Interborough in Dire Straits

Even With Eight-Cent Fare No Surplus Possible in New York Before 1922, Experts Say

Federal Judge Mayer on Dec. 16 gave out the report of Stone & Webster, the engineers, on the financial and physical status of the Interborough Rapid Transit Company and the New York Railways. It is pointed out in the report that the subway and elevated lines of the system will fail to earn their fixed charges during the fiscal year ending June 30, 1920, by \$8,778,000, as against a surplus in 1917 of \$8,885,359.

### MORE THAN \$500,000,000 OF SECURITIES OUTSTANDING

It is pointed out that the securities outstanding in the hands of the public amounts to \$500,448,881 and 932,626 shares of no par value. The report says in part:

We have completed our examination of the properties of Interborough Rapid Transit Company, including the surface lines in the Borough of Queens, stocks and obligations which it owns, and also our examinations of the properties of New York Railways. Of the stock of Interborough Rapid Transit 97 per cent, and of the stock of New York Railways 86 per cent, is owned by Interborough Consolidated Corporation, of which James R. Sheffield is trustee in the bankruptcy proceedings pending before you. The properties of New York Railways are in the custody of Job E. Hedges as your receiver.

In the preparation of this summary we have followed in general the lines of the summary of our reports on the properties of the Brooklyn Rapid Transit System in order that the two summaries may be more readily compared, and, taken together, give a picture of the condition of all of the properties directly in the custody of the court or in which the court's officers hold substantially all the capital stock.

### MORE REVENUE ESSENTIAL

In our opinion there is no escape from the following conclusions:

1. The rapid transit (subway and elevated) lines during the fiscal year ending June 30, 1920, will fail to earn their fixed charges by \$8,778,000, as against a surplus for 1917 of \$8,885,359.
2. With an increased fare the rapid transit lines will earn only a small part of the charges upon the bonds and notes, aggregating \$147,000,000, which represent fresh capital invested or to be invested in those lines under the supervision of the Public Service Commission subsequent to March 19, 1913, the date of city contract No. 3.
3. Even an 8-cent fare will not, prior to 1922, provide any substantial surplus over the company preferentials, and even in 1922 such a fare will provide little more than half of the city preferential.
4. Unless there is an immediate increase in fares, the further disintegration of the surface system in Manhattan is inevitable and the operation of many of the lines will have to be discontinued because of their failure to earn operating expenses and taxes.
5. Nothing less than an 8-cent fare with a charge of 2 cents for transfers will provide a sufficient margin above mere operating expenses and taxes to permit of the operation of the surface lines as one system, with reasonable provision for upkeep.
6. Even an 8-cent fare with a 2-cent charge for transfers will not yield a fair return upon the actual investment in the surface lines or upon their reproduction value. For that purpose, a higher fare will be necessary.
7. Neither the rapid transit lines nor the surface lines can be permanently maintained and developed by the operating companies without an assurance of sufficient earnings to justify the investment of the additional capital that will from time to time necessarily be required to keep up with the increasing demands of the traffic of the city.

A statement was published showing the variety of interests that will be affected by default of the company in the payment of any of its obligations.

## Hear Pittsburgh Valuation

City and Railway Differ Over Pittsburgh Railway Figures—Commission Closes Case

Counsel for the city of Pittsburgh and the Pittsburgh Railways completed arguments on Dec. 2 on what elements should be included in the physical valuation of the Pittsburgh traction system. The arguments were before the Pennsylvania Public Service Commission. They were of unusual importance, inasmuch as they will determine upon what basis the company will be reorganized, and what rate of fare should be charged. In the closing argument for the company, Attorney E. W. Smith declared the valuation placed upon the company must be high enough to attract some person "with say, \$10,000,000" to finance the rehabilitation of the company.

### REPORTS IN CONFLICT

The case before the commission followed the filing of conflicting reports by the several sets of engineers employed in the valuation of the property. The engineers for the city placed the company's legitimate value at \$48,000,000, while the engineers representing the company on the valuation board maintained that about \$73,000,000 is the proper figure.

The arguments opened on Dec. 1. Attorney George E. Alter, for the company, asserted the present fare of 7½ cents for tickets and 10 cents cash is fair and that no successful complaint had been lodged against it. The estimated operating expenses for a year, as allowed by the engineers, were \$14,086,000, he said, and that the recent increase of wages allowed by the National War Labor Board added another \$1,000,000 to that. Taking the city's estimate of a \$48,000,000 valuation, and allowing upon it 7 per cent as the legitimate profit, the total gross revenue necessary would be \$18,446,000, he said. The best estimate for earnings in 1920, Mr. Alter held, was only \$17,093,403, or less than the revenue the company should have. If deprived of a fair return, the company would be driven into the sheriff's hands. Mr. Alter urged that the valuation be based on present-day values.

A. W. Robertson, also for the company, said the traction system hauled 232,000,000 revenue passengers in 1918. He traced the fare increases of the company, and declared that the last advance when the fare system was changed from a zoning scheme to a flat rate, had not been accompanied by any decrease in traffic. He pleaded that the commission permit the inclusion in the valuation of the cost of consolidating the lines in Pittsburgh.

C. K. Robinson, special attorney for the city, took issue with Mr. Robertson's assertion that the resumption of the flat fare had relieved the housing congestion that followed upon the zoning system. He contended that the new rates had decreased riding. There

is no real unification, he said, but a confusion of corporations and interlocking relationships working under operating contracts. He objected to the inclusion of the cost of consolidation in the valuation, and opposed also the use of the superseded property values in the valuation. The superseded property value, he said, has accumulated for years, and the company has continued to earn on it each year; from a point of earning power, he said, it should be eliminated.

Mr. Robinson claimed \$48,000,000 was a generous figure on the values, and that 7 per cent is a fair return. He pictured Pittsburgh as "looking with great interest on the valuation in the hope that it may be a foundation stone for a new era in transportation and development affairs." He asked that depreciation costs of \$16,845,200, unless property estimates of more than \$2,000,000 and financing, organization and developing costs of more than \$5,000,000 be eliminated.

George N. Munro, Jr., for the city, claimed that more than \$15,000,000 was represented in the valuation under the heads of consolidation costs, going concern costs and developmental costs, which were one and the same thing.

### \$72,000,000 IN SECURITIES OUTSTANDING

Attorney Smith, speaking in rebuttal for the company, pointed out that the company now has \$41,000,000 in bonds, \$16,000,000 in stock, \$5,000,000 in unfunded debt and \$10,000,000 in debentures outstanding, and that it must have a valuation to take care of its securities. He protested against limiting the company's revenues when other investors demanding from 8 to 10 per cent.

The commission took the case under advisement. The attorneys for the city have been allowed two weeks in which to prepare further briefs. A decision is expected shortly after the first of the year. Upon this decision will depend whether the fare remains at 7½ and 10 cents, or goes, as had been officially suggested to 8½ or 9 cents.

## New Jersey Company Suspends Dividends

The Public Service Corporation of New Jersey has announced that the directors deem it prudent to omit the declaration of what would have been, under normal conditions, the last quarterly dividend on its common stock for the year, owing to the many difficulties which the company is encountering in the operation of both the electric railway and the gas branches of the company's business. It is stated, however, that the electric branch of the company is prosperous, but the profits from the sale of electric light and current are not sufficient to offset the losses recorded elsewhere. This in spite of the fact that only recently the company has been granted an increase in gas rates. The dark side of the situation at present, state the directors, is the electric railways.

## Houston Valuation Argued

Company and City About \$2,000,000 Apart on Amount on Which Company Is Entitled to a Return

The Houston (Tex.) Electric Company, continuing its contest for higher fares, has filed suit in the Federal Court asking an injunction to restrain the city in its efforts to prevent collection of higher fares. The company alleges that the 5-cent fare is confiscatory, in that for the twelve months ended Sept. 30, 1919, after proper deduction for depreciation is made, there is not one dollar of return for the year.

### SPECIAL MASTER TO HEAR CASE

Judge Otis Hamblen has been appointed as master in chancery to conduct a hearing and to take testimony bearing on the question of whether the 5-cent fare is inadequate. In this hearing the question of valuation was of chief importance, and the figures presented by the company's engineers and by the engineers employed by the city were carefully examined and the difference analyzed. The company maintained that present costs and prices of material should be considered as permanent, while the city contended that the present were only emergency costs and would not continue indefinitely.

During the hearing several well-known rate experts testified, among them William E. Tucker of Boston, general counsel for Stone, & Webster; Halbert P. Gillette, editor of *Engineering and Contracting*; C. R. Wharton, Houston, and W. J. Hagenah, Chicago. Reports of other valuation engineers were presented to the master.

Mr. Gillette, who made a valuation of the property last January for the company, found the original cost was between \$5,000,000 and \$6,000,000 and the cost of reproduction new \$7,000,000 to \$8,000,000. The latter valuation is that which the company maintains is correct in view of the prevailing high prices of material and labor.

Another report, presented by Hagenah & Erickson, Chicago, gave practically the same figures for original cost and the cost of reproduction new. This firm was also employed by the traction company. Mr. Hagenah appeared for the company to explain his firm's figures.

### ADEQUATE RETURN A QUESTION

The report of Lamar Lyndon, valuation engineer of New York, who was employed by the city of Houston to make a survey and whose report was made as of date of July 1, 1919, gave a total valuation of \$4,983,342, with discounts of \$127,529 allowed on preferred stock, making the grand total \$5,110,771. This is the valuation which the city seeks to establish.

The question of adequate return also figured in the hearing, the company maintaining that the property should yield from 7 to 9 per cent. The city maintained that any return that is not confiscatory should be regarded as adequate, and that a return of 4½ to 5 per cent is not confiscatory.

In explaining his figures, Mr. Gillette went into detail regarding unit costs, reproduction values, straight line depreciation, sinking fund depreciation, enhancement of property values and other angles. The record cost of the property, he said, was \$6,803,508 and the estimated cost totaled \$6,752,584, both of these figures using a development cost of \$2,422,118 with deduction of \$877,210 for depreciation. Mr. Gillette said four-fifths of the present plant had been built since the present owners took charge of the property in 1901, adding that since that date the records were complete as to costs, but that prior to that time the date must be largely estimated.

The city contends that the question of property enhancement due to the operation of the property should be taken into consideration in passing on the question of allowing an adequate return on invested capital.

### Arbitrators Increase Cleveland Dividend

By a majority of two to one, the arbitrators conducting the inquiry into the request of the Cleveland (Ohio) Railway for a dividend increase from 6 to 7 per cent have awarded the increase, effective Jan. 1.

City Light Commissioner W. E. Davis, representing the city, was the dissenting member of the board. Joseph R. Nutt, president of the Citizens Savings & Trust Company, appointee of the railway, and Attorney A. A. Stearns, named by United States District Judge D. C. Westenhaver as the independent arbitrator, signed the report granting the company stockholders a 7 per cent dividend.

John J. Stanley, president of the Cleveland Railway, when told of sentiment expressed in favor of a referendum declared:

We shall not oppose a vote on the amendment to the grant making the award effective if petitions are filed after Council acts. Personally, however, I doubt if such petitions will be filed.

I believe the city generally appreciates the ten years of good service and low fare which the Cleveland Railway has furnished, and that our patrons know the difficulties we have faced in the last few years of increasing cost and the impossibility of securing money at rates ample ten years ago.

Further, I have supreme confidence in the good faith of the city. The City Council and the administration are already pledged to the award. No referendum was asked on the legislation passed by Council last July, of which this award is the result. The tacit approval by the city will, I am sure, be reaffirmed now.

The preamble of the award is as follows:

The parties hereto, the Cleveland Railway and the city of Cleveland, are hereby advised that the board of arbitration has heard the testimony and the arguments of counsel and upon consideration of the same they find that the rate of dividend on the capital stock of the Cleveland Railway should be 7 per cent, effective Jan. 1, 1920, and that the franchise ordinance should be amended to conform thereto. Finding and recommendations based upon the testimony submitted and memorandum opinions are filed herewith.

Under the Tayler service-at-cost grant the Cleveland Railway was entitled to a guaranteed return of 6 per

cent on its stock. Under war time conditions the company appealed for an increase in the rate of return as being only fair to the investors and as essential if additional capital were to be obtained from time to time for further development of the company's railway property.

### Communities Must Help Toward Restoring Service

The Berkshire Street Railway, Pittsfield, Mass., will not be required to operate the line between the towns of Lee and Huntington, which was abandoned in 1918 because of labor conditions. This is the decision of the Public Service Commission of Massachusetts.

Representatives of the communities formerly served asked the commission to require the road to resume operation. The commission in rendering its decision states:

This commission recognizes that the abandonment of electric railway service in practically every case involves hardships to the communities which have heretofore enjoyed this service, and even where the company is within its rights in proposing to discontinue its service, the commission has endeavored from time to time by conference with the parties to work out some arrangement which would permit of the retention of the service. \* \* \* Where a line is operated at a loss and this loss is not made good from the receipts from other portions of the company's system, a public demand for continued operation is equivalent to a request for a voluntary contribution or subsidy from the company. Such a request, we believe, cannot fairly be made of an impoverished company unless the communities which are the sole beneficiaries of the service are prepared to share in the responsibilities and the burdens.

Service on the Pittsfield-Great Barrington branch of the Berkshire Street Railway was resumed on Nov. 17.

### Ask Receiver for Receiver

George E. Warren, Albert A. Jackson, George E. Barstow, Jr., Herman E. Kountze and John F. B. Mitchell, as holders of \$2,787,000 of the \$3,140,000 of receiver's certificates of the Second Avenue Railway, New York, N. Y., have brought suit in the Supreme Court against that company and its receiver, Andrew E. Kalbach, for payment of the interest due on Oct. 1. As failure to pay interest on time makes the principal also payable, the plaintiffs demand that all of the rights, property, franchises, etc., of the bankrupt road be sold to satisfy the debt.

The Second Avenue Railroad went into the hands of a receiver in September, 1908, along with other surface lines in the city. Two receivers, Messrs. Lynch and Beaver, died while trying to restore the system to a paying basis. Mr. Kalbach was appointed receiver in March, 1917. He was overtaken by war-time conditions.

The Second Avenue Railroad was once a part of the Metropolitan Street Railway, but as it was merely leased, the Metropolitan relinquished it when trouble began for the surface lines in 1907.

### Maryland and West Virginia Properties Merged

The Public Service Commission of Maryland, sitting at Baltimore, on Nov. 28 approved the consolidation of seven large gas and electric companies in Northern and Eastern West Virginia and Western Maryland by the Potomac-Edison Gas & Power Company. The properties taken over by this corporation consist of the oil wells, plants, pipe lines, etc., of the Eastern Oil Company, Buffalo, N. Y., the Central West Virginia Gas Company, West Virginia & Maryland Gas Company, the Grafton Light & Power Company, the Grafton Gas & Electric Light Company and the Grafton Traction Company, and the majority of stock of the Hartland Power Company, together with the power plant, electric light, traction and electric railway lines, which center in and about Cumberland, Md.

The merger brings together the power plants and railway lines of Western Maryland and Northern West Virginia, from the Potomac to the Ohio Rivers and it is said will eventually include the Wheeling and Morgantown properties owned by the Barstow interests.

The principal offices of the company will be at Grafton, W. Va.

As explained on page 1019 of this issue the creditors of the Grafton Traction Company held a final meeting recently. Releases will be executed and the property turned over to the new owners in accordance with the instructions for this proceeding which have been laid down by the court.

### Sale Under Foreclosure Confirmed

The sale of the uncompleted railway between Belleville and East St. Louis, Ill., originally owned by the Southern Traction Company, to C. B. Cox, president of the Aluminum Ore Company and the Alton & Southern Railroad, has been approved by Judge English in the East St. Louis Federal Court.

The road was sold on July 10 last by the master in chancery of the United States District Court for \$400,000 to Mr. Mephram. Under the terms of the master's sale, Mr. Mephram had until Dec. 17 to complete the purchase, but he transferred his right to Mr. Cox. Of the purchase price \$325,000 has been paid and Judge English cancelled the order requiring the completion of the sale by Dec. 17 and extended the time for payment of the remaining \$75,000 until Jan. 15.

The Aluminum Ore Company owns coal property near Tilden, Ill., 45 miles southeast of East St. Louis. The Southern Traction Company's right-of-way runs within a short distance of this property. Rails were laid about ten years ago from Fourth Street and Broadway, East St. Louis, to Belleville, but passenger service was never installed. Freight trains have run over the line from a point in the east section of East St. Louis to Belleville.

**Grafton Properties Taken Over**

What is supposed to be the final meeting of creditors of the Grafton Traction Company and the Grafton Light & Power Company took place during the second week of December at the office of Hon. O. E. Wyckoff, referee, at Grafton, W. Va. An amicable agreement was reached by the representatives of the creditors and representatives of the prospective purchasers, whereby the Potomac-Edison Gas & Power Company, referred to elsewhere in this issue is to take over the properties at Grafton upon conditions and for the consideration stated in said agreement.

An order was then drawn up which will be presented to Judge A. G. Dayton at Martinsburg confirming the transfer of the properties at private sale. It is understood this order will be entered at once as Judge Dayton has already been advised of its contents, and has consented to a confirmation of the sale upon the terms contained in the order.

In the meantime the creditors of the two concerns have been busy preparing and executing releases of all claims that constitute liens on either of the properties. Armed with these and a certified copy of the order confirming the sale, Referee Wyckoff and Dr. T. F. Lanham, trustee in bankruptcy, will meet the purchasers and their representatives in New York, where the releases will be delivered upon the purchasers paying over to the trustee \$100,000 in cash, and \$100,000 in bonds of the new company, some of the larger creditors having agreed to accept bonds in part payment of their claims.

This meeting in New York was for Dec. 12, but as the consummation of the deal depends upon the celerity with which the court order is entered, it was decided to leave the date of that meeting open until the order is entered, but not later, however, than Jan. 15.

**Details of Oakland & Antioch Reorganization Modification**

In an order issued by the Railroad Commission of California the changes in the plans of the reorganization committee having in charge the affairs of the Oakland & Antioch Railway are approved. The order by the commission modifies an order previously issued so as to permit the San Francisco & Sacramento Railroad, the new corporation formed to take over the affairs of the Oakland & Antioch line, to issue not exceeding \$4,000,000 of common stock, \$1,330,000 of 6 per cent preferred stock and not exceeding \$2,100,000 of five-year 7 per cent bonds.

The original plans of the reorganization committee provided for a twenty-year 6 per cent bond issue. The change to the five-year 7 per cent bond, according to the reorganization committee, is due to the present financial conditions and the small demand for bonds of street and interurban railways.

Approximately \$800,000 of the bonds will be sold for cash at not less than

90 per cent of par and the proceeds used for the following purposes:

Payment of first liens and interest thereon .....	\$300,000
Payment of non-assenting bondholders, estimated .....	75,000
Additions and betterments, including among other things one-half of the cost of branch to Pittsburg, completing ballast on entire line, concreting tunnel, purchasing five cars and constructing two warehouses, ....	203,500
Working capital .....	141,500
<b>Total .....</b>	<b>\$720,000</b>

As much of the common and preferred stock as may be necessary and not exceeding \$1,300,000 of bonds are to be distributed to the bondholders of the Oakland, Antioch & Eastern Railway, Oakland & Antioch Railway and San Ramon Valley Railroad, as provided in the original reorganization plan.

The reorganization plan was declared operative in February last. The details of the plan as presented to the Railroad Commission by the company were reviewed in the ELECTRIC RAILWAY JOURNAL for May 17.

**First Surplus for Dallas**

The Dallas (Tex.) Railway for the first time since its operation under the service-at-cost franchises earned the full 7 per cent return authorized under the terms of this franchise, during October, according to the report of Grover C. Bland, chief accountant in the office of the supervisor of public utilities.

The return after all necessary and authorized appropriations were made was \$59,607. The agreed property valuation, plus authorized additions for betterments and improvements, is \$8,560,749, on which the authorized return of 7 per cent would amount to \$49,937. During the twenty-five months of operation under this franchise there has accumulated a deficit in authorized return of \$430,713.

The franchise provides that after a certain part of the surplus over the authorized 7 per cent return is added to the maintenance and repair fund each month, surplus may then be used to wipe out the accumulated deficit. There is a deficit in the maintenance and repair fund and none of the October surplus can be used toward wiping out the accumulated deficit.

In explaining this feature of the franchise, Mr. Bland said:

Attention is called to the fact that the balance remaining after the payment of the 7 per cent authorized reserve was added to the repair, maintenance and depreciation reserve, and not applied against the accumulated deficit in the authorized return. The franchise provides that each month, after paying operating expenses, making appropriations of 16 per cent and 6 per cent of railway gross earnings, respectively, to the repair, maintenance and depreciation reserve and accident reserve, and paying the 7 per cent authorized return, the surplus earnings remaining shall be added to the repair, maintenance and depreciation reserve until the total additions thereto from all sources for the period subsequent to Jan. 1, 1918, shall amount to 18 per cent of the total railway gross receipts derived during such period. The total appropriations to the repair, maintenance and depreciation reserve during this period have been only about 11 per cent of the railway gross earnings, and this deficiency must be made good before any of the surplus earnings could be applied against the deficit in the 7 per cent authorized return.

**Toledo Bonds Called for Payment**

The Toledo Traction Light & Power Company, Toledo, Ohio, has called for payment on Jan. 1, 1920, the outstanding principal amount of second lien 7 per cent three-year gold bonds, dated Jan. 1, 1918.

Under the terms of issue the holder of these bonds will have the right to convert on or prior to Dec. 26, 1919, into Cities Service Company preferred and common stocks on the following basis: Each \$100 principal amount of Toledo Traction Light & Power Company second lien 7 per cent three-year gold bonds may be converted into \$85, par value, of Cities Service Company preferred stock and \$15, par value, of Cities Service Company common stock with adjustment of interest.

The conversion privilege will apply only to such bonds as are presented and surrendered on or before Dec. 26, 1919. On and after Dec. 26, 1919, the conversion value of these bonds will cease and holders who do not convert will receive on Jan. 1, 1920, only the principal amount of the bonds and accrued interest thereon.

The Cities Service Company preferred and common stocks issued in conversion of Toledo Traction Light & Power Company second lien 7 per cent three-year gold bonds surrendered for conversion prior to Dec. 15, 1919, will be entitled to the dividends payable on Jan. 1, 1920, but stocks issued in conversion after Dec. 15, 1919, will not be entitled to the dividends payable Jan. 1, 1920.

The Toledo three-year second lien bonds were sold to investors at 97. Computing the cash and stock dividends to be received on the stocks into which these bonds will be converted, the holder of Toledo convertible 7's will receive a net return of approximately 16 per cent per annum after conversion.

Since the above announcement there has been offered for subscription at 99 and interest, to yield over 7½ per cent, an issue of \$10,000,000 Toledo Traction, Light & Power Company, first lien, 7 per cent, two-year bonds.

**Philadelphia Net Increased**

The Philadelphia (Pa.) Rapid Transit Company reports earnings as follows:

	1919	1918
November		
Operating revenue..\$	3,055,953	\$ 2,717,880
Operation and taxes .....	2,065,139	1,785,521
Operating income \$	990,814	\$ 932,359
Non-operating income .....	42,029	47,041
Gross income ...\$	1,032,844	\$ 979,401
Fixed charges ....	813,854	808,535
Net income ...\$	218,989	\$ 170,866
Eleven Months Ended Nov. 30		
Operating revenue..\$	32,216,937	\$28,253,423
Operation and taxes .....	22,094,180	18,669,287
Operating income \$	10,122,756	\$ 9,584,135
Non-operating income .....	483,341	567,522
Gross income...\$	10,606,098	\$10,151,657
Fixed charges ....	8,923,349	8,825,994
Net income ...\$	1,682,748	\$ 1,325,663

## Financial News Notes

**Kansas City Sale Postponed.**—The disposition of the Kansas City Outer Belt Railroad, which was to have been sold under foreclosure a few weeks ago, has been indefinitely postponed.

**New Boston Elevated Director.**—Henry S. Lyons has been elected a director of the Boston (Mass.) Elevated Railway, succeeding E. V. R. Thayer. Mr. Lyons has been secretary of the corporation for a number of years.

**Indiana Road Abandoned.**—C. J. Dunn, general superintendent of the Indiana Utilities Company, Angola, Ind., writes that the Lake James Railroad has been abandoned and that it did not operate during 1919.

**Abandonment Authorized.**—The Caldwell (Idaho) Traction Company has been authorized by the Public Service Commission to discontinue its Lake Lowell branch. The branch is less than 2 miles long. It was built to serve a resort that has been abandoned.

**Refunding Issue Authorized.**—The Public Service Commission of Massachusetts has authorized the Worcester & Webster Street Railway, Webster, Mass., to issue \$150,000 of first mortgage 5 per cent twenty year bonds, the proceeds to be used to take up a like amount of bonds due on Dec. 1.

**Loan Granted to Cincinnati Traction Company.**—The City Council of Cincinnati, Ohio, has passed, by a majority of twenty-five, an ordinance authorizing the Cincinnati Traction Company to borrow money to pay outstanding deficiencies and to grant the company an extension of twenty-five years in which to repay the losses.

**Winnipeg Value \$12,934,293.**—The present value of the Winnipeg (Man.) Electric Railway's holding, exclusive of land, rolling stock, gas properties and "intangible capital," according to the appraisal just completed by the Manitoba Public Utilities Commission experts, is \$12,934,293. To replace the holdings, however, would cost \$15,724,501.

**Suspension of Line Authorized.**—Job E. Hedges, appointed receiver of the New York (N. Y.) Railways by Federal Judge Mayer, has been authorized by the court to suspend operation on the Canal Street line, on which service has been continued for some time past to comply with the provisions of the franchise. It is said that the cost of operation has greatly exceeded the revenues from the line.

**Pascagoula Property Being Scraped.**—E. J. Ford, who recently bought the property of the Pascagoula Street

Railway & Power Company, Pascagoula, La., has sold it to A. Patterson and associates, who are taking up the rails. The rolling stock and other material have already been sold. It is stated that the light, water and ice properties will be continued in operation.

**Common Stock Dividend Increased.**—The Eastern Texas Electric Company, Beaumont, Tex., has declared a semi-annual dividend of \$4 a share on the common stock, payable on Jan. 2 to stock of record of Dec. 15. This places the outstanding \$1,400,000 of common stock on an 8 per cent annual basis. Previous dividends have been at the rate of 5 per cent per annum.

**Eastern Massachusetts Abandons Line.**—The Eastern Massachusetts Street Railway, Boston, Mass., has discontinued service on its lines from Bridgewater to New Bedford and has abandoned all but 3 miles of the line from Taunton to Bridgewater. Cars which have been operating between Providence and Bridgewater now make their eastern terminus at the monument in Raynham Center.

**Temporary Receiver at Brunswick.**—Samuel C. Steinhart and Oliver Lisman, New York, N. Y., have been appointed temporary receivers of the City & Suburban Street Railway, Brunswick, Ga., by order of Federal Judge Evans, under a petition of Columbia Trust Company, New York, and the Mutual Light & Water Company, of Brunswick. A hearing for a permanent receivership will be held on Dec. 22.

**Permanent Receiver of Company.**—The appointment of William L. Doyle, Easton, Pa., as receiver for the Northampton, Washington & Easton Traction Company has been made permanent by Judge Rellstab in the United States District Court. The temporary appointment was made upon application of the Bankers' Trust Company. The affairs of the company were reviewed briefly in the ELECTRIC RAILWAY JOURNAL for Nov. 15, page 953.

**Judgment Against Interurban.**—Judge M. J. Wade, in the Federal Court, recently handed down a judgment against the Clinton, Davenport & Muscatine Interurban Railway, in favor of the Tri-City Railway & Light Company, Davenport, Ia. The decision gives the Tri-City Railway a chance to sell the entire Muscatine line and thus collect the amount of the judgment. The Muscatine lines have been idle since Aug. 1.

**Protective Committee for Corpus Christi.**—A committee consisting of John Gribbel, chairman; Louis J. Kolb, J. C. Neff, John J. Anderson and John S. Bowker has been formed in the interest of the bondholders of the Corpus Christi Railway & Light Company, Corpus Christi, Tex., placed in the hands of receivers as noted in the ELECTRIC RAILWAY JOURNAL for July 20. Deposits of bonds are to be made with Fidelity Trust Company, Philadelphia, Pa.,

which will issue certificates of deposit.

**Massachusetts Road in Liquidation.**—The Swansea & Seekonk Street Railway, Swansea Centre, Mass., has surrendered its charter for the appointment of a receiver to wind up its affairs. Dr. E. C. Kellogg, president, Willard C. Gardner and Herbert H. Marble, comprising the executive committee of the board of directors, have immediate charge of the business of closing the company's affairs. They will carry out the two sales of company property contemplated. The railway equipment is to be sold to the McGovern & Company, of New York City, and the real estate which includes the carhouse, to George H. Waring.

**Receiver Discharged.**—John T. Coghlan, receiver of the Northern Electric Railway, Chico, Cal., was discharged from that post on Dec. 1 by Federal Judge William C. Van Fleet. Mr. Coghlan reported to the court that the affairs of the company had all been successfully wound up and that there were no further duties for him to perform. The Northern Electric Railway and allied companies were placed in the hands of Mr. Coghlan as receiver on Oct. 5, 1914. The sale of the properties under foreclosure was made on May 28, 1918, to the Sacramento Northern Railroad.

**Foreclosure Sale Dec. 29.**—All property of the Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind., will be placed on sale at public auction at Fort Wayne on Dec. 29. The company has been in the hands of a receiver for two years and the court of Allen County has ruled that the sale shall be held on the date named. The plan for carrying out the financial rehabilitation of the company is that advanced by the committee representing the holders of the thirty-year first consolidated 5 per cent bonds of the Fort Wayne & Wabash Valley Traction Company under terms outlined in the ELECTRIC RAILWAY JOURNAL for Aug. 30, page 450.

**Reorganization Effective Jan. 1.**—The property of the Buffalo Southern Railway, Buffalo, N. Y., which has been in the hands of N. A. Bundy as receiver, was sold recently to interests representing the Erie County Traction Company, which will take possession on Jan. 1. The system consists of 25 miles of road extending out of Buffalo. A receiver was appointed on Sept. 26, 1913. The old company had outstanding \$547,000 of stock, \$600,000 of funded debt and \$41,800 of receiver's certifications. The new company will have outstanding \$450,000 of stock and \$100,000 of bonds. The reorganization plan as proposed by the representatives of the bondholders has been approved by the Public Service Commission. Under it the amount of securities outstanding per mile of track will be reduced from about \$46,000 to \$22,000. Interest requirements, moreover, are cut from about \$32,000 to \$6,000 a year.

# Traffic and Transportation

## St. Joseph Fares Increased

Missouri Commission Grants Seven-Cent Rate—Eight-Cent Advance for Trainmen

Fares on the lines of the St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo., were raised from 5 cents to 7 cents on Dec. 1 under authority of the State Public Service Commission. On the same date a new wage scale became effective for conductors and motormen. The question of wages for linemen remains to be settled.

The commission's ruling is to remain in force until Jan. 1, 1921, when an application to extend the time or to make the rate permanent will be in order. The company will sell tickets at the rate of two for 13 cents. Fare for children is raised to 4 cents, with eight tickets for 26 cents.

### RETURN OF 5.9 PER CENT

The commission estimated that the new rates would produce enough revenue to give the company a return of 5.9 per cent on the present value of the property after allowing 3 per cent, for depreciation. The company's request for an increase in light and power rates was denied. The company, which filed its application for a 6-cent fare with the commission a year ago, later asked for one of 8 cents.

In fixing the rate at 7 cents the commission said:

We find that the above rates are about all that the traffic can bear. All of the street railway lines of the St. Joseph Railway, Light, Heat and Power Company are short. An increase in fares over the above schedule would only result in decreased net revenue. There are three parties in this matter—the public, the company and the employees. It was after the full and careful consideration of all that this award was made.

The new wage scale, which will give the employees an estimated increase of \$112,000 a year, is satisfactory to the men, according to B. F. Kohler, president of the union. The question had been submitted to the commission by agreement between the company and its employees. The settlement of the wage dispute between the company and the linemen will now be taken up.

### EIGHT-CENT WAGE INCREASE

The new scale for conductors and motormen follows: First six months, 40 cents an hour; second six months, 46 cents; second year, 48 cents; third year and thereafter, 50 cents. One man car operators are to receive 4 cents above the scale.

A year ago the federal war labor board awarded the men the following scale: First three months, 38 cents an hour; next nine months, 38 cents an hour; next nine months, 40 cents; thereafter, 42 cents.

The new scale is an increase of 2 cents an hour for beginners and 8 cents an hour for employees who have been with the company more than two years.

The scale which the motormen and conductors had asked was as follows: First three months, 55 cents an hour; next nine months, 60 cents an hour; thereafter, 65 cents an hour. The maximum of the new scale is 15 cents less an hour than the maximum asked by the men.

## Massachusetts Jitneys Lose

Two important decisions in what was virtually a test case between jitney bus owners and the Eastern Massachusetts Street Railway were rendered on Dec. 12, by Judge Carroll of the Supreme Bench of the State of Massachusetts. These decisions were handed down in the case technically known as Burgess vs. the city of Brockton, Burgess being the owner of a jitney bus formerly operating in the city of Brockton and who had been forced to cease service as the result of the decision of the Brockton City Council abolishing jitney operation.

The first decision pertained to the legality of the hearing given to jitney owners concerning the abolishing of operation of jitney service within the limits of the city of Brockton. The testimony developed that while no published legal notice had been circulated, ample publicity concerning the proposed action of abolishing the jitneys had been given through the local papers and that the authorized agent of the jitney owners had appeared before the City Council and had asked for a hearing. Furthermore a letter from the agent as well as one from the president of the jitney drivers' union concerning the proposed public discussion had been received by the Council.

### CITY COUNCIL UPHELD

Judge Carroll in his decision held that when the authorized agent appeared before the City Council for the discussion of jitney matters the association was legally represented and that the decision of the City Council in abolishing the jitney service is valid.

The second decision was rendered on the motion of the attorney representing the jitney bus owners, to appeal to a full bench of the State Supreme Court, and petitioning for an order to allow the jitney service to be resumed pending the outcome of the appeal.

In this case Judge Carroll declared that he could not consider an order to restore the jitneys to the streets of Brockton since he presumed that the City Council had acted legally in establishing an ordinance abolishing operation within the city limits.

## Portland Needs Relief

Report of City's Engineer Urges the Granting of Higher Fare to Save Company from Bankruptcy

A higher fare is imperative for the Portland Railway, Light & Power Company, Portland, Ore., if the company is to be saved from bankruptcy. This is the conclusion arrived at by J. P. Newell, an engineer employed by the city authorities to investigate the company's affairs, who has just filed his report. Mr. Newell declares that to preserve the financial integrity of the company, a small charge for transfers may be required in addition to a fare increase.

The company some time ago presented arguments before the State Public Service Commission for an increase in fare from 6 cents to 8 cents. The commission has as yet given no decision in the case. Mr. Newell's report indicates that the company is operating at a monthly loss, estimated at approximately \$85,000. It is pointed out that unless relief is granted, the company cannot avoid receivership.

### DISINTEGRATION THREATENED

Mr. Newell expresses the opinion that the prospect of putting the company through bankruptcy proceedings presents a grave situation, as the railway system is made up of three principal companies, besides scattering small ownerships. Each of the properties is covered by separate bond issues, and in case of default Mr. Newell expresses the opinion that a vigorous plea will be made to secure the appointment of a separate receiver for each of the constituent companies. If such a request were granted, the three systems would be operated independently, with consequent curtailment of the transfer privilege.

Mr. Newell's report was based upon an investigation of several months which included every phase of the company's affairs. Not only were the company's records probed, but separate investigations were made to ascertain the facts in the case. Mr. Newell's report shows that the company's statements to the Public Service Commission in regard to earnings and expenses have been verified. It shows that the company will be required to expend \$45,000 each month on track maintenance next year. Moreover, operating expenses have been greatly increased by the wage advance of 6 cents an hour recently granted to trainmen and announced in the *ELECTRIC RAILWAY JOURNAL* for Nov. 15, page 949.

Mr. Newell recommends for relief to the company, the following program:

A small charge for transfers; establishment of a central zone for free transfers, with a transfer charge on all traffic originating outside of it.

Authorization of such fares on lines built to develop land values in thinly-settled districts as will pay the cost of operation, or, failing that, their abandonment.

Establishment of one-way traffic, re-arrangement of loops in center of city to avoid unnecessary crossings, and adoption of traffic regulation which will facilitate the movement of cars without undue increase of maximum speed.

## \$128,000 Increase in November

### This Is Result in Connecticut for First Month Under Zone Fares— System Protested

The Public Utilities Commission of Connecticut began hearings on Dec. 8 on the petitions of various cities and towns served by the Connecticut Company in opposition to the zone system as recently adopted. The company concluded its case on Dec. 9, when cross-examination of its witnesses began. It was expected that this would be finished on Dec. 15. The petitioners were to begin the presentation of their case on Dec. 18.

Although the company would have been within its rights in requiring the petitioners to specify their objections and prove that the rates now in effect are unreasonable or the service inadequate, it waived these rights and immediately presented its justification of the new system and the rates charged under it.

Up to date there has been nothing to show what the petitioners want, or what they object to. The public interest in the hearings has not been keen, and the only attendants at the hearings have been the witnesses, lawyers for the company and the petitioners and newspapermen, with an occasional spectator.

The chief opponents to the zone system are certain residents of the town of Manchester, who for years have enjoyed a commutation rate for rides between Manchester and Hartford. When the zone system was put in effect on Nov. 2, the company abolished all reduced rate tickets, and the Manchester commuters organized a committee which raised money to engage an attorney to fight the zone system. Boards of Aldermen and City Councils in Bridgeport, New Haven, Stamford and other places also filed protests against the new system, although they specified nothing in their complaints. At a conference of the attorneys representing the different petitioners it was decided to allow the attorney for the Manchester commuters to do the cross-examining of the company's witnesses.

#### COMPANY'S CASE PRESENTED

Evidence was submitted by the company to show that the zone system was established after a very careful survey of traffic and other conditions on the company's lines, and that the zone system was in fact a suggestion of the people, whose representative in the 6-cent fare case in 1917 advocated the retention of a minimum base fare for riding in city territory and the division of outlying territory into zones, with charges to be made according to the distance traveled by the rider.

Lucius S. Storrs, president of the Connecticut Company, asserted that the system had proved satisfactory and popular. He testified that in November, the first month of its trial, the company's income had increased \$128,000 over the same month in 1918, or about 17 per cent. This was not enough to

make possible the payment of back taxes and other obligations of the company, but it was very encouraging. He testified as to the manner in which the zones had been determined, and asserted that in his opinion the zone system was the fairest method of charging for electric railway transportation.

Under cross-examination Mr. Storrs asserted that it was not to the advantage of the company to grant a preferential commutation rate to any riders, holding that electric railway service in itself is a commutation service, and that the company could not afford to carry passengers at a loss.

J. K. Punderford, vice-president and general manager of the company, said that the company "hoped" for an increase of about \$1,500,000 a year in its revenues through the zone system. Asked if he thought the company had given the 6-cent fare a "fair trial," Mr. Punderford said it had given it a dangerously long trial.

Walter J. Flickinger, assistant to the president, testified to the manner in

which the company prepared for the zone system. He presented maps illustrating the studies of population, traffic flow, density of traffic and other features and described fare collection systems in use in other parts of the country.

Thomas J. McGreevy, assistant comptroller of the company, testified to certain financial statistics of the company. Mr. Flickinger and Mr. McGreevy were to be cross-examined on Dec. 15.

So far the hearing has developed no serious opposition to the zone system except in a general way, some of the opposition being described as "political" by one of the witnesses.

The commission announced that after the testimony had been presented regarding the general features of the zone system hearings would be held in Hartford and New Haven, and possibly in Bridgeport, when local complaints such as the location of specific zone limits, etc., would be taken up.

Witnesses for the company all expressed appreciation of the co-operation of the employees and the public in putting the new system in effect, and asserted that were it not for this co-operation the new plan would have been far less satisfactory.

## Flat Fares Restored in Jersey

### Seven Cents Cash, One Cent for Transfer, Authorized—Commission Says Zone Plan Had Insufficient Trial

Faced with the prospect of receivership unless some means were found of immediately increasing its revenue, the Public Service Railway on Dec. 7 abandoned the zone system and returned to a flat fare of 7 cents, with 1 cent for a transfer. The change was permitted under an order of the New Jersey Board of Public Utility Commissioners issued on Nov. 29. The board's action was announced in the *ELECTRIC RAILWAY JOURNAL* for Nov. 15, page 957.

The Public Utilities Commission issued its order after Thomas N. McCarter, president of the company, had declared at a hearing that the five-and-one plan, under which the fare was 5 cents for the first two zones and 1 cent for each succeeding zone, with 1 cent for a transfer, was resulting in a loss of \$3,000 daily as compared with the former "three-and-two" zone plan and of \$12,000 daily when compared with the flat 7-cent fare.

For the first seven days under the plan, which became effective on Nov. 16, the company's revenue was \$378,198. The receipts under the "three-and-two" plan during the last week of its trial were \$400,387. The estimated receipts that would have accrued under the flat 7-cent fare with 1 cent for a transfer would have totaled \$462,206.

Mr. McCarter told the commission that to avert the chaos which would result if the Public Service Railway went into receivership, the financial backers of the company would advance the \$750,-

000 needed on Dec. 1 to meet bond interest payments. They insisted, however, that the zone system be abandoned and that a flat 7-cent fare be restored. He stated that, unless the flat fare was restored, the loan would be unavailable and that a receivership would follow.

#### COMMISSION FAVORS ZONE PLAN

Although permitting the company to abandon the zone system, the commission stated in a memorandum made public on Dec. 2, that in its opinion the zone plan had not received a fair trial. The trial under existing conditions, said the board, had been insufficient and unfair, and had not received the full support either of the company or of the public. The commission did not sustain the contention of platform men that the system was impracticable from an operating standpoint. The memorandum said in part:

We believe that with co-operation the plan proposed would at least have had a fair trial. It does not follow that the plan proposed would be adaptable in all its details or solve fully the problem satisfactorily either to the public or to the company. With a fair trial of the plan proposed, however, adjustments could be made, and the experience which could be obtained would furnish data which could be submitted to and studied by the experts engaged by the public and the company. Some plan acceptable to the public and the company might thus have been evolved. That the plan has not had a fair trial, however, must be conceded.

The circumstances which were present during the experiment of the plan with the schedule of rates first permitted to be charged were sufficiently dealt with in our former report to avoid the necessity of repetition here. As a sequence to these



circumstances may be assigned the attitude of the platform men in applying for the abrogation of the system since the recommendation of this board of the present schedule of rates thereunder. The board is not convinced that the details to which the platform men objected present difficulties that make the plan impractical from an operating standpoint. Reasonable support and co-operation on the part of the platform men as well as the public are important, if not essential, for the success of the plan. It is evident that this co-operation will not be given and the board cannot compel the same.

We are, therefore, of the opinion that neither a sufficient nor a fair trial of the plan under the existing rates has been had or under present conditions is practicable. The trial, however, has alike been costly to the company as well as to the principle involved. By its calculations, the company shows that under the present plan with the present rates at the end of the present year it will have an actual operating loss of \$750,000, after the payment of fixed charges and taxes, exclusive of any sum whatsoever for depreciation reserve.

A careful analysis of these figures is not necessary, as it is evident that neither rate under the zone plan has yielded as much as the flat rate of seven cents would have yielded had it been continued in effect. Neither is it necessary to determine whether the flat rate of 7 cents with 1 cent for a transfer will yield the amount of revenue which the company estimates it will yield. The company's officials believe that it can "pull through" until the pending proceedings are finally determined and are satisfied to be permitted to make such a change.

The commission, while it indorsed the zone plan in principle and believed that, given a fair trial, it would work successfully, stated that the continuation of the system under present conditions was inadvisable. Of the financial aspects of the case it said:

It is evident that the company's receipts under the zone plan are not sufficient for it to remain solvent. The bankruptcy of an important public utility is always accompanied by adverse conditions which affect not only investors in its securities, but the public served by it. That a public utility may remain solvent is not controlling in fixing its charges, but the board cannot, with the knowledge that bankruptcy would likely result, insist upon a rate unless it clearly appears that the rate is just and reasonable and should be imposed without regard to its effect upon the securities of the company.

As has been stated heretofore, the board is now conducting a proceeding which will result ultimately in the fixing of a rate just and reasonable to the public and which will afford a fair return to the company upon the value of its property used and useful in the service of the public. The board does not have sufficient evidence to justify it in determining that the existing rate is one which can be ordered continued without regard to the imminent insolvency of the company.

In view of all the facts and circumstances involved, the board regrets that for the time being, at least, the zone plan, the principle of which has commended itself to our judgment, must be discontinued and the rates of fare in effect before its adoption again charged.

The return to a flat fare was accomplished with little confusion. The company has changed its cars back from "pay-as-you-leave" to the "pay-as-you-enter" type. Cash registers and other equipment used under the zone plan have been removed and will be sold.

The commission will continue the valuation hearings as a result of which it hopes eventually to fix a permanent fare.

Mr. McCarter on Dec. 17 announced that the total loss sustained by the company under the zone system amounted to approximately \$1,500,000. He stated that, under existing conditions and with a 7-cent fare the company should prove self-supporting. He believed that the valuation proceedings would be concluded early in 1920.

## Columbus May Ask Six-Cent Fare

L. D. Hutchins, chairman of the board which is arbitrating wage differences between the Columbus Railway, Power & Light Company, Columbus, Ohio, declared before the City Council on Dec. 4 that the company was preparing to ask an increase in fare. According to Mr. Hutchins the company is drafting an ordinance providing for a 6-cent cash fare with six tickets for a quarter. Mr. Hutchins appealed to the Council to support the ordinance when it was submitted, since he said, the board of arbitration could grant no wage increase until higher fares were authorized.

The average wage of employees is now 43 cents an hour. Mr. Hutchins intimated that the arbitrators had agreed on a new scale, but were waiting for the city authorities to take action on the fare question before announcing their decision. To grant higher wages, he said, would lead to bankruptcy at the present fare of 5 cents with eight tickets for a quarter. He declared that operation of the railway department had resulted in a loss of \$199,361 for the first eight months of 1919 and that, at the present wage scale, the loss for the year would amount to \$265,814. He stated that if the fare were increased the company should be able to expend \$500,000 annually on street improvements.

## Transportation News Notes

**Tokens in Bloomington.**—The Bloomington & Normal Railway, Bloomington, Ill., has adopted the use of metal tokens, which are sold four for 25 cents. The tokens replace the strip tickets formerly issued. The cash fare is 7 cents.

**Eighteen Cents on Vermont Interurban.**—The City Council of Montpelier, Vt., on Nov. 28 authorized the Barre & Montpelier Traction & Power Company to charge 18-cent fares between Montpelier and Barre. The fare in the cities is 6 cents.

**Five Cents in Charlestown.**—The Boston (Mass.) Elevated Railway has established a 5-cent fare on its line between Sullivan Square and Hanover Street via Haymarket Square and Sudbury Street, Charlestown. The new fare became effective on Nov. 29.

**Back to the Skip-Stop.**—The skip-stop system has been put into effect on the United Railways, St. Louis, Mo., as a coal conservation measure. Supervisors reported that there was little confusion. Most persons remembered where stops were made under the system during the war.

**Seven Cents in Charleston.**—The City Council of Charleston, S. C., has

ratified an ordinance granting the Charleston Consolidated Railway & Lighting Company the right to charge 7-cent cash fares. The higher rate went into effect on Nov. 12. Four tickets are sold for 25 cents. Transfers continue to be given free.

**Wants Seven Cents in Chattanooga.**—Attorneys for the receiver of the Chattanooga Railway & Light Company, Chattanooga, Tenn., have asked the federal court for permission to apply for an increase in fares from 5 cents to 7 cents. In addition to raising the fare the company would charge 2 cents for transfers.

**Would Raise Zone Fares.**—The Omaha & Southern Interurban Railway, which operates lines between Omaha and Fort Cook, has filed an application with the Railway Commission of Nebraska for an increase in fares from 5 cents to 7 cents in each of the three zones. The company would sell four tickets for 25 cents.

**Higher Petroleum Rate Refused.**—The California Railroad Commission has denied the application of the Pacific Electric Railway, Los Angeles, for an increase in rates for transporting petroleum products in car-load lots. The company asked permission to install rates on a parity with those charged by the roads under Federal control.

**More One-Man Cars in Brooklyn.**—The use of one-man safety cars in Brooklyn, N. Y., has been extended to the Montague Street lines of the Brooklyn City Railroad. Additional cars are being received from time to time. A description of the technical features of the cars was published in the ELECTRIC RAILWAY JOURNAL for Oct. 25.

**Seven-Cent Zones on Interurban.**—The Public Service Commission for the Second District has granted the petition of the Geneva, Seneca Falls & Auburn Railroad, Seneca Falls, N. Y., to increase fares. The fare on the zones outside of Geneva will be 7 cents. In Geneva the 6-cent fare, which has been in force for some time, will be continued.

**Higher Fares in Burlington.**—The voters of Burlington, Ia., at a special election on Nov. 24 approved an ordinance granting the Burlington Railway & Light Company permission to install a fare of 7 cents with four tickets for 25 cents. At a previous election in October the ordinance was rejected. The increased rate became effective on Nov. 27.

**Another Eight-Cent Road.**—The Southern Pennsylvania Tracton Company, which operates the city lines in Chester, Pa., and connects Wilmington and Darby, has filed with the State Public Service Commission a new tariff raising fares from 6 cents to 8 cents. The increase is asked to meet the wage advance of 10 cents an hour recently granted to the employees.

**City Agrees to 7-Cent Fares.**—The City Council of Oswego, N. Y., has agreed to suspend the present franchise of the Empire State Railroad for a period of two years, thus permitting

the company to charge a 7-cent fare on the Oswego city lines. The company will be asked to furnish ten-minute service during rush hours. An 8-cent fare had been asked.

**Skip-Stop to Go in Memphis.**—The City Commission of Memphis, Tenn., has ordered the Memphis Street Railway to abandon the skip-stop on its lines. Several thousand persons signed a petition asking that the company be compelled to stop its cars at all street intersections. The company has obtained a temporary injunction restraining the city authorities from enforcing the order.

**Fares Up in Alabama Towns.**—The Alabama Public Service Commission has authorized the Alabama Power Company and the North Alabama Traction Company to raise fares on their lines in Huntsville, Decatur, Anniston and Albany. In Decatur and Albany a 7-cent fare will be charged, while a two-zone system will be established in Anniston with a 5-cent fare for a ride within each zone and a 10-cent fare for one in the two zones.

**Seven Cents in Quebec.**—A 7-cent cash fare was approved for the Quebec Railway, Light & Power Company, Quebec, Que., on Nov. 24 when a contract providing for the increased rate was signed by the Mayor of the city and by W. J. Lynch, general manager of the company. The company will sell four tickets for 25 cents and seventeen tickets for \$1. Limited tickets will be sold at the rate of six for 25 cents. School tickets will be sold ten for 25 cents.

**Tickets for Danbury.**—The Danbury & Bethel Street Railway, Danbury, Conn., has put in use books of twenty-one tickets, each ticket good for the 7-cent fare, which are sold at a saving of one fare. Books of twenty-two tickets, each good for a 10-cent fare, can be purchased at a saving of two fares. The 10-cent ticket is good for a ride between Bethel and Lake Kenosia, while the 7-cent ticket will be accepted for a ride within the first fare district.

**Skip-Stop Ended in Dallas.**—The City Commission of Dallas, Tex., has passed an ordinance formally abolishing the skip-stop system on the lines of the Dallas Railway within the city limits. The skip-stop has not been in use for several months, during which time the public was given a sixty-day trial of the former system of stopping at every block. A referendum was then taken on the question, which showed the patrons were overwhelmingly opposed to the skip-stop.

**Cleveland Ticket Rate Reduced.**—The Cleveland (Ohio) Railway on Dec. 15 began the sale of six tickets for 25 cents. The cash fare remains at 5 cents. The 1-cent charge for a transfer is retained. The company, which operates under the Taylor cost-of-service plan, formerly sold eleven tickets for 50 cents. A test of public sentiment indicated that citizens desired the lower rate rather than to have extra revenue diverted

to other than necessary extensions. The company has been awarded an increase in the dividend rate to 7 per cent.

**Transfers Abolished in San Antonio.**—Transfers have been abolished on the lines of the San Antonio (Tex.) Public Service Company through an agreement with the city authorities. The company will give the new plan a sixty-day trial and, if it works successfully, will accept the elimination of transfers in place of a fare increase. It recently obtained an injunction from Judge Duval West in the Federal District Court restraining the city from interfering with the collection of fares in excess of 5 cents.

**Six Cents in Spartanburg.**—The South Carolina Light, Power & Railways Company, Spartanburg, S. C., has announced that it will raise the fares in that city from 5 cents to 6 cents. The increase will be made under the terms of an ordinance passed recently by the City Council authorizing the company to install a maximum fare of 7 cents. The people of Spartanburg at an election called by the City Council several months ago voted against authorizing the railway to increase its fare.

**Eight-Cent Fare Too Low at Walla Walla.**—The Walla Walla (Wash.) Railway has announced that as a result of the rapid increase in the use of automobiles by the residents of the city, the company can no longer operate with an 8-cent fare, and that unless some step is taken to grant relief, it will discontinue operation in January. The State Public Service Commission has recommended that the city lease the lines and continue their operation for the time being, or until such time as a plan is devised to put them on a self-sustaining basis.

**Rhode Island Appeal Postponed.**—The Supreme Court of Rhode Island has postponed to Jan. 16, 1920, the hearing of the appeal taken by nine Rhode Island cities and towns from the order of the State Public Utilities Commission granting the Rhode Island Company, Providence, permission to charge 6-cent fares. The court allowed the postponement to give counsel representing the municipalities and the company more time for the preparation of briefs. The company is now charging the 6-cent fare authorized by the commission.

**More Transfers Abolished.**—Federal Judge Mayer has granted the application of counsel for Job E. Hedges, receiver of the New York (N. Y.) Railways, for authority to cease exchanging transfers with the Fifty-ninth and Grand Street crosstown lines and the West Side Belt Line, operated by the Third Avenue Railway. The consent of the Public Service Commission for the First District will also be necessary in connection with the Fifty-ninth Street line because there the transfer system was the result of an agreement based upon a division of the fares received.

**Would Abolish More Cleveland Stops.**—Fielder Sanders, Street Railway Commissioner of Cleveland, Ohio, has under consideration a plan for eliminating a number of the present car stops on the lines of the Cleveland Railway. His plan by speeding up running schedules in outlying parts of the city, would, it is felt, serve as a partial solution of Cleveland's traffic problem. Commissioner Sanders, with the aid of officials of the company, is making a survey of the entire system and plans to present an exhaustive report on the subject to the new City Council, which takes office on Jan. 1.

**Zone Fares on Long Island Interurban.**—The Public Service Commission for the First District of New York on Dec. 11 authorized the Long Island Electric Railway, New York, N. Y., to establish a zone system under which the fare between Jamaica and Far Rockaway, on Long Island, will be raised from 10 cents to 15 cents, and between the New York city line and Belmont Park from 5 cents to 10 cents. In granting the increases the commission took the stand that the company's franchises contain no provision limiting the fare. The increased fare is estimated to yield approximately \$45,000, or only about two-thirds of the amount needed, according to the commission's own figures, to cover operating expenses and taxes.

**Revised Holyoke Fares Approved.**—The Public Service Commission of Massachusetts has authorized the Holyoke Street Railway to put into effect the revised zoning system on its Holyoke local lines under which the fare in each zone will be placed at 6 cents and free transfers will be abolished. Under the zone system as approved by the commission last December, the company's system was divided into eleven zones, the central zone embracing the central part of the city and certain populous centers, such as Fairview and Willimansett. The fare in this zone was placed at 7 cents, with free transfers, and in the outlying zones at 5 cents. The system at Holyoke consists of more than 70 miles of track, operating about 180 passenger cars.

**May Raise Cincinnati Fare.**—The Cincinnati (Ohio) Traction Company has notified W. C. Culkins, city street railway director, of its intention to increase its fare 5 cents on Jan. 1, 1920. The present fare is 7 cents. Whether the increase will become effective depends upon Cincinnati bankers with whom the company is negotiating for a loan of \$6,277,000. If the loan is secured the increase will not be made, but if negotiations fail an increase is inevitable and further increases are probable. According to the franchise when the company's books show a deficit for two months an increase in the fare is permitted. Official announcement of this increase must be made on the fifteenth day of the month preceding that on which the increase will go into effect.

## Personal Mention

### Expert Traction Adviser

**John Bauer Appointed to This Position on Transit Matters by New York's Corporation Counsel**

John Bauer, who has been Chief of the Division of Accounts of the Public Service Commission of New York, First District, since July 1, 1917, has been appointed expert adviser on transit matters in the office of the Corporation Counsel of New York City. It is understood that his work in this capacity will deal largely with the financial and accounting questions relating to any transit litigation and proposed settlements of the electric railway situation which may arise.

Mr. Bauer's experience with the Public Service Commission, where he had charge of the accounting and financial



JOHN BAUER

investigations in connection with rate cases, issues of stocks and bonds, rapid transit contracts and miscellaneous problems, will prove useful in this connection.

Mr. Bauer received his technical training in economics and finance at Yale University. In 1908 he went to Cornell University, where he served as instructor and then as assistant professor in economics, lecturing on general economics, corporation finance and accounting. In 1914, to get practical contact with public utility regulation, he obtained a leave of absence from Cornell University and temporarily joined the Public Service Commission, First District, in New York City. Here he worked particularly on the revision of the uniform system of accounts, and in addition did a variety of analytical work in connection with rate cases, capitalization cases, rapid transit contracts, etc.

In 1916 he resigned both from Cornell University and the Public Service Commission, to take charge at Prince-

ton University of the newly created department of accounting, corporation finance and public utilities. Later he returned to the Public Service Commission in the capacity already mentioned.

Mr. Bauer has written articles on valuation, fair returns, and commission control of public service corporations for the *ELECTRIC RAILWAY JOURNAL* and other technical periodicals.

L. O. Gordon has resigned as general manager of the Jackson Light & Traction Company, Jackson, Miss.

W. T. Waters, publicity agent of the Georgia Railway & Power Company, Atlanta, Ga., has resigned to enter the automobile sales business in Atlanta.

Albert Clabaugh has been appointed manager of the Jackson Light & Traction Company, Jackson, Miss. Mr. Clabaugh succeeds L. O. Gordon, resigned.

N. H. Holifield, for several years superintendent of the Laurel Light & Railway Company, Laurel, Miss., has resigned. Mr. Holifield will engage in farming at Jennings, La.

James H. Wilkerson, a member of the Public Utilities Commission of Illinois, has been named by Governor Lowden to be chairman of the commission. Mr. Wilkerson succeeds Thomas E. Dempcy, resigned.

W. C. Dunbar, comptroller of the Philadelphia (Pa.) Rapid Transit Company, has been elected vice president of the company in charge of accounting and finance. The office of comptroller has been discontinued.

Thomas E. Dempcy, chairman of the Public Utilities Commission of Illinois, has resigned. Mr. Dempcy has been ill from pneumonia for some time and has taken no active part in the work of the commission for several weeks.

Carl B. Johnson was recently appointed superintendent of transportation of the Monongahela Valley Traction Company, Fairmont, W. Va., to succeed O. L. Flowers, now superintendent of the freight department.

Lee T. Shannon, formerly superintendent of transportation of the Altoona Logan Valley Electric Railway, Altoona, Pa., has been appointed general manager and elected a director of the Johnstown (Pa.) Traction Company.

W. C. Cook, assistant superintendent of the Chicago, North Shore & Milwaukee Railroad, Highwood, Ill., recently met with an accident while engaged in service for his company which has necessitated the amputation of one of his legs.

G. A. Richardson, who has been transportation manager of the Phila-

delphia (Pa.) Rapid Transit Company since last April, has been elected vice-president of the company in charge of operations, the office of transportation manager having been abolished. Mr. Richardson will enter upon his new duties on Jan 1. The office of vice-president in charge of operations is a newly created one, and will represent a considerable extension of Mr. Richardson's duties. Before becoming connected with the Philadelphia Rapid Transit Company, he was general superintendent of the Puget Sound Traction, Light & Power Company, Seattle, Wash. A biography and a portrait of Mr. Richardson were published in the *ELECTRIC RAILWAY JOURNAL* for April 12, 1919, page 762.

## Obituary

**Herbert L. Breneman**, a director of the Cincinnati (Ohio) Street Railway, died at his home in Cincinnati on Sept. 21. Mr. Breneman was a retired capitalist. He had taken a prominent part in the business development of Cincinnati.

**Julius C. Dew**, for many years road-master of the East St. Louis & Suburban Railway, East St. Louis, Ill., died on Nov. 15 at the age of fifty-nine years. Mr. Dew had been ill for several weeks.

**H. L. Gantt**, consulting engineer and author on engineering topics, has died. Mr. Gantt was perhaps best known through his writings on industrial management, a field in which he had specialized since 1884. He was also the inventor of the continuous piler, used in textile factories.

**Philip L. Saltonstall**, officer and director of many electric railway and electric light companies, died at his home in Boston on Nov. 15. Mr. Saltonstall was born in Newton, Mass., May 4, 1867, was educated at St. Mark's School and Harvard University and soon after graduation from the latter institution became associated with the Thomson-Houston Electric Company, Lynn, Mass. He subsequently became active in the direction of electric railway and light companies, serving as a director of the Bay State Street Railway; president and a director of the Hartford & Springfield Street Railway; treasurer and a director of the Manchester Traction, Light & Power Company, and a trustee and a member of the executive committee of the Massachusetts Electric Companies. Mr. Saltonstall was one of the financiers who a number of years ago bought a group of electric railways and formed the Bay State Street Railway, now operated as the Eastern Massachusetts Street Railway. He took a keen interest in electric railway problems and was especially active in promoting civic welfare and community affairs.

# Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,  
SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

## Electrical Sheet Mills Booked to June, 1920

**Demand Is Heavy—March, 1919, Prices Prevail—Many Manufacturers Will Be Short of Stocks**

Producers of electrical sheets are sold well through the second quarter of 1920. With one exception the old price of last March prevails, and the amount of this one advance is \$6 per ton. During the summer and early fall producers were booking for the end of 1919 and first quarter of 1920, at the price which should then prevail. At that time the steel strike was in the spring with an unknown result. Now it is generally felt that it will not be necessary to exact a premium on sheets because of a higher wage scale, and the former price is in general prevailing as late as first half of 1920 delivery.

The demand for electrical sheets is very heavy, and it is evident that electrical manufacturers throughout the country have full order books. Demands have been received for considerably more than available productive capacity, and consequently some electrical machinery manufacturers are going to go short on sheets. Some prominent producers of electrical apparatus are known to be in the market for additional electrical sheets. There is no reason to believe that these companies did not order sufficient material but rather that allotments to them were not sufficient to cover their excess needs along with the excess needs of virtually all manufacturers using electrical sheets. Sheet production has been higher than normal capacity in certain mills recently, and it is expected that in 1920 more capacity will be added.

This short market is going to work a hardship on many manufacturers who failed to take advantage of open books to order according to requirements for the first half of the new year. It is expected that some old customers are going to suffer in this connection as well as new customers. As present unfilled steel orders are greater than at any time this year, the prospect is not too bright for anything but over-capacity orders for 1920.

## Electrical Manufacturers' Club Annual Meeting

One of the most successful meetings in the history of the Electrical Manufacturers' Club was held at Hot Springs, Va., on Nov. 19 to 22. Addresses were made at the meetings by W. G. Merritt and Dr. B. C. Tremaine. Le Roy Clark, president of the Safety

Insulated Wire & Cable Company, New York, was elected president for the ensuing year. The other officers elected were: Vice-president, Edward B. Hatch, Johns Pratt Company, Hartford, Conn.; secretary, F. L. Bishop, Hartford Faience Company, Hartford, Conn.; treasurer, Sears B. Condit, Condit Electrical Manufacturing Company, Boston; Commissioner, F. W. Sanford, General Electric Company, Harrison, N. J.

## Reciprocating Track Grinders Advance

**Further Increases Looked For—Limited Number of Machines Ready for December Delivery**

Reciprocating track grinders are being built in large quantities for stock in order to make prompt deliveries during the first quarter, according to recent reports. A great many inquiries are being received and it is the belief of manufacturers that the amount of business which was booked during the next three months will show a 50 per cent increase over the fall months.

Prices have advanced from 10 to 20 per cent, but these have been expected for some time past. A further advance may be necessary later, depending upon additional wage increases and prices of forgings and castings.

Production has been and still is very slow at present. Difficulty in getting parts, castings, fittings and other numerous parts has been responsible for the slowing up of shop schedules and that, of course, has resulted in decrease of production.

Present stocks are exhausted, but a number of machines are almost finished and will be ready for late December delivery. From that time on, no trouble will be experienced from a lack of available machines.

Sales show healthy increases over the dull summer months. Buying is on a regular basis and approximately 50 per cent more machines are being contracted for now than during the summer season.

Railway companies are making reasonably prompt payments on what they do purchase although the amount contracted for does not compare favorably with that of previous years.

Conditions do not appear to be improving greatly, although it is believed that as soon as the benefit from the use of safety cars begins to be effective the revenue thus released by reduced operating expenses and by fare increases will put the railways in a better buying condition.

## Coal Restrictions Removed Effective Dec. 16

**Gradual Resumption of Service by Railways Which Were Compelled to Cut Schedules**

Removal of coal restrictions were announced Dec. 16 by the central coal distributing committee. Former schedules for railroads and railways are rapidly being resumed and it is believed that within a few days full operation will be effected on all electric railway properties that were forced to reduce service.

In order to fill industrial demands, restrictions formerly in effect, which reduced the use of coal in the manufacture of coke by 25 per cent, also have been removed and the volume of coke production will soon be restored to normal.

Steam railroads in the Middle West and especially at Chicago are clearing their tracks of non-essential freight in order that the movement of coal may be facilitated. A general freight embargo may be brought about until all of the available coal stocks have been moved.

Production during the first week in December, taken from the latest Geological Survey figures available, was 43.5 per cent of normal and was thus lower than at any time since the first two weeks of the strike. Compared with the fourth week of the strike, when the wage negotiations were broken off, the tonnage per working day fell off 8 per cent. The total output for the week was 5,259,000 net tons while the average during the four weeks ended Oct. 25, which may be regarded as normal, was 12,089,000 tons.

## Glass Expected to Increase 15 to 25 Per Cent

**Factories Close for Season with Many Unfilled Orders—Bookings Refused Pending New Price Scale**

Advice from the Pittsburgh district is to the effect that higher price schedules will be announced shortly and that until further notice, no new bookings for plate or window glass will be made. Big interests have not withdrawn entirely from the market, but as production is sold for three months, it is considered poor policy to quote on future business in the face of the coal shortage and the uncertainty of labor conditions.

Glass factories are closing for the last half of the 1919 season with a production record for the year of less than

70 per cent of normal. With many orders for the present season only partially filled, and production stopped until February, when the 1920 season begins, it appears that the demand for 1920 will be the greatest in the history of the window glass business.

Stocks of the popular sizes are clear out of the market. Furthermore, what little is held by either jobbers or manufacturers is very poor in assortment and far below normal in quantity. Ruling prices have advanced 15 to 25 per cent on practically all grades, excepting window glass, on which an advance is expected to be announced at any time.

Window glass heavier than double strength is completely out of the market except for a very small amount held by jobbers. The disappearance of this grade is due to the pronounced shortage in plate glass and the substitution of window glass for the plate.

### Rolling Stock

**Michigan Railway, Jackson, Mich.,** is rebuilding a number of cars for safety car operation.

**Chicago (Ill.) Surface Lines** has been notified by the Public Utility Commission that it must purchase 200 additional cars.

**Boston (Mass.) Elevated Railway** placed an order with the Russell Car & Snow Plow Company for two snow sweepers.

**Worcester (Mass.) Consolidated Street Railway** has placed an order with the Osgood-Bradley Car Company for ten safety cars.

**Androscoggin & Kennebec Railway, Bath, Me.,** has placed an order for twelve safety cars with the Wason Manufacturing Company.

**Long Island Railroad, New York, N. Y.,** is in the market for fifty motor cars, thirty trailers and twenty steam coaches similar to those now in operation.

**Birmingham Railway, Light & Power Company, Birmingham, Ala.,** expects delivery soon on the first of the twenty-five safety cars recently ordered from the Cincinnati Car Company.

**Brooklyn (N. Y.) Rapid Transit Company,** through its receiver L. M. Garrison, has applied to the Federal Court for permission to issue receivers' certificates for the purchase of thirty-seven new cars for the Nassau Electric Railroad and four cars for the Brooklyn, Queens County & Suburban Railroad.

**Hershey Cuban Railway, Havana, Cuba,** has recently placed an order for ten closed motor passenger cars, three combination passenger and baggage cars, two combination baggage and mail cars and one freight car. The passenger cars are to be of the semi-steel interurban type and will be 47 ft. overall. The contract was awarded to the J. G. Brill Company, Philadelphia, Pennsylvania.

### Franchises

**Huntington (N. Y.) Railroad.**—A franchise has been granted by the town of Babylon to Joseph G. Robin, representing New York interests, to operate a trolley line in the town of Babylon over the Huntington-Amityville route of the defunct Huntington Railroad.

### Track and Roadway

**British Columbia Electric Railway, Vancouver, B. C.**—Decision has recently been made by the British Columbia Electric Railway to build about a mile of new track beyond the Shaughnessy Heights tract to connect the car lines on King Edward and Wilson Avenues. The Wilson Avenue line was never finished or put in operation so the new work will mean entirely new overhead construction for about 1½ miles and the addition of that much track to the mileage under operation. This extension of service carries out an agreement of several years' standing between the company and the Canadian Pacific Railway. The latter owns the land being opened up by the new line and has postponed its development until the present time. This will be the first new track this electric railway has opened for operation since 1913.

### Power Houses, Shops and Buildings

**Miami (Fla.) Traction Company.**—A power house and some rolling stock belonging to the Miami Traction Company was destroyed by fire on Oct. 30 last.

**Louisville & Interurban Railroad, Louisville, Ky.**—The power house of the Louisville & Interurban Railroad at Lyndon, Ky., 9 miles from Louisville, was destroyed by fire on Nov. 11. The plant was valued at \$75,000.

**Toronto - Pickering Hydro - Radial Railway, Toronto, Ont.**—The Ontario Hydro-Electric Power Commission has prepared plans for the Toronto terminal of the proposed Toronto-Pickering Radial Railway. The cost of executing the plans is estimated at \$4,328,665.

### Rolling Stock

**Eclipse Valve Grinder Company, Kansas City, Mo.,** is now quartered in the Terminal Railway Building.

**United Electric Construction Company, Inc., Cleveland, Ohio,** contracting electrical engineers, has opened an office at 558-559 Hippodrome Annex.

**George F. Simons,** who recently was district manager for the Detroit and Cleveland offices of the Edison Storage Battery, has resigned to enter the industrial truck field.

**Allis-Chalmers Manufacturing Company, Milwaukee, Wis.,** announces the appointment of Frank O'Ryan as district manager of its Denver office.

**R. D. Nuttall Company, Pittsburgh, Pa.,** announces that R. R. Gartside has been appointed manager of the railway and mining sales division of the company.

**Owensboro Ditcher & Grader Company, New York, N. Y.,** announces that its New York office has moved from Room 222 to 322 Singer Building, at 145 Broadway.

**Richardson-Phenix Company, Milwaukee, Wis.,** lubrication engineer, has reopened its Philadelphia offices in the Bailey Building under the management of George F. Fenno.

**Poole Engineering & Machine Company, Baltimore, Md.,** on Oct. 1 opened a branch office in Boston in the Old South Building, in charge of Robert W. Catlin, assistant manager.

**R-P-R Company, Chicago, Ill.,** sales engineer, handling power-plant equipment, has been organized with Barrett Rogers as manager. The headquarters of this company are at 364 Monadnock Building.

**Fairbanks, Morse & Company, Chicago, Ill.,** will start the erection in Beloit, Ill., next year of a large foundry, to be 900 ft. x 500 ft., containing 495,000 sq.ft. of floor space. It will have a capacity of 350 to 400 tons of gray iron per day and will employ 3000 men.

**Bound Brook Oil-less Bearing Company, Bound Brook, N. J.,** has completed an addition 100 ft. x 180 ft., a new two-story office building 100 ft. x 40 ft. and a new power plant. The new buildings adjoin the foundry, thus giving closer co-operation between all departments.

**H. C. Hancock,** who has represented the Trumbull Electric Manufacturing Company at its Chicago branch for several years in the Middle West States, has severed his connection to become industrial engineer with the Great Lakes Electric Company of Detroit.

**Inquiry No. 31,380.**—An Austrian railway company desires to purchase monthly about 30 tons of copper needed in locomotive productions, especially such copper as is used in making bars, plates, and tubes. Offers should be accompanied with an analysis of the copper.

**United Import Company, West Toronto, Ontario, Can.,** has moved to new premises at 69 Adelaide Street, East Toronto. The company represents the Pittsburgh Electric Specialties Company, Pittsburgh, Pa., and the Weiss Biheller, Ltd., London, England. James Fleck is manager.

**Burke Electric Company, Erie, Pa.,** announces that it has purchased the good will and all records, patterns and drawings, special tools and equipment of the C. & C. Electric & Manufacturing Company and is prepared to fill orders for spare parts, duplicate machines, welding and other supplies.

Franklin W. Gilman, production engineer with the Sanford-Riley Stoker Company, Worcester, Mass., and of the Murphy Iron Works of Detroit, Mich., sailed recently for Japan where he will remain for about a year in connection with the installation and operation of stokers manufactured by the two companies.

**Domestic Engineering Company, Dayton, Ohio,** has been acquired by the General Motors Corporation, according to an announcement recently made by W. C. Durant. The Delco company will be merged with the General Motors Corporation and hereafter operated as a branch under the present management.

**Dickey Steel Company, Inc., New York, N. Y.,** announces its appointment as Eastern sales and export representative of the Hammond Steel Company, Inc., Syracuse, N. Y., manufacturers of high-speed, alloy and straight-carbon tool steels, and a complete line of alloy steels in bars, weldless rings, die blocks and special shapes.

**Chester A. Gauss,** until recently advertising manager of the Crocker-Wheeler Company, Ampere, N. J., has resigned his position with the company to become a partner in the newly formed firm of Robertson, Gauss & Company, engineering sales and advertising counselors, with temporary offices at 59-61 Pearl Street, New York.

**George C. Wing, Cleveland, Ohio,** writes that patent No. 965,972 issued to him and Frederick W. Hempey, in his opinion, covers the use in a street car of seats between transverse hand rests, the seats being arranged so that they will fold up and thus give greater standing room in the car. An Italian car of this type was described in No. 20 issue of this paper, page 909.

**Roller-Smith Company, New York, N. Y.,** announces that its California representative, the Electric Material Company, 589 Howard Street, San Francisco, which handles Roller-Smith measuring instruments, watt-hour meters and circuit breakers in California, Nevada and parts of Oregon and Idaho, has opened a Los Angeles office in the Title Insurance Building under the management of E. H. Bell.

**Black & Decker Manufacturing Company** announces the removal of its general offices from 105 South Calvert Street, Baltimore, Md., to Towson Heights, Baltimore, where a new building, 100 ft. x 200 ft. is being added to the plant. Additional machine-tool equipment will be installed in the new extension which increases the company's floor space 20,000 sq.ft.

**M. H. Dinshaw & Company, Bombay, India,** large importers of all kinds of machinery including motors, dynamos, and miscellaneous equipment, advise that they will be pleased to receive catalogs, price lists with discount sheets and any other information in regard to these lines. Dinshaw & Company stand ready to represent any reliable manufacturer and can furnish satisfactory references in America.

**Imports into Australia.**—A proclamation has been issued prohibiting the importation without a license into Australia of steel car wheels and axles for electric railways and electric railway material such as rails, fish plates, bolts, tie plates, switches, crossings, intersections, etc. It is stated that this procedure will greatly interfere with British exports and will militate against the development of Imperial trade and business.

**Van Dorn & Dutton, Cleveland, Ohio,** announce that E. W. Sinran, who has been general manager for several years, was elected president of the company at a meeting of the board of directors held recently. Mr. Sinran is president of the American Gear Manufacturers' Association. Franklin Schneider was elected vice president. He is also president of the Van Dorn Electric Tool Company. Mr. Sinran is treasurer of the latter company.

**Kelvin Engineering Company, Inc., New York, N. Y.,** has organized a new department to do general engineering and contracting work in this country and in Latin America. This department will be in charge of Carlos Lobo, formerly borough engineer, Department of Water Supply, Gas & Electricity, Brooklyn, N. Y. The company is now prepared to execute contracts for furnishing and erecting electrical and industrial machinery and equipment.

**Zobell Electric Motor Corporation, Garwood, N. J.,** which was incorporated last April and capitalized at \$250,000, will manufacture both alternating-current and direct-current motors having somewhat similar characteristics and established sizes ranging from 1 hp. to 7½ hp. The present equipment is designed for an output of from 200 to 300 motors per month. Fred G. Bell is president, A. T. Zoebisch treasurer and F. E. Bucker secretary and superintendent of the plant.

**Mechanical Appliance Company, Milwaukee, Wis.,** maker of Watson electric motors, with factory and main offices at Milwaukee, has recently opened new offices in Buffalo and St. Louis. W. C. Winterroth, formerly connected with the Chicago office, will be at 318 Prudential Building, Buffalo, as district sales manager for western New York. The St. Louis office will be in charge of L. F. Mahler, who has been recently appointed district sales agent for St. Louis and adjacent territory. His office is at 1039 Syndicate Trust Building.

**B. F. Goodrich Company, Akron, Ohio,** announce the appointment of Major C. G. Carothers, who recently returned from France after two years' service in the U. S. Army, as Chicago railroad representative of the company with headquarters in Akron, Ohio. After serving a machinist's apprenticeship in the Big Four shops at Mattoon, Ill., Major Carothers attended Purdue University and was graduated as a railway mechanical engineer in 1912. For several years he was mechanical engineer for a railroad equipment manufacturer

and in 1914 became senior mechanical engineer with the Interstate Commerce Commission, Valuation Department, Southern District, with headquarters at Chattanooga, Tenn. He became a captain of engineers in July, 1917, and arrived in France early in January, 1918. He was made master mechanic and later became superintendent of motor power of the 13th Grand Division, Transportation Corps, with headquarters at Is-sur-Tille, France.

### New Advertising Literature

**Hubbard & Company, Pittsburgh, Pa.:** Folder in the new Pierce presteel pin.

**Harvey, Hubbell, Inc., Bridgeport, Conn.:** Mailing folder showing various types of lamp guards.

**Penn Electrical & Manufacturing Company, Irwin, Pa.:** Bulletin P-20 on panel boards and cabinets.

**U. S. Electrical Manufacturing Company, Los Angeles, Cal.:** Bulletin No. 105 on its electric motors.

**Goulds Manufacturing Company, Seneca Falls, N. Y.:** Bulletin No. 122 on centrifugal pump sales service data.

**Allis-Chalmers Manufacturing Company, Milwaukee, Wis.:** Bulletin 1532 on Diesel type oil engines.

**Cutler-Hammer Manufacturing Company, Milwaukee, Wis.:** Folder on its new swivel attachment plug.

**L. J. Wing Manufacturing Company, 352 West Thirteenth Street, New York, N. Y.:** Bulletin No. 58 on "Scruplex" electric ventilating fans and exhausters.

**Westinghouse, Church, Kerr & Company, New York, N. Y.:** A folder showing some of the shops the company has built.

**Betson Plastic Fire Brick Company, Rome, N. Y.:** A folder on one-piece permanent baffles for water tube boilers.

**High Speed Hammer Company, Rochester, N. Y.:** A folder on high speed, ball bearing, motor-driven, bench drill presses.

**Block & Decker, Baltimore, Md.:** Catalog on electric air compressors, portable electric drills and electric valve grinders.

**Gurney Ball Bearing Company, Jamestown, N. Y.:** Engineering bulletin giving uses of ball bearing in machine design.

**Shaw Insulator Company, Newark, N. J.:** Bulletin A-16 covering its moulded insulation and lightning protective equipment.

**Bacharach Industrial Instrument Company, Pittsburgh, Pa.:** Leaflet on Pitot tubes and orifices for measuring the flow of gases in connection with flow meters.

**Ohio Brass Company, Mansfield, Ohio:** Illustrated catalog on Imperial incandescent headlights for electric traction and mining service, numbered 205 and dated Nov. 1, 1919.