Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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To Indianapolis for the Midyear Conference

IT IS indeed a fitting tribute to President Robert I. Todd that the association has decided to hold the midyear conference in Indianapolis. As a matter of fact it appears that no other city was considered or even proposed.

The decision is wise from another viewpoint, for Indianapolis is the center of a large interurban railway activity; in fact, more interurbans radiate from there than from any other one point, and the program for the meeting contemplates a substantial treatment of the problems of this part of the industry. It is a typical mid-Western city, easy of access to all electric railway men. It has accommodations which are ample and it can be assured that the dinner in all its aspects will not only satisfy but please.

Another point as to this midyear conference. It is going to be a real conference on the live questions of the day. Those who attend—and a record attendance is predicted—must come prepared not to listen to speeches, but to take part in active discussion of the subjects before the meeting.

Remember the date—Tuesday, Feb. 28. Headquarters will be at the Claypool Hotel.

The Tax Exempt Bond Given Another Blow

ONE of the many admirable features of President Harding's message to Congress on Tuesday of this week was the telling blow delivered against the tax exempt bond. "I think," said President Harding, "our tax problems, the tendency of wealth to seek non-taxable investment and the menacing increase of public debt—federal, state and municipal—all justify a proposal to change the constitution so as to end the issue of non-taxable bonds." Senator Smoot and Representative McFadden already have proposed such an amendment in the two houses of Congress.

The President does well to call the attention of Congress and the public at large to the uncontrollable drain upon the available capital of the country this class of security is causing. The income tax is apparently here to stay and properly so. This makes it all the more necessary to remove any obstacles from the proper levying of the income tax, not only in the interest of equity between individuals but for the even greater purpose of providing for the general good of all.

Some tax experts hold that a constitutional amendment is not necessary to effect a change in the law as the provision of the federal constitution which is supposed to exempt municipal, county and state bonds has never been officially construed to have that effect by the United States Supreme Court. Whether this view is correct or not the effect of the exemption now made is undoubtedly injurious. To use President Harding's own words: "The drift of wealth into non-taxable securities is hindering the flow of large capital to our industries, manufacturing, agricultural and carrying, until we are discouraging the very activities which make our wealth." This is particularly and poignantly true in the public utility field with its regulated and limited rate of return.

As has been urged in these columns before, the electric railway industry has a peculiar interest in this problem. Railway men should take every possible legitimate step to bring the matter forcibly to the attention of senators and representatives by individual effort. It is sound business for the nation, and it will assist railways directly in the search for new capital.

How the Pass System Differentiates the Passengers

THE pass system as employed at Youngstown, Racine and some other cities is such a novel departure from previous methods of fare collection that its effects are now only beginning to be understood. Considerable has been published in regard to methods of its installation, basis of charge and effect on riding, but there are other points in connection with it which as yet have hardly been discussed.

Under the customary flat-fare system of this country the street railway's contact with the patron is so fleeting that practically nothing is known of his habits unless a traffic survey is deliberately made for that purpose. In a general way, it is known that weather, degree of employment, amusement and shopping activities have a bearing on the ups and downs of the travel, but there are no simple bases for figuring how much each class of riders, such as holiday, short-haul, off-peak and rush, is affected by different factors. Foreign distance-fare roads are much more fortunate in this respect as their returns tell them the fluctuations in traffic according to fare paid by each class of rider. Also where, as in London, a special low rate is granted for off-peak hours (10 a.m. to 4 p.m.) still further data of value are obtained by the management on the travel habits of its customers.

An equally interesting differentiation of passengers is being furnished by the operation of unlimited-ride weekly passes. In Racine, where this pass has been in use since August, 1919, sufficient evidence has accumulated to prove that pass purchasers are the most dependable class of riders. In late months the revenue from cash and token riders has dropped 25 per cent or more, in comparison with the same months of the year before. On the other hand, the revenue from the pass riders has shown increases as high as 10 per cent. From this it is fair to assume that the average pass purchaser is a more provident or prosperous type than the other passengers; also that a part of his riding is compulsory. He does not have to take the four rides a day, which he actually averages, but he does have to take more than sixteen rides a week to come out even on his pass. If it is assumed that two of the four rides per day are taken in the rush hours the other two rides necessarily

come during off-peak periods, when the company would prefer to supply them.

Further differentiation is afforded by the operation of the pass at Youngstown, Ohio. Within a period of seven weeks the pass sales have increased 50 per cent. During this time there was only one noteworthy setback in sales despite much greater fluctuations in the sales of cash and ticket transportation. This was during election week. It seems that when a holiday comes early in the week 2 to 3 per cent of the pass buyers reckon that they will save by buying their rides at retail that week. On the other hand, the earnings from the other classes of passengers went up during the very same week, as these classes may have been increased by election excitement, holiday games, good weather, etc. In general, however, the revenue from the pass riders is the most dependable from week to week and month to month. A pass buyer has paid for his transportation for a week in advance and therefore is more inclined to ride on each and every occasion, and to use the cars only. If he does stay home the railway loses nothing. This is not the case where people buy one car or jitney ride at a time.

When the pass became effective at Youngstown, it was found that the chief inroads were in the sales of tickets at six for 50 cents or at 8⅓ cents each. The number of 9-cent cash-fare riders was affected so little by the pass that after a few weeks there were as many cash riders as in the weeks just preceding the pass. About one-third of the ticket riders seemed to have become pass riders, but owing to the general increase in the business of the Youngstown Municipal Railway the ticket sales after a few weeks were only one-sixth below the old figures. In the meantime, the pass was building up a new source of revenue that is now about one-fourth of the total gross.

Naturally, the recapture of riders who had been using the jitneys makes it impossible to say what proportion of each class of the present riders was originally car or originally jitney. Probably a certain number of jitney riders went directly from cash-fare jitney to pass-fare car. It is also probable that the number of cash-fare and ticket riders has been increased by the fact that a person accompanying a passholder, as in going to a theater, would also use the cars and make a one-time payment for riding on the same. Nevertheless, there is one outstanding deduction, namely, that despite the extremely liberal rate for the pass ($1.25 a week) about one-half of the original pre-pass clientele should continue as cash-fare customers. Improvidence or poverty cannot account for much of this. What is far more probable is that many of these riders are so situated that they do not have to use the cars regularly twice a day.

From this it would seem clear that in any large city there are a great many people so close to their work that they do not have to ride unless they choose to. When some occasional town-edge affair like a football game occurs a number of these people are attracted out of their usual orbit and become riders. They are also the people who change from walking to riding when the weather is disagreeable. If business from this special element is to be increased the attraction must lie in a short-haul fare rather than in a pass. The principle of good business is not only to make a reduction to the wholesale purchaser who buys more than he actually needs but also to provide an inducement for that class which ordinarily has no need for transportation service.

Expenditures for Publicity Fully Justified

SEVERAL times recently expenditures made by electric railways for advertising and publicity purposes have come under public scrutiny. The concern just at this time is not with the question of whether these particular expenditures were ill advised or not commensurate with the results attained, but rather with the general policy back of such expenditures. Advertising and publicity are generally accepted as proper charges to doing business in all lines of merchandising, and in the electric railway business they are as much a part of the expense for developing traffic as the printing of time-tables, the maintenance of comfortable cars or a great many other ways of gaining passengers which come to mind. Money, of course, can be unwisely spent in advertising, but that is true also in the other ways mentioned.

All publicity, whether for more traffic or higher fares or to stimulate good will, is special pleading in the sense that it is an effort to sell at a profit something which the advertiser possesses or to acquire something he wishes to gain. While there may be some reason in specific instances to question the total of expenditures for publicity by electric railways, there can be no question about the right of any company to go before the public direct with the story of how much riders are getting in return for the fare they pay and how well their interests are being look after by the company they patronize. The expenditure is also a proper one that has for its purpose controverting statements made publicly that serve only to vilify a company and destroy good will which the company is constantly seeking to keep and to increase. Who, for instance, would be rash enough to attempt to place a monetary value on the output of the creator and perpetrator, if you will, of Phœbe Snow? And who would say, whatever the cost may be to the Lackawanna Railroad of its advertising, that the expense of the company in this connection is not a merited one! The good will of the public is no less important to a railway than it is to the store selling general merchandise. Nowhere does the purchaser get more for his money than he does in buying electric railway transportation.

Exchange Not the Only Ruling Factor in Export

WITH the low exchange rate existing abroad a considerable handicap must be overcome by our manufacturers in export trade. In the countries where the low exchange rate exists, the apparent cost of American manufactures seems increased in direct proportion with the rate of exchange between that country and America. In countries with a more nearly equal exchange, manufacturers here are brought into direct competition with those in the low exchange countries. It has been said that the chief advantages on which the manufacturers of this country must rely are ingenuity and low cost due to mass production.

Fortunately for the home manufacturers of the electric railway equipment, both of these factors are present in that industry. There is no country in the world which at all approaches the United States in miles of track or number of electric cars in operation. The manufacturers of essential maintenance parts

used in electric railway service can therefore be conducted in this country on a scale far beyond that possible in any other. The same condition naturally stimulates the improvement of equipment. The market is so large that inventive genius is encouraged. Another incitement to improved equipment is the readiness with which American operators will discard what they have if the savings from the new machinery are sufficient to amortize the scrapped parts within a reasonable time.

For these reasons export business in electric railway lines is not so hopeless as the rate of exchange would suggest. As the need for railway equipment throughout the world grows, this country should supply a goodly part of that required.

The Motor Bus for Owl Service

THAT motor buses for complementary and supplementary service in connection with electric railway lines are a practical proposition seems to be pretty well demonstrated by this time. That being the case, it is worth while examining all possible ways in which the buses, once secured and placed in service, may be used to the maximum advantage. One way which is suggested is that they be used for all-night service. The furnishing of owl service has proved to be a pretty burdensome problem for many electric railway companies, and a service which they have usually given grudgingly or through the enforcement of statutory requirement.

It would seem that right here is a virgin field for the motor bus. Of course in some cities this has been the cream of business for the taxicab, but there seems to be no reason why buses that are used for feeder service during the daylight hours should stay in the garage all night when they might well be used to advantage on the streets. This done, the power plant could be shut down completely in these hours, with a material saving in expenses. The elimination of four or five hours of boiler-room labor and engine-room watches will figure out a pretty neat sum. Furthermore it would give an opportunity for repair work and overhauling around the plant, which with twenty-four-hour operation is done under considerable handicap, if at all. Emergency line crews need not be kept on duty, and probably other opportunities for savings would be worked out.

There are some companies in places where all-night service is not required which do close down entirely for several hours, with very material advantage to themselves in reduction of costs. They find no difficulty in arranging their car inspection and minor repair work around the carhouses to conform to the hours when the power is off.

Perhaps this possibility will appeal more strongly to the smaller traction companies than to the larger ones. In the very big cities conditions are more complex and the volume of traffic, even in the early hours, is of goodly proportions. But for transportation companies in the moderate-sized and smaller cities this idea of bus operation is well worth considering. An investigation of this proposal as a "way out" of the burden of owl service is suggested to those companies already operating buses, or considering them for the immediate future. An example of such an instance of bus operation is given in the ELECTRIC RAILWAY JOURNAL, July 9, 1921, page 51.

Lessons Learned by Des Moines Citizens

VOTING two to one for the new franchise, the people of Des Moines have confirmed the action of the City Council in accepting a service-at-cost contract and have thereby re-established electric railway service. This action came as the result of an eighty-four-day experience without the street cars, during which the people got their fill of 5-cent jitney transportation and came to realize that there had been more sincerity than selfishness in the efforts made by the Des Moines City Railway to secure terms from the city authorities under which it could somehow avoid cessation of service. It was a hard lesson for Des Moines, for merchants and other business men were becoming desperate at the loss of trade resulting from the terrible inadequacy, discomfort, indecency and hazard of the service provided by the jitneys. All classes of people earnestly avoided any activity that involved a ride on a so-called bus, and the business of the city dwindled correspondingly. But the suffering, inconvenience and financial loss to the people and city may not have been in vain if the lesson learned is remembered and the railway is thus permitted to go forward and to give and develop its service to the people free from the vicious limitations imposed by constant political abuse.

Three things in particular were brought home to Des Moines citizens as the result of this famous eighty-four-day period. First, they became convinced that they had to have electric railway service; second, that they had to pay for it, and, third, that they would have to deal with the present company.

The buses failed signally to provide adequate, regular or convenient service. The bus men were long on promises as to what they would do if given a franchise and the City Council was anxious to give such a franchise upon reasonable assurance of financial strength equal to the undertaking. But the bus men were unable to coax any substantial amount of capital into their hands with the 5-cent fare limitation, and no responsible interests came forward with a proposition to take the job at a 5-cent fare. Consequently there was no bus transportation undertaking on a scale which the situation demanded. Rather, for a traffic requiring at least 500 buses, there were only a hundred or less buses of all kinds and descriptions driven by individual owners trying to cope with the situation. Even though they had schedules and routes somewhat systematized through an association, the service was hopelessly inadequate. The people were thus convinced that they must have the street cars back.

Previous to the shutdown a general feeling had prevailed that the company was bluffing in its statements, but when the threatened shutdown actually became a painful reality this feeling was quite dispelled. After a few weeks the people were finally convinced that the electric railway could not go on indefinitely giving service for less than cost and that if service were to be had it must be paid for.

Lastly, after considerable dickering, the officials and the public in general found out that no one else could be induced to come in and give transportation service under any terms. Therefore it became evident that, because the present company had its investment at stake, not only could the best proposition be obtained from it, but that it was the only possible agency through which to secure any reliable proposition to supply any kind of continuous transportation.

Railways' Financial Cycle Has Come

Robert I. Todd, President American Electric Railway Association, Is Full of Optimism Over the Electric Railway Outlook—Points to Substantial Status of Industry—Says Public Generally Recognizes Necessity of Railways—Spirit of Co-operation Exists on Both Sides—Discusses Outstanding Problems Now Requiring Attention—The Bus the Largest Unsolved or Undetermined Question

An interview with President Robert I. Todd
by Harold V. Bozell

"IF THERE is one point that I would stress above others in my analysis of present-day conditions of the electric railway industry it is that the railways' financial cycle has come around again and that we have good reason today to be optimistic in our predictions for the future of the industry." President Robert I. Todd was very much in earnest when he said these words during the course of a most interesting and inspiring discussion of the electric railway industry which the writer enjoyed having with him recently. And the words were not false to his manner, either. It was easy to sense his optimism and actually to see his confidence, even though our discussion centered around the most pressing problems still before the industry, and even though he recognized that he was undertaking the burdens of leadership of the industry as he commenced his term of office as president of the association.

ROBERT I. TODD, PRESIDENT AMERICAN ELECTRIC RAILWAY ASSOCIATION—AT HIS WORK DESK IN HIS OFFICE AT INDIANAPOLIS, THE INTERURBAN CENTER

But President Todd is a man who does not flinch from problems; rather he approaches them in a quiet, determined manner, bound to find the right solution to each one in as quick and efficient a way as possible. He is willing and anxious to discuss his problems with others and obtain the best advice there is, but having decided on the best method of procedure, he goes ahead without quibbling. There is nothing spectacular about Mr. Todd, but there is a sincerity, a thoroughness, a perseverance about him which gives confidence to one in contemplating the result of the coming year's work under the direction of this quiet leader. He has reason to be optimistic in his outlook of the work of the association this year. It was just after the October meeting of the executive committee that our discussion reported below occurred, and that meeting was enough to put confidence in any incoming president. Past-president Gadsden worked well—perhaps better than he knew—when he insisted before the reorganization committee upon the cardinal principle of monthly meetings of the executive committee so that there would be real active management of the association's affairs by its selected officers. President Todd was more than pleased, as would have been every member of the industry had he been there, at the manner in which the new executive committee is undertaking its responsibilities and starting the year's work, if that meeting of the executive committee proves a typical example. President Todd feels the encouragement of an active working executive committee with its various sub-committees and special committees. The recorded results of the coming year will, of course, prove the value of the administration. But if a prediction may be permitted, it is that the association will receive tangible and practical benefit during the present administration from the new form of management under President Todd's direction.

But this is supposed to be a tale of President Todd's opinion of the industry, not mine of him. Continuing his discussion of the general situation, he said:

"The industry in general is through what might be called its period of tribulation. People do recognize that the electric railway is necessary. They believe in railways as a necessity. The work which the industry has done since the close of the hearings of the Federal Electric Railways Commission in telling the public the story of the railways has had a real effect and there is everywhere evidence that electric railway problems are better appreciated by the public as a whole.

"At the same time there has been an awakening on the part of railway men themselves to some of the shortcomings, not so much of their operations as of their relations to the public, their former reticence occasioned by their absorption with operating problems and a more or less thoughtless assumption that the public knew more than it did about railway operation.

"There is certainly everywhere today a very evident desire on the part of railway men to do what the public wants done in the way of furnishing transportation. This is true not only from an operating standpoint but from a public policy and financial standpoint. In other words, there are signs all over of the public and the railway operator 'getting together' for their mutual good.

"The industry is substantially sound. It has come through trying days and even now, in what is probably the bottom of the valley of depression after the war, it is in much better condition than most general industries, and there is every sign of continued improvement everywhere in the industry. It has *proved* itself a most essential industry.

"Only last week I was talking with a leading banker dealing with public utility securities who called my attention to the difference in market value of many millions of dollars' worth of railway securities now compared with two or three months ago and I was surprised, to put it mildly, to note the substantial increase. I was assured by this banker that this was no sudden rise, no peak, in a curve of prices, but a point on what was apparently a gradually rising curve. It was he who called my attention to the fact I have just told you, namely, that the utility—the railway—financial cycle had come around again."

He Outlines Bus Situation

President Todd in his analysis or discussion of the more pressing or outstanding problems before the industry today debated a while between the bus and labor and finally said: "I think the bus proposition, perhaps, presents the biggest problem to the transportation industry today. We don't know yet exactly how to tackle the problem. It is really a knotty one. Every one is interested in it, the railways, the public, the commissions—yet it is a most difficult proposition to discuss intelligently because we lack so much information and because there are so many tender spots where unrestricted competition and other factors have caused such an irritation that an intelligent, quiet study cannot be made."

"It is true there are tender spots," I interjected, "but how can anything be accomplished if we do not talk—if some intelligent effort is not made to relieve the tender spots, How, in your estimation, is the problem to be settled. I am thinking now of those areas in which, or contiguous to those in which, railways operate. Should independent operators start up in co-operation and co-ordination with railways? Should all competition be crushed and the bus banned from consideration? Should the railways take up the bus and use it experimentally to find its proper sphere?"

"The last, by all means. In such areas, certainly, it seems to me, the railways should take whatever responsibility should properly exist for bus development to supplement or complement their existing services if such supplementary or complementary service is desirable in the interest of the best transportation for the community. This, of course, does not mean that every railway should use the bus. It merely means that my own belief is that if there is any place in a community for bus service—and in many communities I think there is such a need—it should be the railways that should undertake that development, for they are the transportation experts of the community. From a business standpoint they handle the transportation business of the community and so should, as a matter of good business, undertake to provide and sell all the transportation to a community. The very fact that railways are today more and more doing this is indicative both of the legitimate sphere of the bus in certain areas and of the farsightedness and good business judgment of those railways which develop the bus themselves, when it is needed in their community, thus retaining both their transportation monopoly of the community and the good will and the confidence of the public."

"What about areas where there is no rail development? Do you not see an opportunity for a real bus transportation service there?"

"There are certainly some areas where no right thinking railway man would ever try to build a rail system, but where highway transportation would probably pay, though usually on a much higher fare basis than is possible by rail transportation in most communities. On the other hand, there are examples such as the Shore Line community in Connecticut where bus service does not seem to retain any stability even after the cessation of service by rail. In other words, the fact that rail transportation did not pay is a pretty fair indication that the situation should be carefully examined to see if bus transportation will pay. However, in small communities and in many interurban services on the increasing network of highways, there is probably a legitimate opportunity for independent bus operation to give an organized transportation service. I have naturally not analyzed situations like that. My study has pertained principally to electric railways, to the transportation problems of urban communities and heavy interurban traffic and to the relation of bus transportation to them.

"In some of these smaller communities, where the question is the adoption of the bus or the retracking of the rail system, there is a real serious problem at the present time, but there is no doubt of the fact in my mind that bus operation cannot be substituted for rail operation on good existing track no matter how light the traffic.

"In new undertakings I understand that the claim is made that it takes five dollars investment for one dollar gross earnings on rail as compared with one dollar investment for a dollar in earnings with the bus. This latter ratio seems very doubtful, but this is one aspect of the situation which must be considered. If it is a commercial proposition, it must be taken up.

"But this much I do want to emphasize again—that we haven't enough data upon which to base any judgment as yet. We must not—and no one else should—base any judgment on a comparison of illegitimate, unregulated, untaxed bus service with organized, responsible continuous rail service. The full facts, compared on equivalent responsibilities for service, taxes, claims, etc., must be first obtained. This, of course, I think the railways are interested in and anxious to do."

Confidence Created by Direct Dealing with Employees

Turning from his discussion of the bus, President Todd took up a topic which is really more interesting and absorbing to him and upon which he has done a great deal of thinking, namely, the labor problem of the electric railway.

"I have indicated that possibly the bus is the biggest problem which confronts the industry, but I believe the labor problem is perhaps the most serious with which

we have to deal, particularly with reference to wages and to the improvement of the economic status of the employees, and also with reference to stabilization of relations between the employees and employers.

"As to the former, much as we desire it for the employees, it is impossible for most electric railways to operate on wages which were established by the War Labor Board and the Amalgamated Association. I feel very strongly that motormen and conductors should receive wages as high as it is possible for the industry to bear, but I doubt if in normal times it will be possible to make it seem fair to the public to pay motormen and conductors wages equivalent to those received by machinists and other skilled workmen who spend three to five years learning their trades so long as the public sees motormen learning how to 'operate cars' within one or two weeks. Not that I think that one or two weeks is a period in which a motorman and conductor can become a skilled motorman or a skilled conductor, but there is a difference in training which cannot be entirely overlooked. I would like very much to take a different view of this situation, but since the wages must come out of fares we must realize that the public is not yet, at least, willing to pay the motorman and conductor a scale comparable to the skilled mechanic. If by united action of railway employers and employees the public mind can be changed in this respect, and the public be willing to pay such a rate of fare as will make high wage scales possible, this would be an end greatly to be desired.

"We cannot forget that the labor cost is the major part of the cost of furnishing transportation which must be paid for by the public out of fares—and in that way only. But, as I said before, the public does not now take kindly to paying skilled mechanic wages to motormen and conductors.

"If only the wage question could be once satisfactorily settled most other difficulties between operators and labor would automatically disappear."

"What, if anything, in the way of bettered economic status will come to street railway labor out of the readjustment period we are passing through?"

"Frankly, I don't know. The men are now getting 116 per cent more wages than in 1913, according to A. S. Richey's index number for November, though not that much in buying power perhaps. But I believe that the present economic cycle will end with railway labor having a purchasing power of perhaps 25 to 50 per cent above its 1913-14 status. In other words, the general level of cost of living will, I believe, be lower than the general level of railway labor wages when we have finally settled down again economically. The only way we can maintain this is from the growth in travel and revenue which must compensate for the increased pay to labor. The fact that the railway industry generally throughout the country, and the public as well, has got away from the basic 5-cent fare as a requirement is a factor in this. The industry has certainly suffered financially the past five or six years, but is now getting back to a normal basis. Materials are going down and other factors of expense are going down and there should be sufficient added increase to carry the added cost of labor's increase."

"The other angle to this labor question, as you have mentioned, is that of the relation between employer and employee? How do you think that will adjust itself in the railway field?"

"In anything I say on that question I would surely want it understood that it is only my personal opinion. That opinion is, quite shortly stated, that I favor what is known as the American plan or the individual contract method of direct negotiation and dealing between employee and employer. Through such mutual relationship it is possible to create the greatest confidence and most satisfactory conditions on both sides. To point to the extreme of the opposite kind of arrangement there are some situations of which I know in which the owners tell me that the labor situation is intolerable; the wage is so high that they cannot even pay operating expenses. They are no longer operating their properties, they say. The labor unions are doing it.

"My conclusion on this subject has been reached not from antagonism but from long extended observation and sincere conviction. I am convinced that the best results in the operation of electric railways cannot be secured under domination by any organization such as the Amalgamated, first, for the community; second, for the men; third, for the company itself. The Amalgamated organization may be actuated by what it believes to be its desire to provide for the men an adequate wage and satisfactory working conditions; I am for that, wholeheartedly, but I differ, however, on the best method by which I think the object we all really desire may be obtained.

"The Amalgamated has been a strong, forceful body with intelligent leadership for the purposes it wished to accomplish. We all know the history of its growth, how railway by railway the employees have been added. With a strong, organized body, individual properties could be added one by one and nothing else could be expected. On the other hand, the railways are not welded together like the Amalgamated and there should be thorough study of the problem by the individual railways for the purpose of bringing about better and closer labor relations between railway operators and their employees."

"To be more specific, what exactly do you mean by the individual contract and what has been your own experience under it?"

"The contract, I think, should provide that there should be no lockout on the part of the company and no strike or interruption of the service on the part of the employees, and if there should be any difficulties upon which agreement cannot be reached they should be referred to the Public Service Commission as a board of arbitration. This seems a just and sensible American way to deal with men, and intelligent employers are more anxious than any one else for satisfactory labor relations, as they realize the best business results can be obtained only by having satisfied and loyal employees. I am sure the general public would support such a plan and it will ultimately prove most beneficial to the employees.

"From our own experience I think our men are among the most contented employees in the country. We have a reasonable wage scale, considering the general living conditions—and cost of living—around Indianapolis. No outside organizer wholly unfamiliar with local conditions comes in to try to solve things better solved at home. Without such outside influence the men interpret things for themselves and deal directly on a fair and manly basis with their employers."

"How do you deal with grievances?"

"The men have the right to come direct to the superintendent or to the president. In Indianapolis we have four carhouses and at each house there is a system of

selection or voting for trustees, four from each house for a term of one year. If any man thinks that he is not properly disciplined he has the right to select three men, one from each carhouse except his own, who, with the superintendent and the assistant superintendent, vote on the case and their decision is final. You see that the men themselves have the majority vote as there are three men from the other houses and the company is only represented by the superintendent and the assistant superintendent. With the exception of two or three cases, all such appeals have been decided in favor of the company; that is, the fairness and justice of the company's action has been recognized and sustained. The men have an organization, but they devote it to beneficial purposes only, to provide sick and death benefits."

"Is there any provision for the men to discuss questions as a group or to be represented as a group?"

"Naturally the men can appoint committees to take general problems up with the company. If the question of wages comes up, for example, they select a committee and come in and talk things over."

"Of course there is one other part of this subject in which labor is particularly interested, and that is working conditions and security of employment."

"Perfectly true and rightly so. As to the former, I do not believe that the eight-hour day is feasible in railway work. The railway business is one in which its own working conditions must be analyzed and the answer made to fit the requirements of the case. I think a logical basis—the best for the men themselves—is nine or ten hours of work with a maximum spread, which even in so-called split runs will not exceed sixteen hours. This must naturally be arranged on a basis of providing satisfactory working relations, working conditions, surroundings and atmosphere, but as to the actual schedule, I very strongly believe that an eight-hour day is an economic impossibility.

"But the other point is frequently overlooked in discussing electric railway labor, namely, the continuity and stability of employment. The electric railway is a public necessity; it must furnish continuous service which cannot vary much in amount; it therefore provides continuous employment. The employee who performs his duties with reasonable efficiency is assured his position. He counts on that, purchases his home and is assured that even depressions which cause so many ups and downs elsewhere will not deprive him of his job. The large number of satisfied employees who have been with the various railways in this country for years and years is an earnest of this thought.

"I shall not leave this subject without paying a tribute to the railway employees, organized and unorganized, for the intelligent manner in which they have met the necessary readjustments of the past few months. In many cases they have approached the problem as real partners in the business."

Good Salesmanship Implies Good Understanding with Public

Our conversation then turned from this absorbing human problem, which is today an outstanding one in all industries, to the subject which was the keynote, or at least the ever-present topic of conversation, at the recent convention—salesmanship in transportation.

"I am afraid my thoughts are of little value on this subject," said Mr. Todd. "It seems to me that the plan outlined by Mr. Goodwin in the ELECTRIC RAILWAY JOURNAL (see issue of Sept. 24, page 466), though, is the way to introduce salesmanship into the industry. That is, on most properties, as I see it, the president or general manager or some vice-president should personally be or embody the sales manager—should instill salesmanship and a commercial aspect of the business.

"But the best salesmanship of all, and I recognize this as a part of Mr. Goodwin's idea, is to have a clear understanding with the public—to have a frank and open dealing with the public on problems of the railway. And it is due the public that there should be such a close and frank understanding."

"How about financial reconstruction?"

"The way many people talk of that appeals to me as being a dream of Utopia. I don't think that there is any one more in favor of the principles outlined by Mr. Frothingham at the Atlantic City convention of a general reorganization and plan of refinancing for all companies, but outside of going through a receivership and reorganization or through that rare thing, a voluntary reorganization, I don't see how we can arrive at the end desired. Speaking of our own city company, we reorganized voluntarily, although we could not get the ratio of stocks to bonds as we desired to have it. There is no question but that where possible it is the right policy to clarify the financial structure. The ideal condition for a property to be in, as I conceive it, is to have its outstanding capitalization divided 50 per cent bonds and 50 per cent stock.

Voluntary Reduction of Capital Difficult

"There are so many complications in many of the companies that a voluntary reorganization is very difficult to bring about and receiverships and reorganizations under them are usually not good for the industry and are expensive for the individual property and to the general public. But there is no doubt that it is a serious question and one upon which the individual company can work to advantage, knowing that any improvement in financial structure will be a strong factor in creating a great improvement in public relations."

"What are you going to do in cases where the valuation is very much less than the capitalization and you wish to reduce the latter?"

"Usually I do not think a reduction can be effected except when there are just a few security holders and they will accept the reduced face value of their holdings. The public must remember that present capitalizations were made in good faith and according to accepted principles, and further that it is valuation and not capitalization upon which we earn. It is, however, desirable, from a public policy standpoint, when it is found that capitalization considerably exceeds physical value, to effect a reduction if practicable. But take some of the larger companies where there are thousands of security holders. It is a physical impossibility to get consent to a reduction in the capitalization.

"I don't know what the answer is unless just to let properties work themselves out. If a railway gets in a situation where it is desirable to reduce its capitalization to its value or adjust capitalization and value, one possible way to do it is to declare no dividends for a few years and put what should fairly be paid in dividends into the property so that the value will eventually

work up to the capitalization. Meanwhile, of course, there is no return on the property paid out in dividends, but eventually the best interests of the stockholder may be served and he is no loser. If there is no receivership and if there is no voluntary reorganization this is the only way that I see."

MUNICIPAL OWNERSHIP LARGELY A DEAD ISSUE

"Do you see any tendency toward municipal ownership?"

"As a matter of fact, as I view it, the tendency is the other way. Municipal ownership at present is a dead issue in most cities. Municipalities are educated and enlightened. A few years ago the situation was different, and I think the result is largely attributable to the experience under government operation of the railroads. Personally, I think that the general public agrees with the views expressed by almost every investigating body, and with the opinion of railway operators themselves, that private operation under intelligent regulation provides the best service in the end."

"It has been said, you know, that the fiscal policy of the government, with the graduated income tax and with the continued supply of tax exempt government and municipal bonds, would drive the public to have to supply the additional capital necessary for utilities to grow and thus force municipal ownership. Have you any opinion on that? Do you think such a result is likely from that course?"

"No, I don't. It seems to me that should municipalities go into the transportation business the money rate would go up for them, for the investor will appreciate that the municipalities are rather stretching their credit for such purposes.

"There is another angle to this, of course, and that is that there is a feeling that the tax exempt feature of municipal securities may soon be removed. There are some who express the opinion that this feature may be determined to be retroactive; in other words, that present municipal securities may be taxed, and of course present purchasers take the chance on that. But on the whole, I think that the situation will soon change so that the damage now being done by the tax exempt municipal securities will be minimized or largely eliminated."

PRESENT COAL SITUATION AN OUTRAGE

"What else looms up before you as an outstanding problem for the industry?"

"Well, the coal question, which is one that I am most deeply interested in. The present situation seems to me to be an outrage. The utility companies, as well as the general public, are entitled to have a *continuous* and *dependable* supply of coal at a fair price without being continuously subjected to the dangers and interruptions of coal supply or to periods of exorbitant prices, no matter how caused. We in Indiana live right on top of the question and perhaps get more interested in it than those who are farther from the actual production of the coal.

"But it is a question of real importance to the entire industry because the price of coal has such a material effect on the power cost and therefore the car fare and because the continuity of supply affects our continuity of service or forces us to make larger expenditures to maintain adequate coal reserves.

"Of course, I recognize that the coal industry has a labor problem of its own of no small proportions. It has been sufficiently aired in the newspapers, however, so that I need not discuss it. But when a 1912 price of $1.15 per ton delivered is compared with a 1921 price of $4.05 per ton delivered there is enough to indicate a serious interest in this problem by railways.

"To many utility properties in the Midwest it would be their salvation if they could secure their coal at a fair cost of mining and profit to the producer, this on account of the large quantities of coal which must necessarily be used in the production of power.

"I am very hopeful with reference to the most recent developments in straightening out the coal situation. If this is cleared up it will mean something to the coal bill of the electric railways, but it will have a broader significance to industry as a whole which should be very beneficial."

From the nature of Mr. Todd's discussion thus far it is apparent that he is not one to "dodge the issue." These are all debatable subjects which Mr. Todd analyzes and upon which he presents his own views for what they are worth to the industry in its grappling with the problems before it.

Our talk soon turned toward what the American Electric Railway Association as an organization could do to assist in some of these problems.

"The association can certainly do a great deal to bring out the correct analysis of the trackless trolley and the bus. I also think that it can as an organization do something of value on the question of wages and labor."

"Do you think this latter is a question which it is advisable for the association to deal with?"

ASSOCIATION SHOULD STUDY FARE QUESTION

"Yes, I think it is. Certainly some fundamentals might be uncovered by study. I do not propose to suggest this as a topic for the association at this time. I realize that there are divergent views on the subject and I don't know if it is possible for the association to tackle it at all, but how are we ever going to find out if it is possible unless some one does study it with the expectation of finding some solution of the problem?"

"How about the subject of fares? Is not this so-called period of deflation an excellent time for the industry to make an intelligent study of modification of city fare schemes, if any are possible in the various areas, as a means of adjusting fares to public policy, if such a figure of speech is allowable?"

"I think this is a subject on which the association should do some very useful work. I think we must get down to basic facts, and in my own judgment we must get down to a low basic fare for short rides. I think it is extremely important that we keep the short rider, and we cannot keep him, at least in Indianapolis, with a high basic fare. My own judgment is that we must work out some sort of a low basic fare with an added fare for increments or zones, as they may be called. This means real work, and the association might in some way aid in the solution of the problem as its various aspects are presented in different localities."

"What do you think of the unlimited ride ticket, or the pass, as it is called, as a factor in this situation?"

"A doubtful experiment. To me it seems a step backward to the days of flat rates for incandescent lamps or flat unmetered gas rates. In both these cases lamps were burned continuously. Of course, I may think differently after we have more experience with it in various cities, but that's the way I look at it now.

Perhaps I look at things principally from a standpoint of Indianapolis, but I think that we should have started with a central zone for a short rider, with an added charge for additional distance traveled or service rendered. On our interurban property we used to have 5-cent fare zones, now we have 3 cents per mile and each rider pays for exactly the mileage that he travels. This seems more logical and it appears worth while to attempt to work out something with similar logic for cities if it is possible for us to do so."

"What will the public opinion of the average American city and its flat fare policy or philosophy have on this question?"

"I don't know. I think, though, that we are coming some time to a form of measured service. I don't know how it is going to be done and for that very reason the question needs study and analysis. I know in our own community we presented a zone system with a low base fare with 2-cent increments and the commission indicated that it was scientifically correct, but that the community had been built up on a 5-cent flat fare basis and didn't want to change.

"There must be a good deal of educational work done with the public on this, but some of it has been done in some places. I might say that I favor, so far as I understand it, what is being done in Boston, namely, as prices come down leave 10 cents for the long haul and reduce short riders to 5 cents. That, of course, is not actually done universally in Boston, but the principle to a certain degree is applied there and that appeals to me as a possible way to start the plan, or at least as one way to apply the principle I have in mind of a differentiation between the fare for a long rider and the fare for a short rider."

"What else do you have in mind that the association will do during the coming year, or can do effectively at this time?"

"I think the association, as I find it now, is doing a fine work. It will be very valuable to continue the consideration of such questions as were outlined by Mr. Frothingham. There is a growing realization of many of the points which he brought out, but the work is by no means ended. While some realize the situation, others are less serious in their contemplation of the financial problems. It appears to me that we must work toward a 50 per cent stock ownership of our properties as the most healthy one for the properties themselves and the best for the interests of the public. The greater portion of this that can be owned in the community, naturally, the better, thus giving the individual rider a personal interest in the welfare of the company."

"By the way, what do you think about complete publicity on the question of finances and all financial statements?"

Publicity and Public Relations

"If the public were all financial experts I think the plan would be excellent. But on the whole, the people generally get financial statements all mixed up and, from my observation, complete publicity of matters which are so technical in some ways as to be beyond the grasp of the average intelligence, or at least beyond the grasp of a cursory reading which the average person gives it, usually does more harm than good. Theoretically, I am for it. Practically, until the reading public is in general better educated to understand financial statements, I doubt its wisdom, except that simple statements and interviews should be given the press from time to time, keeping the public generally informed as to the problems confronting the company and its financial conditions.

"But, as I said earlier, the public on this and other railway matters has been educated to so great a degree compared to the situation a few years ago that one grows conservatively optimistic as he studies the future. So many of our general problems are so intimately connected with public relations, and these, on the whole, have improved so much recently that the future, while not looking 'rosy,' at least appears to promise really substantial economic success.

"We speak of the railways as 'coming back'—they are back if they ever really went away. There have been troublesome times. It has been difficult at times to overcome the inertia to get public approval for necessary fare increases. But, as evidenced by the universal expression of public utility commissioners, there is now a real desire on the part of the public to give the railways an opportunity to rehabilitate themselves in order to give better service to the public. The commissioners have given voice to their realization of the necessity of continuing at least present fare levels for a period sufficient to allow the railways to build up their resources so that they may restore operation to its previous efficiency, or rather improve it to meet the 1922 model.

"I would be rash to predict a rate of growth or a rate of increase of traffic comparable to that of fifteen years ago. Our problems now are principally operating and conservative expansion of rail service. But we all recognize the necessity of maintaining our operating equipment, such as cars, overhead, track, car supplies, etc., so that our product, transportation, is of the highest quality and most salable, and so that our profits may be realizable and not imaginary.

"As stated in the beginning, I am convinced that the clouds which have lowered upon our industry are gradually being dispelled and that there is a better appreciation on the part of the public of the indispensable factor which electric railway service is in their daily lives and activities."

Six Years of Trackless Trolleys

IN A RECENT issue of *Elektrische Kraftbetriebe und Bahnen,* Max Schiemann, one of the pioneers in trackless trolleys, gives some facts about a line started near Hamburg in 1911 and operated successfully until 1917. It then had to be abandoned on account of the conditions brought about by the war. The run was about 1½ miles and the cars weighed about 7,000 lb. including a live load of twelve seated and ten standing passengers. The wheels had solid rubber tires and were driven by one 15-hp. motor with worm drive. The trolley was pivoted on the roof of the car in such a manner as to give a range through 360 degrees, permitting the car to deviate as much as 10 ft. from its route. On week days a half hour schedule with one car was maintained, on Sundays two cars ran every 15 minutes. Each car traveled on the average 75 miles daily. A pay-as-you-enter fare system was in use.

The author admits that a trackless car requires on the level from two to three times more power per ton, depending on the kind of surface operated over, but claims that this is compensated for by the two to three times smaller weight. He also says that at normal conditions the first cost of an electric railway is about three times that of a trackless system.

Trolley Buses Recommended for Seattle Municipal Lines

Railway Superintendent, After Country-Wide Investigation, Advocates Trolley Buses in Place of Motor Buses for Complementary Feeder Service

DECLARING that trolley buses would be efficient, satisfactory and economical in outlying districts, D. W. Henderson, superintendent of the Seattle (Wash.) Municipal Railway, recommends that the city purchase and try out a number of these vehicles. He proposes to operate them as feeders to existing rail lines, so as to provide service in such districts as Beacon Hill, Cowen Park, Thirty-fifth Avenue S.W., Tenth Avenue N.E., and Fifth Avenue N.E. and Woodland Park Avenue north of the Green Lake line. The trolley bus on these routes, he claims, would be more efficient, more satisfactory to the public and to the railway division than the present gasoline buses now being used. A much less investment would be required than if rails were laid and street cars bought to take care of these outlying districts.

These were the outstanding features of the report to Mayor Hugh M. Caldwell of Seattle made by Mr. Henderson, who made an extended trip to Eastern cities to study first hand permanent as well as experimental installations of trolley buses. He also pointed out that the cost of operating this type of vehicle in Richmond and Norfolk was much lower than that of either the motor bus or the trolley car in Seattle and that it was the consensus of opinion of railway men in Eastern cities that the trolley bus has its place in the street car transportation field as a feeder.

For the most part the report consists of a detailed description of the experimental trolley buses at Detroit built by the Trackless Transportation Corporation and the Packard Motor Car Company and also the one at Philadelphia, built by The J. G. Brill Company. Mention is also made of the installations on Staten Island, New York, as well as the experimental lines in Richmond and Norfolk. Descriptions as to the equipment and operation of all these installations as outlined in the report have appeared more completely from time to time in the columns of the ELECTRIC RAILWAY JOURNAL.

In commenting on the method followed in mounting the equipment on the two vehicles in Detroit, Mr. Henderson contended that the location of the motors would not prove satisfactory for the reason that the water would run from the hood into the motors. Also the motors were not properly protected underneath from the water of the street. Comment was made of the type of current collector used in each installation and Mr. Henderson seemed to realize that here lies the success or failure of the trolley bus. The rolling contacts as used on the Imperial and Packard vehicles would be rather hard to keep on the wires, he said, when passing under overhead special work. The sliding contacts used by the Atlas buses on Staten Island were also unsatisfactory. The swivel sliding-shoe collector on the Brill rail-less car was, in his judgment, the most practical at this time.

The report contains operating statistics—Tables I and II—of the experimental trolley bus operation in Richmond as furnished by C. B. Buchanan, formerly vice-president and general manager of the operating company, as well as estimated revenues for a specific route under three different rates of fare. Interesting estimates as to the cost of building overhead trolley lines per mile of route using either span or bracket construc-

TABLE I—ESTIMATED ANNUAL EARNINGS AND EXPENSES GRACE STREET "TROLLIBUS" ROUTE—RICHMOND, VA.

Unit	(Cash Fare—No transfer) 7-Cents	6-Cents	5-Cents
Length of line ... Miles	3.36	3.36	3.36
Bus-miles operated	444,312	444,312	444,312
Estimated passenger traffic*	2,221,560	2,221,560	2,221,560
Gross revenue	$155,509	$133,294	$111,078
Operating expenses ... 15 cents per bus-mile	$66,647	$66,647	$66,647
Depreciation reserve ... 2 cents per bus-mile	8,886	8,886	8,886
Total cost of operation	$75,533	$75,533	$75,533
Net earnings	$79,976	$57,761	$35,545
Estimated investment			
Overhead line construction and twelve trolley buses	$130,000	$130,000	$130,000

* Based on Birney car operation of five passengers per car-mile.

TABLE II—OPERATING STATISTICS OF "TROLLIBUS" IN RICHMOND, VA.
Period July 12 to July 31, Inclusive, 1921

	Unit	Actual	Per Bus-Mile	Per Bus-Hour
Length of route	Miles	0.69	.....	....
Headway	Minutes	.10	.....	....
Seating capacity	Passengers	30	.....	....
Standing capacity	Passengers	15	.....	....
Bus-hours operated	Bus-hours	284	.....	....
Bus-miles operated	Bus-miles	2,363	.....	....
Schedule speed	M.p.h.	8.32	.....	8.32
Passengers carried	Total	44,394	14.5	156
Power consumption*	Kw.-hr.	2,448	1.04	....
Operating Costs			(Cents)	
Maintenance overhead lines	.....	.....	(a) 0.80	....
Maintenance buildings	.....	.....	(a) 0.06	....
Maintenance of Equipment				
Bus equipment and shop expenses	.....	$33.56	(b) 1.42	....
Tire renewals	.....	.....	(a) 1.00	....
Cleaning, inspection, etc	.....	23.39	(b) 0.99	....
Cost of power at 6.5 cents per kw.-hr	.....	$15.91	(b) 0.67	....
Wages of operators	52½ cents per hour	148.39	(b) 6.28	....
General and Miscellaneous Expenses				
General expenses	.....	.....	(a) 1.06	....
Damages and legal expenses	.....	.....	(a) 0.92	....
Total			13.20	

* Equipment one 25-hp. G. E. 258 motor. No heaters; two 5-light circuits.
(a) Estimated, no charges to date. (b) All costs to date charged.

TABLE III—ESTIMATED COST PER MILE OF ROUTE FOR OVERHEAD TROLLEY CONSTRUCTION FOR "TROLLIBUS" OPERATION AS OF JULY, 1921

Unit	Span Construction—30-Ft. Poles: Iron Poles Double Route	Iron Poles Single Route	Concrete Poles Double Route	Concrete Poles Single Route	Wood Poles Double Route	Wood Poles Single Route	Bracket Construction—35-Ft. Poles: Iron Poles Double Route	Iron Poles Single Route	Concrete Poles Double Route	Concrete Poles Single Route	Wood Poles Double Route	Wood Poles Single Route
Poles per city block	6	6	6	6	6	6	3	3	3	3	3	3
Spans or brackets per mile	50	50	50	50	50	50	50	50	50	50	50	50
Cost of Materials												
Poles	$4,000	$4,000	$3,000	$3,000	$1,000	$1,000	$2,250	$2,250	$2,250	$2,000	$1,100	$850
Galvanized span wire—$\frac{1}{4}$-in. diameter	100	100	100	100	100	100	100	100	100	100	50	50
Line materials	400	200	400	200	400	200	400	200	400	200	400	200
Paving blocks	2,000	2,000	2,000	2,000	500	500	1,000	1,000	1,000	1,000	250	250
Labor	1,600	1,400	1,800	1,600	1,200	1,000	1,100	900	1,200	1,000	900	800
Miscellaneous expense	1,000	1,000	1,000	1,000	800	800	850	850	850	850	750	750
	$9,100	$8,700	$8,300	$7,900	$4,000	$3,600	$5,950	$5,300	$5,800	$5,150	$3,450	$2,900
Phono-electric 00 trolley wire at 23 cents per lb	2,000	1,000	2,000	1,000	2,000	1,000	2,000	1,000	2,000	1,000	2,000	1,000
Ordinary 00 trolley wire at 15 cents per lb	1,300	650	1,300	650	1,300	650	1,300	650	1,300	650	1,300	650
Total cost with Phono trolley	$11,100	$9,700	$10,300	$8,900	$6,000	$4,600	$7,950	$6,300	$7,800	$6,150	$5,450	$3,900
Total cost with copper trolley	10,400	9,350	9,600	8,550	5,300	4,250	7,250	5,950	7,100	5,800	4,750	3,550

tion on iron, concrete or wood poles is given in Table III. The cost of operating trolley cars and motor buses in Seattle is considerably in excess of the figures presented by Mr. Buchanan. These costs are 28.56 cents per car-mile for the trolley cars and 19.93 cents for motor buses as against trolley bus costs of 16.37 cents in Norfolk, Va., and 13.20 cents in Richmond, Va., per bus-mile. From these figures it is readily seen that the expense of operating the trolley bus is much lower than that of the motor bus or the trolley car.

The consensus of opinion, Mr. Henderson says, of all the railway managers with whom he talked at Atlantic City at the recent convention of the American Electric Railway Association was that the trolley bus had its place in the street car field as a feeder. On account of the much smaller investment for installation than that of the street car, and but very little more than that of the gasoline motor bus, the trolley bus as a feeder will be the coming means of transportation in outlying districts. When traffic becomes greater than can be handled by the trolley bus the poles and wires can be incorporated as a part of the rail system that would have to be installed.

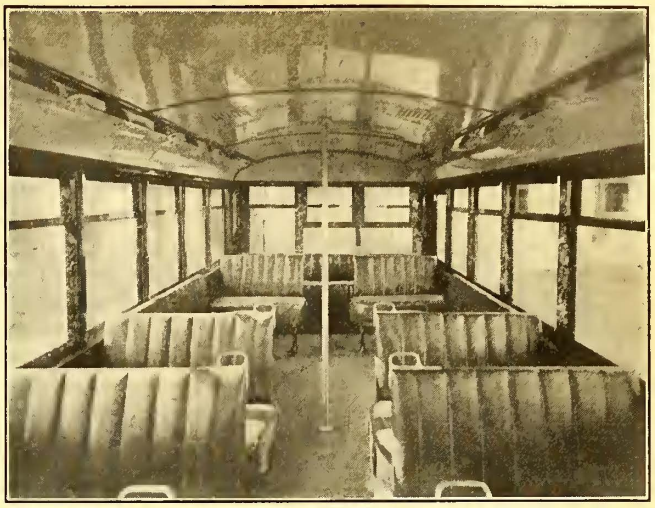
Following are the conclusions which Mr. Henderson presented before the City Council and Mayor of Seattle:

"My recommendation would be that if the Mayor and City Council can see their way clear without any legal entanglements to secure some of these buses and give them a try out, I am satisfied that they would prove satisfactory. And, if there are any legal entanglements whereby the city could not purchase these buses at the present time, I would recommend that the matter be put to the vote of the people at the next general election to decide whether or not they would give the city government the authority to go ahead and purchase buses as part of the street railway system; that is, for the railway to have the right to operate cars or buses."

A "Trackless-Trollicar" Is the Latest

St. Louis Car Company Has Utilized Its Car Building Experience in the Design and Construction of the Most Recent Rail-less Vehicle

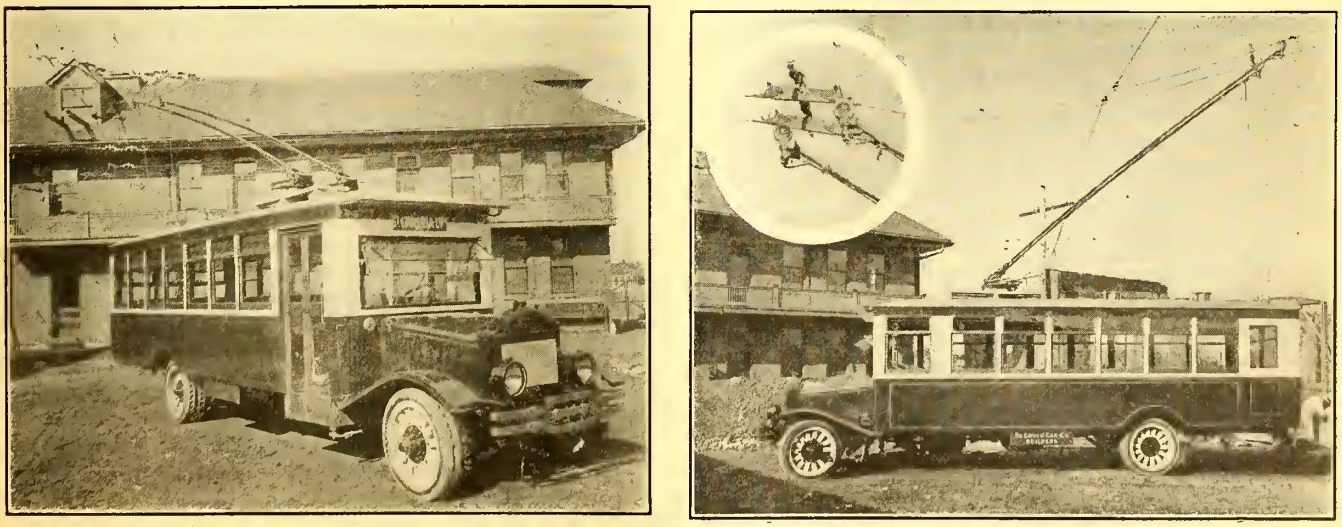
THE fifth trolley bus to make its appearance is now being tested in Detroit, Mich. It is a twenty-nine-passenger vehicle weighing approximately 10,500 lb., designed and manufactured by the St. Louis Car Company. The car body, which is permanently attached to the chassis, has been standardized, while the chassis itself, as far as motive power is concerned, is convertible so that the bus may be used as a trackless trolley or adapted to be driven by a gasolene motor. By adopting underslung spring suspension on both front and rear axles it has been possible to overcome the fault common to so many rail-less vehicles of having too high a floor level. The distance above the roadway of the car floor of this machine has been kept to 30 in.



LONGITUDINAL SEATS ARE PLACED OVER WHEELHOUSES

The step has been placed at a height of 17 in. above the street, but ordinarily the distance will be but a few inches, since most passengers will enter from the sidewalk level. No drop platforms were necessary with this low body level. The entrance and exit at the front are controlled by means of the manually operated folding door located in the customary position at the front right-hand corner. The door operates in the stationary step well and folds inward toward the front when open. When shut it entirely incloses the step. An emergency hinged door swinging toward the front will be located either at the center of the rear end of the car or at the rear right-hand corner, according to the desires of the purchaser. The body is electrically illuminated and heated. The upper part of the sash is stationary, while the lower part can be raised to the level of the vision line, a distance of about 50 in. above the floor level.

The motive power consists of two 25-hp., 600-volt motors of either Westinghouse or General Electric make.



TWO VIEWS OF THE UNDERSLUNG, LONG WHEELBASE ST. LOUIS "TR OLLICAR." INSERT SHOWS THE PAIR OF SWIVELED TROLLEY WHEELS

The motor units, connected in tandem, are mounted underneath the chassis approximately half way between the front and rear axles. A full universal joint connects the two motors as well as the rear motor with the drive shaft. A worm gear is used to transmit the torque to the rear axle. The control equipment, rheostats, switches, etc., are mounted underneath the hood as was done with the Packard trolley bus, which was adapted from a gasoline truck. The control equipment consists of a pedal-operated master controller connected to a motor-control sequence switch, which automatically operates the magnetic line breaker and rheostat switches. The master controller is arranged to provide two running speeds through action of the pedal, making it unnecessary for the operator to notch up the controller.

Current collection is accomplished with two standard trolley poles and two trolley wheels held in specially devised harps. Each pole is mounted separately on regulation trolley bases. In place of two poles a single pole with a sliding shoe mounted on a specially designed harp with the pole supported on a single regulation trolley base can be furnished.

GENERAL DIMENSIONS OF ST. LOUIS "TRACKLESS TROLLICAR"

Length over all	26 ft.
Wheelbase	16 ft. 2 in.
Length of body	21 ft. 6 in.
Width over all	7 ft. 6 in.
Width inside	6 ft. 11⅜ in.
Tread of rear wheels	5 ft. 4 in.
Tread of front wheels	5 ft. 10 in.
Height of floor at entrance	2 ft. 6 in.
Height of first step	1 ft. 5 in.
Height of step to floor	1 ft. 1 in.
Height from floor to ceiling at center	6 ft. 4⅜ in.
Height from roadway to top of roof	9 ft. 3 in.
Post spacing	2 ft. 4½ in.
Seat spacing	2 ft. 4½ in.
Width of aisle	1 ft. 6 in.

The electric equipment of the St. Louis trackless trolley car includes the following: Two motors, one master controller, one sequence switch, one magnetic switch group, one rheostat, one complete current electric unit, one main fuse, one reverser and one double-pole magnetic line switch, with overhead relay, cable and necessary details.

The general dimensions of the trackless trolley car are as shown in the accompanying table.

EQUIPMENT DETAILS

Motors: Two 25-hp. Westinghouse or General Electric.

Control: Pedal series-parallel type with auto-magnetic switches.

Steering Gear: Ross screw and nut type with 22-in. wheel.

Wheels: Artillery.

Tires: Firestone cushion—Front, 34 x 6 single. Rear, 34 x 5 dual.

Brakes: Service brakes on both front and rear wheels. Emergency brakes on rear wheels only.

Axles: Front, drop forge "I" section with ball-bearing steering knuckle spindles. Rear, worm-drive mounted on ball bearings. Gear ratio 6½ to 1.

Springs: Compensated semi-elliptic. Front 3 in. x 42 in.; rear 3 in. x 56 in.

Propeller Shaft: Spicer double universal between motors and on drive shaft.

Headlights: Two standard incandescent lights mounted on frame.

Windshield: Smith "Rain Vision" or other approved make.

Bumper: Biflex type.

Passenger Signal: Type "B" push buttons mounted on molding over center of each window space, wired in connection with Faraday high-voltage car signal buzzer installed at front of car.

Curtains: At each side window, of double-faced O'Bannon hair cloth, mounted on all metal rollers and equipped with automatic bottom holding fixtures.

Draw Hooks: Provided front and rear for towing.

Main Lighting Circuit: Two circuits of five lights each within the trolley car body and one additional circuit consisting of two headlights, one steplight, one dashlight and one tail-light.

Emergency Lighting Circuit: Consisting of two sidelights, two lights within the trolley car body, one tail-light connected with accumulator in series, with main lighting circuit and arranged so that these auxiliary lights automatically cut in in case of failure of trolley circuit.

Fare Box: Support for fare box furnished and installed at front entrance; box to be supplied by purchaser.

Gong: One 10-in. alarm gong electrically operated from power circuit by means of "Handy Ring" mounted under steering wheel.

Heaters: Eight electric heaters arranged in two circuits to be provided with necessary cut-outs and fuses.

Seats: Eight stationary cross seats, two longitudinal seats over wheel house, one rear longitudinal seat full width of body. Seat cushions ventilated spring type. Backs padded type. All upholstered and covered with imitation leather.

Signs: One illuminated destination sign mounted at center over windshield.

Tail and Marker Lights: One combination line and battery tail lamp mounted on chassis frame at rear. Two clear marker lights mounted in front dash.

Ventilators: Four Peerless ventilators installed on roof.

Inside Finish: Doors, sash, moldings, etc., of soft yellow poplar of mahogany finish.

Trackless Trolleys for the Italian Army

ACCORDING to a recent article in *Elektrische Kraftbetriebe und Bahnen* the scarcity of coal in Italy during the war compelled the military authorities there to do everything they could to relieve the railroads of unnecessary transportation of freight and men, and to utilize more than ever the country's abundant water powers. First, an attempt was made to use electric storage battery trucks, but the great weight of the batteries made their efficient operation under the conditions impossible.

Better results were achieved with trackless trolley lines, of which seven, aggregating 135 miles in length, were installed, for the most part in mountainous districts. Particulars of a typical line, that between Primolano and Enego, follow:

The line was 7½ miles in length. The average grade was 6 per cent, and the maximum was 11 per cent. There were many sharp turns on the line and radii as short as 16½ ft. The two trolley wires were suspended 18 ft. above the road on wooden poles, set in concrete. The overhead line was divided into sections about 1¼ miles long, each with a horn-gap lightning arrester. Two substations of 60 and 90 kw. fed from a 30,000-volt trunk line supplied 500 volts direct-current to the overhead system. The power supply was sufficient to operate five cars up hill and five cars down hill at a time. Each car was driven by a 10 to 15-hp. motor. On the termination of hostilities all of these lines were abandoned.

Test of Sprague Train Control System

ARRANGEMENTS have been made between the New York Central Railroad and the Sprague Safety Control & Signal Corporation for an extended test of the auxiliary train control of that company to be conducted on one of the tracks on the electric division of the New York Central Railroad between Ossining and Tarrytown. The control system is of the magnetic type and has been developed by Frank J. Sprague. It is expected that the test will be begun within the next month or six weeks. The system is adapted to both steam and electric locomotives.

Trackless Trolleys at Work Abroad*

In This Article the Results on the Two Most Recent Installations, Tees-side and York, Are Presented, Together with Some General Data and Notes on the Over-Running Trackless Trolley of the Vienna Municipal Tramways

BY WALTER JACKSON
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THE trackless trolley system known as the Tees-side Rail-less Traction Board is of outstanding interest because it is the only all rail-less installation and second because it is new throughout, as service was only established on Nov. 8, 1919.

At the time decision had to be made with regard to the method of propulsion the rail was held to be hopeless for the density of traffic to be served. This was due to the fact that the cost per single track-mile for paved track had risen to £12,500 to £15,000 exclusive of loops or sidings. The gasoline bus was also suffering from rapidly rising prices for fuel, namely, 50 cents per gallon and more. On the other hand, electricity was available at the low cost of 1.5 cents (0.75d.) per kilowatt-hour for ten years with an option of another five years. This meant a saving of 8 to 9 cents per mile on the fuel bill, and this difference alone offered an overwhelming reason for choosing electric operation.

The general traffic situation also tended to favor trolley bus operation, inasmuch as there was available but one important highway, 35 ft. wide, to connect the towns of this iron-working district. The question therefore of a possible shift of traffic in the future did not enter. The 45,000 population served is concentrated for the most part in a number of small industrial towns, viz., North Ormesby, Middlesbrough, Cargo Fleet, South Bank, Grangetown, Normanby, etc. But few of the population live in the open country intervening. Thus, while there are seventeen request stops in the 3.5 miles between North Ormesby and Grangetown, the actual stops average but two per mile. The usual free running speed is 13.5 m.p.h., and the schedule speed, with twenty-eight-seat buses averaging 9.9 passengers boarded per bus-mile, is 7 m.p.h.

POWER AND LINE

The Tees-side rail-less line is 5.1 miles in length, all four-wire construction using No. 000 SWG (British) hard-drawn copper trolley wires. Triple insulation is used between the positive and negative wires. Double insulation is maintained between the positive and negative wires. Double insulation is maintained between the positive wire and the poles and but single insulation between the negative wire and the poles. The negative wires are on the outside to save insulation. Suspension is from concrete-set tubular steel poles and bracket arms. The poles vary in weight according to the strains imposed, light on tangents, medium on easy curves, heavy on sharp curves and terminal loops. Section insulators are installed every half mile. At these insulators the positive wires are connected to pole switch boxes by means of an insulated cable carried inside the pole, thus permitting half-mile sections of the positive wire to be cut out if desired. Tangent trolley ears are 18 in. and curve ears are 24 in. long. Overhead guard wires are installed throughout and are connected to the negative wires according to the usual Board of Trade specifications. Indeed, all overhead construction conforms to these national regulations, aside from the extra insulation demanded by the use of the double trolley.

NEW DOUBLE-TROLLEY TRACKLESS BUS AT TEES-SIDE

Drawings on page 1029 show the two forms of terminal loops—the symmetrical one at Normanby, where there is ample turning space, and the asymmetrical one at Grangetown, where the buses turn in a cross-roads intersection. The one junction on the system (at South Bank) is also shown.

Tests conducted on the best setting of trolley base positions, under the direction of J. B. Parker, general manager Tees-side system, and N. Clough, director of Clough, Smith & Company, London, who built the overhead line, show that the base should be placed over the center of the wheelbase. This location showed superiority in keeping the poles on the wire as compared to setting the base further forward. This base location will be standard on all future buses, including the thirty-six-seat bus now being built.

Power at 550 volts direct current is supplied from the plant of the Cleveland Iron & Steel Works, which is about 0.25 mile from South Bank on the way to Grangetown. To maintain favorable voltage conditions, the trolley wires are supplemented by bare copper feeder cables of 0.2 sq.in. cross section for part of the run. As noted, the cost of power is but 1.5 cents (¾d.) per kilowatt-hour. The total power requirements per bus-mile operated, including office and carhouse lighting, but no bus heating, runs from but 1.39 to 1.41 kilowatt-hour. The maximum grade, which is macadam paved, is 5 per cent, but this is only a few hundred feet long. A variety of paving exists such as stone setts or block between South Bank and North Ormesby, wood block in

*This is the second of two articles summarizing some of the author's observations in Europe during the past spring and summer.

Middlesbrough, brick at Cargo Fleet and tar macadam in poor condition elsewhere. The block paving is rather hard on solid tire usage, while if smooth paving were used throughout the energy consumption, including car-house and office lighting, would drop to 1 kw.-hr. per bus-mile for the present buses.

TEES-SIDE EXPERIENCE FAVORS ONE-MOTOR DRIVE

The first equipment comprised ten twenty-eight-seat single-deck buses, each with two 23-hp. motors with series-parallel control and with a reverser which could be used for braking assistance rather than for emergencies. In this equipment both the controller and the steering wheel are hand-operated, which appeared a rather awkward arrangement for the driver. Each motor drives one rear wheel through a worm gear reduction and live axle. This calls for short propeller shafts between the motors and the driving wheels, and as their universal joints are in constant use there is a strong tendency for them to work out of line. The buses weigh 10,080 lb. empty, but a load of forty passengers is not uncommon. The seating capacity of twenty-eight is based on the official government allowance of 16 in. per passenger. A reduction in the seating capacity to twenty-six means a saving of £12 per year per bus in taxes. The general seating plan is cross seats for most of the space, with longitudinal seats in the corners. Much care is taken with regard to insulation for the protection of passengers. Three-ply rubber hose protects the trolley poles against short circuits, and wooden instead of metal stanchions are used inside the bus body.

These buses have two sets of brakes. The service brakes, which are operated either by foot or hand, work on the rear wheels, while the emergency brakes, which are operated by pedal only, are applied to the propeller shafts. Easy riding was sought by suspending the bodies on long springs, supplemented by auxiliary springs that function when the bus has a full load. In future buses still longer springs are to be used to better the present suspension, aside from the fact that the bus is to be longer. The rear springs will not be fixed with shackles but are to slide in housings. It is also planned to interpose 1½ in. rubber blocks between the chassis and body to reduce vibration and thus minimize the chafing of the body against the chassis.

The second group of buses ordered consisted of six twenty-eight-seaters weighing 9,968 lb. with but one GE-258 25-hp. motor and electric foot control. These buses have the control drum itself within the driver's seat and the resistors on the platform. The motor and worm shafts are in a direct horizontal line with the propeller shaft. The universal joints come into play only upon the deflection of the front and back axle springs instead of being in constant operation, thereby reducing driving friction. Apparently this was responsible for the drop in average energy consumption from 1.41 to 1.39 kw.-hr. after the six single motored buses were added. However, if a schedule speed of 10.5 m.p.h. over the 3.12 mile route, with an average of three stops to the mile, is to be maintained, at least a 40-hp. capacity motor is required. The average length of stops is eleven seconds and a five-minute lay-over at the end of the run is embodied in the schedule.

On the first ten buses the positive and negative trolley bases are mounted separately. On the six later buses, however, they are mounted on the same vertical pin, thereby reducing weight and increasing the reach of the poles, which are 18 ft. long. Heretofore 17-ft. poles had been used. These lengths are for the Board of Trade trolley-wire height of 21 ft. A spring tension of 30 to 35 lb. is used in the trolley base to allow a possible maximum speed of 20 m.p.h. without dewirement. The collectors on both types of bus are 4¼ in. Parker patent, spring-cushioned, non-fouling wheels which can swivel all the way round. Rings below the sockets allow the trolley poles to be drawn down with bamboo rods to the level of the trolley standards. With the center-base arrangement it is possible to make a clean reverse by jockeying the vehicle around while maintaining contact successively with the two sets of trolley wires in succession. The poles did not leave the wire until the bus was more than 12 ft. off center, whereas the usual deviation for a stop at the curb is from 8 to 10 ft.

In the latest type bus, designed by Mr. Parker in co-operation with Mr. Clough, put into operation late this year, the seating capacity has been raised to thirty-six. The illustration shows this bus to be of front-entrance and exit type so that eventual one-man operation is possible, although the traffic is unusually heavy. This bus has the 18-ft. positive and negative trolley poles mounted on a single base and revolving from one center. This base is mounted centrally over the wheelbase. This amidship position reduces to a minimum the movement transmitted to the base in the steering of the vehicle. The two standards are fitted with ball bearings that allow equal freedom of the trolley poles in both directions.

The bus body has twelve cross-seats for twenty-four passengers, with a rear-end seat for five passengers and with two front longitudinal seats, the one opposite the entrance seating five and the one alongside the entrance seating two. Besides the sliding door at the front, there is an emergency door in the rear. The body is 25 ft. 4 in. over all with 180 in. wheelbase and 8 ft. overhang. Except that the wheelbase is lengthened 6 in. and the position of the starting rod changed to allow a wide front door, the chassis is practically the same as the standard Starter Squire gas-driven unit. This avoidance of a special chassis is expected to play a large part in reducing the maintenance cost of buses of this design. The unusually long springs used, combined with substantial body construction, are reported by Mr. Parker as meeting all his expectations as to absence of rattle and vibration. He writes that the new bus rides like a motor car and that it has caused quite a sensation among the Tees-side patrons.

The tires are known as the Dunlop "super-resilient" type, being a compromise between the pneumatic and ordinary solid kinds. Their estimated cost of upkeep varies from ¾d. (1½ cents) to 1d. (2 cents) per mile compared with 3d. (6 cents) for a pneumatic tire good only for 10,000 miles and still in the doubtful stage for vehicles of this capacity.

There is but one 35-hp. motor of Brush type. The drive has metal instead of fabric universals, experience having proved that when a fabric joint becomes distorted through strain the propeller shaft begins to whip. The controller is of the foot-operated type with rheostatic braking for forward and reverse. This gives the vehicle hand, foot and electric brakes. The foot-operated controller is not only less awkward than hand control, but also allows the driver to have both hands free for steering. A watt-hour meter and speedometer are installed as an aid to economical and careful driving. Illumination is furnished by ten 16-cp. 110-volt lamps.

A 60-amp.-hr. battery takes care of the two head and tail lights in case the trolley supply is interrupted.

The estimated weight, empty, of the new bus is 11,200 lb. and with thirty-two passengers, 15,688 lb. Its energy consumption is placed as 1.25 kw.-hr. per mile, inclusive of line losses, but exclusive of the lighting of the bus-house and offices.

The Tees-side "Property and Assets" account, exclusive of £2,558 stores, for the year ended March 31, 1920, shows a total of £71,430 made up as follows:

Permanent way (bridge)	£14,034
Electrical equipment of line	13,572
Land	2,752
Buildings and fixtures	6,428
Workshop tools and sundry plant	585
Cars (trackless buses)	28,823
Other rolling stock	486
Miscellaneous equipment	551
Office furniture	99
Parliamentary expenses	3,655
Preliminary expenses	545
	£71,430

Although the Tees-side installation is but two years old appreciable improvement has been made not only in the method of drive and current collection but also in body mounting to decrease vibration. Attention has also been given to improved lighting and ventilation. As customary in Great Britain heating is not a factor.

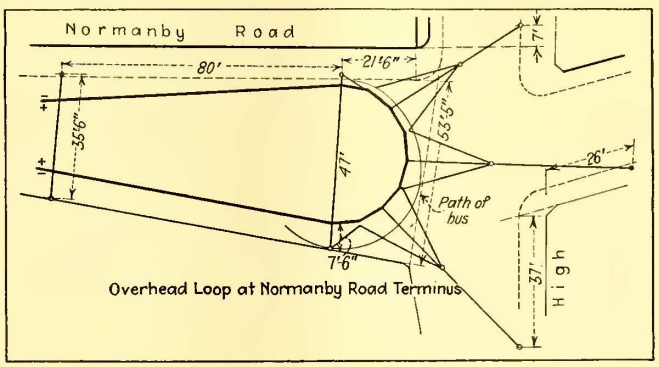
In presenting the costs for the first full year ended March 31, 1921 (Table I), it is but fair to mention that when Mr. Parker came to the property July 31, 1920, or after nine months operation, he found that no provision had been made for regular inspection and maintenance of the vehicles. Two-thirds of the buses were laid up and no tools were on hand with which to make repairs. This fact should be taken into consideration when noting that repairs and maintenance of buses cost 11.33 cents (5.66d.) per mile.

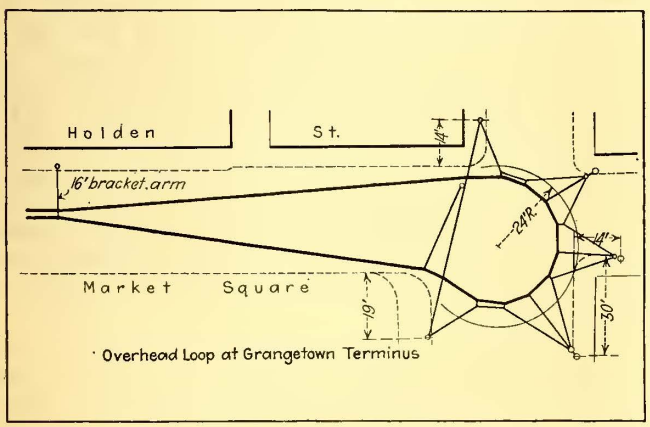
So far as the electrical equipment is concerned, there has been no trouble of any kind that could not have been prevented by ordinary inspection. Buses are now inspected every week and as little work as possible is done at night. Once a month each bus is in for three days, following a one-day guidance overhaul the week before. Rear axles, broken through crystallization, come high, especially as the type used on the present buses is not standard with a quantity output manufacturer. Nightly examination and tightening of tie rods is one preventive. The management also hopes to anneal such axles every year in accordance with the practice of the London General Omnibus Company. One of the principal reasons for adopting a gasoline chassis for future vehicles is to be able to purchase replacement parts on a more reasonable basis than is possible when every detail is special.

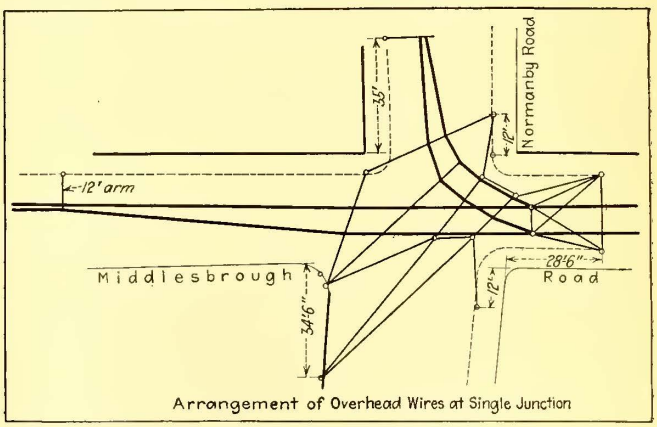
With reference to the upkeep and depreciation of future rail-less vehicles, Mr. Parker anticipates that general repairs and maintenance will work out to about 2.5d. to 3d. (5 to 6 cents) per mile. As to depreciation, the income tax authorities have allowed a seven-year basis for all the trackless trolley vehicles as against their five-year allowance for gasoline motor buses. Mr. Parker rightly points out that stated mileage would be a better guide. He considers 30,000 miles per annum or 210,000 miles in seven years a fair performance. If 200,000 miles be taken as the basis for the life of vehicles costing £2,000 each, the depreciation allowance per mile would be 2.4d. (4.8 cents). If the latest type proves capable of 400,000 miles, the writing-off cost would be reduced to 1.2d. (2.4 cents) per mile.

In connection with the table of operating costs, it should be explained also that the buses have both a motorman and a conductor, which fact brings the platform expense to 13.26 cents (6.63d.) an hour. The motorman receives 33 cents and the conductor 31 cents an hour with free uniforms and a week's holiday with pay. One-man operation would, of course, make a substantial saving, cutting the total operating expenses from 36.78 cents (18.39d.) to say 30 cents.

As at Leeds and Bradford, the cost of maintaining the overhead line is an insignificant item, hardly more than 1 cent per mile. The entire staff for maintaining the line, sixteen buses and one tower wagon, comprises four machinists, four electricians, including the foreman, one overhead man, two laborers, four washers, one oiler and one controller and trolley head boy—a total of seventeen, or one man per vehicle, counting in the tower wagon. Briefly, the cost situation is as follows:







TYPES OF OVERHEAD CONSTRUCTION AT LOOPS AND JUNCTIONS

The principal future savings are, first, in platform expense through one-man operation or larger buses; second, through lower maintenance charges obtainable through technical improvements and the purchase of replacement parts on a quantity production basis.

TABLE I—OPERATING DATA TEES-SIDE RAIL-LESS TRACTION SYSTEM — YEAR ENDED MARCH 31, 1921

Revenue from Operation	In Pence per Bus-Mile	
Traffic revenue	19.64	
Expense of operation:		
Traffic expenses:		
Wages of motormen and conductors	6.63	
Cleaning and oiling buses	0.61	
Fuel, light and water for depot	0.05	
Ticket check (including inspection and tickets)	1.09	
Uniforms	0.02	
Miscellaneous	0.19	8.59
General expenses:		
Salaries of general officers and staff	0.82	
Rents (*)	0.00	
Rates and taxes	0.70	
Printing and stationery	0.23	
Fuel, light and water for offices	0.01	
Accident insurance and compensation	0.20	
Fire and other insurance	0.09	
Miscellaneous	0.27	2.31
General repairs and maintenance:		
Electrical equipment of line	0.52	
Buildings and fixtures	0.08	
Workshop tools and sundry plant	0.17	
Trackless cars, chassis and body	5.66	6.43
Power expenses:		
Cost of current	1.06	1.06
Total		18.39

* Nominal rents of £1 1s. 2d. only.

TEES-SIDE TRAFFIC COMPARATIVELY HEAVY

The earnings and expenses shown in Table I were obtained in operating 364,798 bus-miles and carrying 3,614,857 passengers, which gives the high density of 9.9 passengers boarded per bus-mile with a twenty-eight-seat vehicle. About one-half of these passengers were carried at the 2d. minimum, the remainder being divided among 1d. and 3d. tickets and workmen's reduced rate round-trip tickets costing up to 4d. The earnings per bus-mile were 19.645d. or 39.29 cents. This left only 1.25d. to be carried to net revenue account, a situation which could have been remedied if the Parliamentary legislation relating to fare increases had not overlooked the existence of an all-trackless system. The total traffic revenue was £29,860.

Thus the Tees-side was obliged to continue the fare of 2d. initial rate and 1d. per mile thereafter, with workmen's fares as low as ½d. per mile. This handicap was overcome in part by a rearrangement of stages whereby the shortest stage is at the heaviest loading point, North Ormesby. Although this stage is only 1,050 ft. long, few people undertake to walk to the boundary of the next zone as this would deprive them of a seat during the heavy hours. The result is that for the 2 miles between South Bank and North Ormesby the fare is now 3d. instead of 2d. The average fare per mile is 0.875d. (1.75 cents) and per passenger, 1.96d. (3.9 cents).

On the whole, the Tees-side system is meeting the transportation requirements as desired. Fog and sleet have each been responsible for one interruption to service, but otherwise operation has proceeded smoothly. In the beginning the schedule of the buses was 6.5 m.p.h., but now 7 to 8 m.p.h. is readily obtainable. Improvement in the reliability of the service is shown by increases in earnings and traffic during the more recent months, accompanied by reduction in energy consumption through insistence upon coasting to stops wherever possible. Taking every point into consideration, the Tees-side system, with either relief in fares or a reduction in working expenses, will be able in the future to stand forth as a conspicuous example of all-trackless operation.

BUS OPERATION AT YORK

On Dec. 22, 1920, the York Corporation Tramways opened a 1.25-mile trackless trolley route which runs as such all the way from the Market Square (Parliament Street) to Heworth (Stockton Lane), a suburb with some new housing development. The management had already had some experience with self-propelled vehicles and had concluded that the storage-battery kind was too slow and gasoline too costly. The deciding factor in this instance in choosing rail-less operation was, stated J. W. Hame, then general manager, the great saving possible in power inasmuch as the lighting department was prepared to sell electricity at 1¾d. (3.5 cents) per kilowatt-hour. While this was more than double the Tees-side rate of ¾d. (1.5 cents), it still compared favorably with the 1920 British price of gasoline, which varied between 80 cents and $1 or more per imperial gallon (277¼ cu.in. against the American gallon of 231 cu.in.). Prices are decidedly different today, the August, 1921, quotations being almost 50 per cent of the prices a year earlier.

Aside from the great saving in power, based on the highest gasoline figures, Mr. Hame expected lower maintenance costs in the driving mechanism; also a simpler store-keeping system, inasmuch as the control, motors and trolley collectors were of the railway type. There was also but one class of maintenance men, a desirable consummation on a property with but thirty-eight cars and 14.5 miles of single track. From the public's viewpoint trackless trolley buses were preferable because of greater cleanliness and quietness of operation.

York, although a compact city of 82,500 population, is a good city in which to get lost. It is one of the few places in England that has clung tenaciously to the picturesque characteristics of the municipalities of the Middle Ages, such as fortification walls and narrow streets and lanes. The route of the trackless trolley is typical of the older thoroughfares, being so narrow that there are places where span suspension from building rosettes is used instead of sidewalk poles. The trolley wires are from 21 ft. to 24 ft. above the ground. The cost of the overhead system was placed at £3,688 for 1¼ miles or £2,950 per mile.

The capital expenditure included four buses at an estimated cost of £8,000. Total investment for the quarter ended March 31, 1921, shows £12,541. This sum includes expenditures of £605 for street work and other changes necessary to permit trackless operation; £71 for carhouse changes, and £260 for alterations in the position of telephone and telegraph circuits. While the anticipated cost of the buses was £2,000 each, the actual cost approximated £2,400 each, due in part to faults in construction, the correction of which was to be charged against the contractor. These cost figures indicate that prices of buses are fairly comparable on both sides of the water. It would seem, though, the British makes would cost a little more if they were built as sturdily and upholstered as comfortably as the American types, even if some allowance is made for recent drastic cuts in the prices of British type chassis.

These trolley buses were built for one-man operation, as was the case with the York battery and gasoline

buses. They seat twenty-four passengers on side and end longitudinal seats. Transverse seats are impracticable due to the narrowness of the bus, which is but 75 in. The body is of wood. The vibrations of the body in operation disclosed defects which have made it necessary to reinforce the sills with T-iron the full length, in addition to roof reinforcing irons on the car lines. Two stanchions were also added, the object being to stiffen the roof, which was of ⅜ in. board, enough to prevent it from obvious bobbing up and down.

Noiseless operation, a thoroughly commendable advantage of trackless trolleys, did not obtain because of the rattling of the small ventilator sash due to the use of what the Britisher calls "penny bazaar" fixtures. When these sashes were held tight running was practically noiseless. This rattle was being corrected by the use of stronger fixtures.

The chassis frame is of pressed steel and laminated springs are used. The front axle is a solid steel frame. The worm and sector steering gear is inclosed in a dust-proof casing. Propulsion power is furnished by two 23-hp. series-parallel control motors, each motor driving one of the rear wheels by means of worm gearing, no differential being used. The rear axle is fitted with roller and ball bearings. The weight of the vehicle, which is 11,200 lb. (light), is taken by the axle casing. Hand and foot service brakes are provided on the rear wheels and a foot emergency brake on the motor shafts. The wheels are of hollow-spoke, cast-steel road type with single solid tires on the front and dual solid tires on the rear. The cam-controlled current collectors allow for a deviation of some 15 to 17 ft. on each side of the wires. They appeared entirely suitable for the conditions on this route since the run of 1¼ miles is made in ten minutes, yielding a schedule speed of 7.5 m.p.h., exclusive of layovers.

Table II covers 9,402 bus-miles operation for three months ended March 31, 1921, showing the cost of the principal items:

TABLE II — RESULTS OF TROLLEY BUS OPERATION YORK CORPORATION TRAMWAYS, THREE MONTHS ENDED MARCH 31, 1921

	Actual £	s.	Per Bus-Mile d.
Revenues	696	15	17.79
Cost of operation:			
Platform wages	159	15	4.10
Power	114	4	2.90
Maintenance of vehicles	90	4	2.30
Line repairs	3	2	0.08
Way-leaves (rosettes, etc.)	9	5	0.23
Licenses, etc	48	0	1.22
Miscellaneous	27	2	0.70
Total	£451	12	11.53

The platform wages are based upon the payment of 21⅝d. per hour (43.25 cents); power upon a charge of 1.75d. (3.5 cents) per kilowatt-hour; license charges include registration fees and road maintenance; line repairs is the sum of repairs to overhead wires and cost of way-leave privileges in connection with the rosette type of suspension. It will be noted that inspection, management, office and other general charges of the character detailed in the Bradford accounts (See ELECTRIC RAILWAY JOURNAL for Nov. 12, 1921, page 860) have not been definitely prorated against the trackless service. On a small system, naturally, such general charges per mile operated must be higher than on a system like Bradford, which ran 387,543 trolley bus-miles in the fiscal year ended March 31, 1921. Assuming that the Bradford general costs were applied to York, we would have to add a number of accounts like the following:

	Pence per Bus-Mile
Superintendence	0.043
Wages of other traffic employees	0.311
Ticket check	0.441
Salaries of general officers and staff	0.454
Store expenses	0.076
Rates and taxes	0.409
Total	1.734

This does not exhaust the list, but enough prorating accounts are given to indicate that the actual operating expenses were at least 12.5d. (25 cents per mile) for three twenty-four-seat, one-man vehicles within the first three or four months of operation. The actual maintenance of these brand new buses, it will be noted, was 2.3d. (4.6 cents).

Total over-all costs available since March 31, 1921, show 18d. (36 cents) from one source and from another source 19d. (38 cents) per mile. These cover all operating charges, taxes, overhead, depreciation, etc. On the basis of 6 per cent interest on the capital expenditure of £12,541, the fixed charges alone work out at 4.8d. (9.6 cents) per mile operated. This is a heavy burden to carry because the long headways of fifteen (a.m.) and thirty minutes (p.m.) yielded only 9,402 miles in three months operation or a little more than 100 miles a day. In this case, one must conclude that a similar service at present gasoline costs and motor bus chassis prices would preferably be straight gasoline. Some thing like this seems to be in the mind of the York Tramways Committee, which in October, 1921, appointed a sub-committee to report as to the cost of running omnibuses and trackless trolley vehicles before it decides on a proposed service to Clifton. This situation shows how viewpoints as to the desirability of the trolley bus or gasoline bus are bound to shift as the price of power fluctuates.

NOTES ON VIENNA'S CARRIAGE COLLECTOR SYSTEM

The trackless trolley route of the Vienna Municipal Tramways is of the over-running type. The installation comprises a 2-km. (1.24-mile) route between Pötsleindorf, a Vienna suburb, to Salmannsdorf. This route was opened in October, 1908. The original Stoll buses have been in use ever since.

As regards the question of bus drive, it is pertinent to note that hub-mounted direct-drive motors have not proved satisfactory for anything but undesirably low speeds. Roadway conditions lately have not been good for this style of drive. Less than one-third of the run (about 600 meters) is well paved, the rest being macadam in poor shape. In the future buses will have chain drives. This drive if kept thoroughly lubricated and encased in a steel housing is expected to be noiseless.

There are but five regular stops in this 1.25-mile run. The trip is made in twelve minutes, giving the low speed of but 6.25 m.p.h. between terminals. There is no occasion for hurry, however, as the shortest headway is fifteen minutes. At other times the buses are run on hourly headways. The buses seat sixteen and stand eight passengers, yet nine or ten passengers per bus-mile have not been uncommon in recent years. This must have led to crowding at times. However, no one needs to be told that the Viennese management has been and still is struggling with unparalleled difficulties. Car windows had to be patched with odds and ends of glass. Even wooden tires were used as a war-

time expedient. The enlargement of wheel sizes caused thereby led to the overheating of the two 10-hp., 600-volt motors per bus. Nothing daunted, Ludwig Spängler, general manager, made the motors stand up under their heavier work by equipping them for self-ventilation. These buses are 6 meters (23.6 ft.) long, and because of the narrow roadways, only 1.7 meters (80.4 in.) wide. They weigh about 3,200 kg. (7,040 lb.). The new ones are expected to be of like weight, the wooden body alone weighing 1,000 kg. (2,204 lb.). Their estimated life is figured at ten years.

The Vienna Municipal Tramways may also lay claim to having been the first to adapt the gasoline type chassis to trolley bus operation, an old one being employed to that end. The resistors are mounted under the hood.

So far as current collection is concerned, no serious difficulties have arisen at the moderate speeds in vogue. The overhead entrance switches are much more complicated than the like structures for the under-running trolley. The only branch-off on the line is at the bus-house. Here wheel and chain drives on poles are provided to permit the connecting structure to be shifted as a unit in order to leave the main line unbroken. The wheels on the over-running collector carriage have a side play of about 0.75 in. each. Because of roadway and grade conditions, no buses are operated in very bad weather. Each bus is provided at the rear with two diagonal rods or struts which can be let onto the ground as a safety measure when the bus stops on a grade.

While the bus fleet numbers four, it is customary to run only two buses daily and three on Sundays and holidays. About 750 passengers are carried daily. Fares in July, 1921, were 15 kroner on Sundays and holidays and 8 kroner on week-days. Commuters who possess an identification card with photograph, as vouched for by the local police, pay only 3 kroner. At current rates of exchange these fares were but sorry fractions of a cent. Any cost figures translated into dollars at the present fluctuating rate of exchange would serve no useful purpose for comparative costs.

So far as Austria is concerned, the trackless trolley should prosper there once the great hydro-electric possibilities of the republic have been developed.

Telephoning from a Moving Car

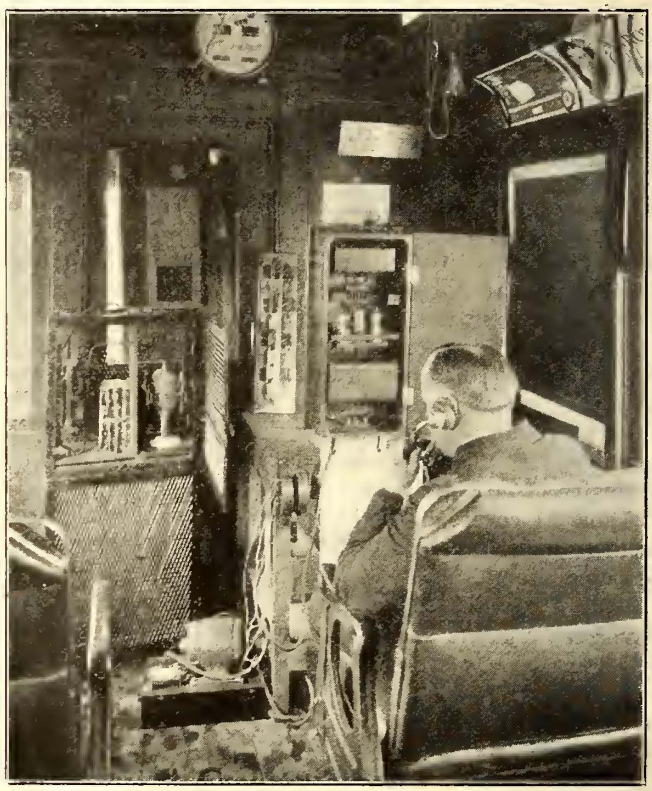
The "Carrier Current" Communication System Is Demonstrated by Telephoning from One of the Schenectady Railway's Cars to a Substation Three Miles Distant

A DEMONSTRATION of what is known as the "carrier current" system of communication was given at Schenectady on Dec. 1. These tests were the culmination of development work extending over a period of ten years, followed by practical tests made on the Chicago, Milwaukee & St. Paul Railroad, where communication was effected up to 60 miles.

The system makes use of a second current superimposed on the same trolley wire which supplies current to operate the electric car. This "carrier current," which is generated at higher frequency than the power supply, serves to transmit messages along the wire from which it is picked up at any convenient point and made to energize a telephone instrument. The demonstration took place on the Schenectady Railway, 5 miles from the city, and was arranged by the railway department of the General Electric Company, which is interested in the development of the new system.

From the moving electric car the railway men were enabled to talk successfully with a substation on the line several miles distant and also to listen to conversation from the operator in the station. The second feature of the demonstration was listening to the conversation of the substation attendant at a waiting room 2 miles from the substation, the messages being transmitted over the trolley wire and amplified in the waiting room by a loud-speaking telephone instrument.

The demonstration was designed primarily to show the application of the system to communication on electric railways, especially as regards expediting train operation. The apparatus used for carrier current communication is small and simple of operation. It consists essentially of vacuum tubes used as oscillators, rectifiers and detectors, making up a telephone equipment equaling in sensitiveness and simplicity the most modern apparatus.



TELEPHONING FROM CAR TO SUBSTATION

Among the participants in the tests at Schenectady were members of the radio committee of the American Railway Association, headed by J. D. Jones, chairman and superintendent of telegraph and signals Pennsylvania Railroad, Eastern region.

Commenting on the tests, W. B. Potter, engineer of the railway and traction department of the General Electric Company, said: "These tests at Schenectady and on the Chicago, Milwaukee & St. Paul Railroad indicate the early perfection of a practical telephone system, utilizing the power wires as a conductor, which will provide for the usual call and telephone communication between different cars or trains. This system is equally applicable to communication between the train dispatcher and the trains in operation under his direction. This is an important development which we feel sure will contribute materially to the facility and safety of railway operation."

Features of Des Moines Franchise

The Twenty-five Year Grant Has a Sliding Scale for Rates of Fare and Return on Investment—The Operating Deficit Is to Be Taken from Revenue

A FRANCHISE of the service-at-cost type has been accepted by the Des Moines (Iowa) City Railway. It was approved by the City Council on Oct. 24 and passed upon favorably by the people at a special election on Nov. 28. The franchise is now to be tested in the State Supreme Court to verify some question as to its legality under the Iowa laws and thereafter will presumably be the contract under which the company will operate in future. It is expected that a decision of the Supreme Court may be had before the end of January. The action of the City Council and voters rescinded a twenty-five-year franchise entered into late in 1915, which provided for a fixed 5-cent fare and had other features which proved to be impossible to carry out.

The new service-at-cost franchise is granted for a term of twenty-five years. It permits the operation of interurban cars over the streets and the sale of power to interurban companies by the Des Moines City Railway. The haulage of freight, baggage, mail, express, etc., over the city tracks is authorized, provided that freight cars will not be permitted to stop on a street crossing or to stand on a public street for any purpose except such as may be necessary in the operation of trains. The handling of such freight and express cars must not delay the operation of passenger cars, and no such car is to be allowed to stand on any track or siding located in the public streets for more than one hour without the consent of the department of public safety. These restrictions, however, do not apply between the hours of 1 a.m. and 5 a.m.

In regard to the extension of lines, the contract provides that extensions must be made upon petition in writing to the City Council by a majority of the adult residents of the district to be served, when this body, after due investigation, shall have passed a resolution declaring that the extension is a proper and necessary one to be made by the company. It is stipulated, however, that the City Council must find in its study that the returns of the company will be sufficient to pay at least the cost of operating the cars over the extension, including the ordinary maintenance of track, cars and overhead, together with a reasonable depreciation upon the cost of the extension and the equipment used, and all reserves provided for later in the contract. Having satisfied itself that this is the case, the Council may direct the extension to be made and the company is then required within a reasonable time to build the line at its own expense. But if the company and city cannot agree that the extension can be made under these conditions, then the question of whether or not the line shall be extended shall be submitted to arbitration and the award of the board of arbitration is binding on both parties.

On the subject of paving and maintaining paving of streets, the franchise reads that "Whenever the city shall grade, pave, gravel or macadamize any street, and so long as the statutes of the state of Iowa do not authorize another or different method therefor, the company, under the conditions in this ordinance contained, shall grade, pave, gravel or macadamize such portion of said streets between the rails of its track and 1 ft. outside thereof." The same requirement as to repaving is made conditional upon the present statutes of Iowa. The company is required to sweep, clean and sprinkle the portion of the street used by the company only where the need for cleaning results from construction work, sanding rails, etc. But it must remove snow and ice.

In regard to the motive power that may be used, the contract mentions the use of electricity, applied either by overhead or underground trolley, "or any other modern and improved system, or by any other modern and improved motive power, except steam locomotives; provided, however, before any motive power other than electricity may be used, consent and permission therefor shall be first granted by the city."

A "city supervisor" of track stations is to be elected by the City Council to hold office at the pleasure of this body and with a salary which shall not exceed $5,000 per year at any time. This is fixed by the City Council and paid by the company. The company is to provide and pay for his office, office fixtures, stationery and clerical help, but the cost of clerical help shall not exceed $100 per month to begin with, but this may be increased in the same ratio as the gross receipts of the company increase. The company is also to select a person to be known as the "company supervisor" and these two supervisors shall determine what acts shall be done and orders made affecting the quality and quantity of service, fixing of schedules, routes and terminals, the character and equipment of cars, the places at which they shall be stopped for passengers and other similar operating questions.

Any differences arising between the company and the city in regard to any provisions of the ordinance or the rights and power reserved to and conferred upon the company or the city, or if the two supervisors fail to agree upon any question, over which they have supervision, then either the city or the company may require that these questions be submitted to arbitration. It is agreed that the individuals comprising the board of railroad commissioners of Iowa shall constitute the board of arbitration, and if this board fails or refuses to act as arbitrators, then it is agreed that the board shall consist of three disinterested persons who must be non-residents of Des Moines and appointed by joint action of the chief justice and the two associate justices of the Iowa Supreme Court.

Scale of Fares and Returns

The initial rate of fare is to be 8 cents cash with ten tickets for 80 cents. The contract provides that this may be adjusted either up or down in half-cent increments as shown in the accompanying table, which also shows the rate of return to be allowed on common stock. Children between the ages of six and twelve years are to be carried for one-half fare and high and grade school pupils actually on their way to and from school may ride on special tickets sold to them at the school for 2½ cents each. A charge of double the cash fare in force may be made on owl cars as the company is

not obliged to accept tickets for passage on such cars. Once a rate of fare is placed in effect it must remain in effect for a minimum of thirty days.

Fare	Dividend on Common Stock
9 cents cash, 10 tickets 90 cents	0 per cent
9 cents cash, 10 tickets 85 cents	0 per cent
8 cents cash, 10 tickets 80 cents*	0 per cent
8 cents cash, 10 tickets 75 cents	0 per cent
7 cents cash, 10 tickets 70 cents	3 per cent
7 cents cash, 10 tickets 65 cents	3 per cent
6 cents cash, 10 tickets 60 cents	4½ per cent
6 cents cash, 10 tickets 55 cents	4½ per cent
5 cents cash, 10 tickets 50 cents	6 per cent
5 cents cash, 10 tickets 45 cents	6 per cent
5 cents cash, 10 tickets 40 cents	7 per cent
5 cents cash, 10 tickets 35 cents	7 per cent

* Present rate.

The initial rate of fare of 8 cents cash and ten tickets for 80 cents is to continue in force until there has been accumulated in the "fare adjustment fund" the sum of $150,000. Thereafter the rate of fare shall be changed to the next higher step whenever the balance in this fund shall be lower than $100,000. The next lower step shall be put into effect when the amount in the fare adjustment fund is $200,000. A notice of five days must be made before any change in the rate shall become effective. The maximum and minimum figures already noted are to continue as long as the number of passengers carried annually by the company is 30,000,000 or less.

When the annual number of passengers is between 30,000,000 and 40,000,000, the fund is to vary between the limits of $133,333 and $266,666; for between 40,000,000 and 50,000,000 annual passengers, the fund is to vary between the limits of $166,666 and $333,333; 50,000,000 to 60,000,000 passengers, $200,000 and $400,000; 60,000,000 and 70,000,000 passengers, $233,333 and $466,666; 70,000,000 and 80,000,000 passengers, $266,666 and $533,333; 80,000,000 and 90,000,000 passengers, $300,000 and $600,000, and thereafter if there are further increases in the number of passengers carried in any fiscal year, the same progression of maximum and minimum amounts will be carried out.

The company is to be entitled to earn dividends on its common stock now issued and outstanding and on such common stock as may be issued to retire the first stock now issued and on common stock that may be issued to provide funds for extensions, improvements, or betterments as noted in the above table.

For the purpose of determining the basis upon which the rate of fare is to be established, it is agreed that the gross income of the company shall include income from all sources. Operating and all deductions from gross income shall be in accordance with good accounting practice as prescribed by the American Electric Railway Accountants' Association and the company shall at all times be entitled to earn net earnings (gross income less operating expenses and taxes of all kinds) sufficient to pay the following seven items:

1. The interest on its bonded indebtedness as of Oct. 1, 1921, and on notes now issued and to be issued and now consisting of $4,651,000 of 5 per cent general and refunding bonds and $1,309,709 of 7 per cent notes, issued and to be issued.

2. The interest on any additional interest-bearing indebtedness similar to that listed under (1) that may be created subsequent to Oct. 1, 1921.

3. Dividends at the rate of 7 per cent per annum on any or all preferred stock which may at any time be outstanding, of which there is now $250,000 outstanding and $1,100,000 of debentures to be converted into preferred stock, and such other preferred stock as may be issued as authorized.

4. Credit to a common stock dividend reserve account to the extent permitted to be earned under the terms of the section relating to the rate of dividend on common stock.

5. An amount which is to be accumulated in equal monthly installments during the first five years after this ordinance shall become effective to offset the operating deficit existing at the date of taking effect of this franchise. The accumulated amount thereof as of Oct. 1, 1921, was $572,737.

6. Fifty thousand dollars of working capital which shall be accumulated before any amount shall be set aside for the fare adjustment funds, or before any reduction in the rate of fare first above established shall become effective, and shall be in addition to stores and supplies aggregating approximately $240,000 in value, which represents the value of the stores and supplies on hand Oct. 1, 1921.

7. Any other amounts arising after Oct. 1, 1921, properly deductible from net earnings. All above accumulations are to be considered as an expense in connection with the establishment of the rate of fare.

After all of the reductions provided for in these seven sections have been made from net earnings, debits or credits are to be made to the fare adjustment fund.

The company agrees to secure a fund of $100,000 within thirty days after the adoption of the ordinance for the purpose of making additions, betterments, and improvements or in construction work in so far as the cost is properly chargeable to the capital account. The company is to be permitted to execute its notes for this amount which will bear interest at the current rates and are to be retired when the company is able to issue and sell securities as provided by the ordinance. It is also agreed that the city will not require the company to make improvements or additions during the first year after the adoption of the ordinance requiring expenditures in excess of this $100,000. Similarly, the company agrees during the second and third years of the franchise, to provide and spend an additional $100,000 each year, provided it is unable to issue and sell securities and provided that all of the items provided by the ordinance are earned. It is also agreed that if these conditions prevail, the city will not press the company to spend in excess of $100,000 chargeable to capital account.

In connection with the sale of securities, the expense of the sale of stock or of the sale and discount on bonds or notes now outstanding or to be issued shall be amortized out of the earnings of the company in equal monthly amounts during the life of such securities. On the matter of depreciation, the contract is indefinite, the provision being that "the company shall charge as a part of the expense of said business and set up a depreciation reserve sufficient to cover replacement, obsolescence and renewals of the property of the company, and installations necessary to maintain such property . . . provided that the reserve shall be apportioned and used 50 per cent for way and structures, 25 per cent for equipment and 25 per cent for power. It is also stipulated that the company shall not be required to make any expenditures in excess of the amounts thus provided."

An interesting clause in the contract is that relating to corporate existence which provides that "the company

and each successor corporation . . . shall remain and shall be an Iowa corporation and it shall maintain its principal office in the city of Des Moines and shall not remove such principal office or any of the books of the company, records, accounts, contracts or original vouchers of receipts and expenditures beyond the limits of the said city, and shall maintain such principal office within such city so long as the company continues operating any part of the street railways mentioned and provided for in this ordinance under the provisions hereof, and the provisions of this section shall apply to all the company's lessees, successors and assigns."

One section of the contract contains provision whereby the company waives all rights and claims except those allowed by this ordinance, agrees to pay all interest due on any bonds secured by lien on the property existing Aug. 1, 1921, and to pay thereafter all such interest on bonds as it becomes due, with the condition that upon failure to pay such interest resulting in the foreclosure of the liens, the rights of the company under the ordinance are thereby forfeited. This section also stipulates that the company is to cause all foreclosure suits now pending against the city or the company to be dismissed without cost to the city, and the company is to pay its bond in the amount of $54,000 which fell due April 1, 1921. It is also to pay or refund on other bonds now outstanding, secured by lien upon the property, at or before maturity, none of which bonds mature later than the year 1936.

The franchise gives the city the right, during the time of the franchise, to purchase and take over free and clear of all liens and incumbrances the entire street railway system upon giving six months notice. If the company and city cannot agree on the purchase price, the latter is to be determined by a court of competent jurisdiction.

Disposition of Competitive Buses

Immediately upon the acceptance of the franchise, the city agreed to cancel all licenses issued for the operation of jitney buses engaged in carrying passengers on any street on which street cars are operated. The city also agrees that it will not permit any jitney bus operation on streets occupied by cars under the franchise, provided, however, that jitneys may be licensed to cross such streets at right angles with the car line and in addition may travel over such space as far as it is necessary to cross bridges. It is further provided that the buses may have a terminus in the business district and that for the purpose of going to and from this terminus the buses may travel over such portion only of the prohibited streets as is necessary to connect directly with the licensed route of the buses on streets on which there are no street car lines.

French Railway Strike Ended

REPORTS to the Department of Commerce recently told of the termination of the street railway strike in Calais, France. Service was suspended entirely during two weeks. The company finally granted the demands of the employees for an increase of 50 centimes per day, for two days vacation per month with full pay and for the establishment of a joint committee with power to pass finally on all differences between the street railway management and its employees. The joint committee is to be made up of representatives of the employer, the employees and the street railway committee of the City Council.

Car and Bus Speeds in Chicago

Comparison of Car Speeds Operating Through Tunnels and Over Bridges Was Presented in Chicago Fare Hearing—Also Data on Speeds of Buses and Cars in the Loop District

SOME rather interesting speed comparisons were brought out in the hearings of the Chicago Surface Lines before the Illinois Commerce Commission in connection with the recent fare case. The special engineer for the city, George W. Jackson, had recommended in his proposed plan of speeding up service the taking of cars from the tunnels and routing them over bridges. The company therefore introduced the following evidence to indicate the relative speed of cars in tunnels and over bridges. For the Clark Street bridge and La Salle Street tunnel the observations were made on Oct. 15, and the distance over which the cars were timed in each case was taken between Randolph and Illinois Streets. For the Madison Street and Adams Street bridges and the Washington Street and Van Buren Street tunnels the observations were made on Oct. 18 and the distance covered was between Franklin and Clinton Streets in each case. The results of the observations follow:

CAR SPEEDS OVER BRIDGES VS. THROUGH TUNNELS

Clark Street Bridge		La Salle Street Tunnel	
11:35 a.m. to 12:55 p.m.		11:36 a.m. to 1 p.m.	
Cars	Minutes	Cars	Minutes
73	336.00	122	241.00
Average time per car,	4.603	...	1.975
Madison Street Bridge		Washington Street Tunnel	
1:30 p.m. to 4:00 p.m.		1:36 p.m. to 4:00 p.m.	
Cars	Minutes	Cars	Minutes
264	715.75	137	231.00
Average time per car,	2.711	...	1.686
Adams Street Bridge		Van Buren Street Tunnel	
1:58 p.m. to 4:02 p.m.		1:44 p.m. to 4:00 p.m.	
Cars	Minutes	Cars	Minutes
103	221.75	199	304.75
Average time per car,	2.153	...	1.531

Another study was made to show the speed of cars in the Loop district, as bounded by the river on the north, Wabash Avenue on the East, Harrison Street on the South and the river on the West. The cars on Dearborn Street from Harrison Street to Polk Street were also included and all lay-overs at stub terminals in the Loop were included. The observations were made on Oct. 12, 1921, from 4:30 p.m. to 10:30 p.m. The system average schedule speed based on schedule running time between terminals and excluding lay-over time was given as 10.64 m.p.h. The Loop data follow:

SPEED OF CARS IN LOOP DISTRICT, CHICAGO

Hour	Car-Miles	Car-Hours	Average Speed M.p.h.
4:30 p.m. to 5:00 p.m.	520.31	107.70	4.83
5:00 p.m. to 5:30 p.m.	595.62	120.76	4.93
5:30 p.m. to 6:00 p.m.	511.47	91.75	5.57
6:00 p.m. to 6:30 p.m.	389.15	54.85	7.09
6:30 p.m. to 7:00 p.m.	331.43	44.27	7.49
7:00 p.m. to 7:30 p.m.	316.74	40.34	7.85
7:30 p.m. to 8:00 p.m.	312.48	43.47	7.19
8:00 p.m. to 8:30 p.m.	305.03	43.52	7.01
8:30 p.m. to 9:00 p.m.	279.95	37.08	7.55
9:00 p.m. to 9:30 p.m.	211.86	29.87	7.09
9:30 p.m. to 10:00 p.m.	206.73	28.50	7.25
10:00 p.m. to 10:30 p.m.	154.32	20.72	7.45
	4,135.09	662.83	6.24

For the sake of comparison some observations were made of the operating speeds of the Chicago Motor Bus Company's buses. These observations were divided into three groups, covering speeds from the north terminals into the loop to the points at which the buses are turned back; in the downtown district, and outside of the Loop district. These data are presented herewith in three

tables. The observations were made on Oct. 19 and 20, 1921.

Limited observations of the motor bus service given by the Depot Motor Bus Company, operating between Carson, Pirie, Scott & Company's store on State Street and the Northwestern and Union stations on the west side, showed that these buses operate at an average speed of 5.85 m.p.h. The distance is 0.78 mile each way.

SUMMARY OF SPEED AND STOPS OF CHICAGO MOTOR BUS COMPANY'S BUSES, OUTLYING AND LOOP DISTRICTS COMBINED

Bus-hours	8.11
Mileage	86.66
Stops	284
Duration of stops—seconds	3,335
Average running speed	10.70 m.p.h.
Average number of stops	3.28 per mile
Average time per stop	11.74 seconds

SPEED AND STOPS OF CHICAGO MOTOR BUS COMPANY'S BUSES, LOOP DISTRICT ALONE

Turned West in Loop	Hour	Mileage	Time, Minutes	No. of Stops	Time of Stops, Seconds	Average Speed, m.p.h.
Jackson....	9:10 a.m. to 9:25 a.m.	1.824	15.50	13	228	7.06
Madison...	11:16 a.m. to 11:27 a.m.	1.229	11.50	11	186	6.42
Monroe....	1:35 p.m. to 1:53 p.m.	1.473	18.00	17	326	4.91
Monroe....	3:43 p.m. to 4:00 p.m.	1.473	17.00	15	336	5.20
Monroe....	5:24 p.m. to 5:43 p.m.	1.473	19.25	18	448	4.59
Jackson....	7:33 p.m. to 7:48 p.m.	1.824	14.75	15	164	7.41
Total		9.296	96.00	89	1,688	....
Average: Speed						5.81 m.p.h.
Stops per mile						9.57 m.p.h.
Duration of stop						18.96 seconds

SPEED AND STOPS OF CHICAGO MOTOR BUS COMPANY'S BUSES, OUTLYING DISTRICTS ALONE

North Terminal	Dir'tn.	Hour	Times, Min.	Mileage	No. of Stops	Time of Stops, Seconds	Average Speed, m.p.h.
Devon Ave...	NB	9:25 a.m. to 10:01 a.m.	36.00	8.45	4	32	14.09
Devon Ave...	SB	10:25 a.m. to 11:16 a.m.	50.50	8.45	30	301	10.03
Wilson Ave...	NB	11:27 a.m. to 11:53 a.m.	25.50	5.96	19	105	14.01
Devon Ave...	SB	12:51 p.m. to 1:35 p.m.	43.50	8.45	30	255	11.60
E.B. Hotel...	NB	1:53 p.m. to 2:25 p.m.	32.50	6.90	11	76	11.65
Devon Ave...	SB	3:00 p.m. to 3:43 p.m.	43.00	8.45	18	232	11.78
Edg. B. Hotel.	NB	4:01 p.m. to 4:35 p.m.	34.00	6.90	3	46	12.16
Edg. B. Hotel.	SB	4:49 p.m. to 5:24 p.m.	35.00	6.90	18	129	11.82
Devon Ave...	NB	5:43 p.m. to 6:28 p.m.	45.25	8.45	39	298	11.20
Devon Ave...	SB	6:48 p.m. to 7:33 p.m.	45.25	8.45	23	173	11.20
Total			390.50	77.36	195	1,647 sec.	
Average: Speed							11.87 m.p.h.
Stops per mile							2.54 m.p.h.
Duration of stop							8.45 seconds

Front Drive Trolley Bus

A RECENT issue of the *Electric Railway & Tramway Journal* of London contains a description of a front-drive trackless trolley bus recently built for use in Leeds, England. This bus is in two parts, somewhat like the Chicago type of gasoline bus, the forward part carrying the motor and the two driving wheels and the rear part the body of the bus and the two trailing wheels. The two portions are attached to each other by six bolts only, so that the front portion, or tractor, can be very easily detached. This is considered an important point where a company desires to keep a number of trolley buses in constant service, as it is only necessary to have one or two spare front parts which can be slipped into place whenever required. As there is no part of the motive equipment or driving mechanism under the car body, the floor of the bus can be kept very low. Actually in the bus built for Leeds the car floor is only 14 in. above the surface of the ground. Thus the center of gravity is low and the factor of safety for a double-deck vehicle running on an ordinary road surface is correspondingly increased.

The drive is provided by two 25-hp. motors, hung in the regular railway manner and each geared to one-half of the axle. Brakes are applied to all four wheels.

Letters to the Editors

"Bus Transportation" Approved

Important Railway Managers Recognize a Field for Buses in Urban and Interurban Transportation and Welcome Establishment of Bus Paper by McGraw-Hill Co.

THE policy of the publishers of the ELECTRIC RAILWAY JOURNAL in deciding to start a bus paper has met with the hearty approval of all of those electric railway executives who have expressed themselves on the subject. In answer to a request for opinions on this a number of replies have been received. From these quotations a few are printed below, with the permission of the writers.

OPINIONS ON "BUS TRANSPORTATION"

Henry G. Bradlee, of Stone & Webster, Inc., Boston, Mass., writes:

"I have read with great interest the editorial in the ELECTRIC RAILWAY JOURNAL for Oct. 29 and have been intending to write to you offering my congratulations on this new step that you are taking. It meets with my hearty approval.

"We need a responsible publication that will set forth the facts and keep us all posted on development in the field of bus transportation. I am sure that no one can handle this as well as the McGraw organization.

"I have only one suggestion to make, namely, that you have constantly in mind the desirability of ultimately combining as a single publication the ELECTRIC RAILWAY JOURNAL and the new BUS TRANSPORTATION, adopting at that time a new title for the combined magazine which will indicate in some way that it covers broadly all branches of urban and suburban transportation. The temporary publication of BUS TRANSPORTATION as a supplement is no doubt wise, but I do think that this should be temporary and that eventually the two should be again combined.

"In your editorial of Oct. 29 you say:

> "All of the studies which have been made and data which have been collected tend only the more firmly to fix the idea that the best transportation for the community can be obtained only by the co-ordination of the various transportation facilities and not by indiscriminate competition.

"This is exactly the thought I have in mind in making my suggestion that ultimately the two magazines should be combined as one. I think we should from every standpoint try to convey the idea to the public that satisfactory public service can be obtained only through a single co-ordinated system whether this operate on rails, on rubber tires, or part on each. The street railway companies should do this in the conduct of their business, and you, I think, could help by ultimately treating in your publications all forms of urban transportation as a single problem.

"A few weeks ago we held a convention in Boston of the district and local managers from all of our properties. In a talk that I made at this convention I referred briefly to the street railway problem, and I think you will be interested in what I said on this subject, a copy of which is inclosed. While I had not read your editorial at the time, our thoughts are clearly running along the same general lines.

"As I see it, the constructive thing that we should do at the present time is to emphasize in every possible

way and bring constantly before the public the fact that urban transportation in whatever its form must be conducted as a unified system to give public satisfaction, and that any new developments along transportation lines should be brought into use as a continuation of those now in existence rather than as a separate and independent proposition. This you can do through your publications, we through our operating efforts in the field and through any public statements that we may make.

"Again my congratulations to you and my best wishes for success in the new enterprise."

MR. BRADLEE'S REMARKS ON BUSES TO LOCAL AND DISTRICT MANAGERS

The street railway is the real problem, a problem concerning which people are sometimes very pessimistic. I want to give you this thought. We always speak of ourselves as being in the street railway business and usually have in mind only the electric railway. When some other form of urban transportation is suggested a shiver runs down our spine and we wonder whether we are to be driven from the field. Let us change our point of view and, in the future, let us always say: We are in the transportation business. True, we are at present operating electric railways, but our business is to furnish transportation. The method may change from time to time, but if it does we are prepared to meet the situation; if any new and more efficient methods are devised we are prepared to adopt them and continue our service to the public.

Personally I believe that we are going to operate electric railways for the next twenty-five years and then for an indefinite period after that. There is nothing in sight as far as I can see to take the place of the urban electric railway except in small communities or in outlying districts of larger communities. I think we may to advantage use other forms of transportation to supplement our street railway except in small communities or in outlying districts travel is light. When the traffic increases, electric railway service will be substituted. In all cases the backbone of our system will continue to be the electric railway. But suppose I am wrong. Suppose, for example, the electricity is to be superseded by some other form of power. Still I believe we will operate on tracks because I believe that is the only way that adequate service can be given in an urban center. We will simply change over our motors or our rolling stock and use the new source of power, whatever this may be. But suppose I am wrong again. Suppose that tracks have outlived their usefulness and are to be abandoned. Still I would say: We are in the transportation business and we should furnish service in whatever way is most efficient, whether it be by motor cars, by trolley buses or by aeroplanes. I say this because I am satisfied that there must always be some systematic and co-ordinated method of urban transportation. The people must be carried back and forth between their homes, their business and their places of amusement. That is a necessary feature of our modern life that cannot be done away with. It must take place in some form. To have that service satisfactory and economical it must, in my judgment, be conducted by some single organized system. Competition in public service has been shown repeatedly to be extravagant and wasteful. In the early days there was competition between horse car lines and later between electric railways, but this was economically unsound and gradually disappeared. As I told you a few minutes ago, we bought eleven street railways in the city of Seattle and we combined them into a single efficient property. We bought them because eleven street railway properties could not exist in Seattle and properly serve the public. What has been true of horse car lines and of electric railways will be true of any future method of transportation. Good service and efficient operation will compel a unified system.

Then take that other bugaboo, municipal ownership. We have just seen how the government came out with the steam railroads. You know and I know that municipalities in a democracy can never successfully operate street railways. There may be sporadic attempts as there are now in Seattle and a few other cities, but this will pass. Sooner or later these properties will return to private operation as did the Philadelphia municipal gas plant. Already the difficulties of these cities are becoming known, and today it would be pretty difficult to sell a street railway to a city. Most cities do not want them at any price.

Our problem then is to keep abreast of the times, to be familiar with every improvement in the art of transportation and to apply these improvements to our properties whenever this will produce better service or more efficient operation.

If we are open-minded and alive to our possibilities, if instead of fearing improvements we are quick to seize and apply them to our own use and the service of the public, we need have no anxiety for the future."

From Harry Reid, president Interstate Public Service Company, Indianapolis, Ind.

"I wish it [BUS TRANSPORTATION] every success and trust that its policy will be such that there could be no cause for complaint by any of the patrons of the ELECTRIC RAILWAY JOURNAL and I am sure that this would be the case."

From J. W. Welsh, executive secretary American Electric Railway Association:

"I am very much interested in noticing the announcement in the ELECTRIC RAILWAY JOURNAL for Oct. 29 relating to your institution of the BUS TRANSPORTATION.

"I think this is a very forward looking step, and I wish to extend to you my best wishes for success in this new undertaking."

From Britton I. Budd, president Chicago, North Shore & Milwaukee Railroad, Chicago, Ill.

"I see absolutely no objection to your starting a bus journal; in fact, I think it is decidedly to the advantage of the electric railway industry. The sooner the companies realize that they will have to use, in part, the bus as a medium of transportation in order to take care of the needs of certain districts not served by electric railways the better it will be for the industry."

From J. H. Hanna, vice-president Capital Traction Company, Washington, D. C.

"I was very glad to see the announcement in the ELECTRIC RAILWAY JOURNAL regarding its new publication, BUS TRANSPORTATION. There can be no doubt in my mind that trackless transportation of passengers in cities and suburbs is a factor which must be given careful consideration in the future. It is important that electric railway operators get information on which they can rely regarding the operation of existing lines and the possibility of establishing others. Your publication should help in filling that requirement."

From P. H. Gadsden, vice-president United Gas Improvement Company, Philadelphia, Pa.

"I was very much interested in the editorial of Oct. 29 regarding your new publication, BUS TRANSPORTATION. I believe the treatment of this subject in the way you suggest will be very helpful.

"The auto bus, in my judgment, is destined to play an increasingly important part in urban transportation as time goes on. Whether it shall be as a competitor of street railways, or as an auxiliary, will depend largely upon our attitude toward the subject. In order that we may make no mistake in such a highly important matter we must keep ourselves thoroughly informed. The ELECTRIC RAILWAY JOURNAL, through its BUS TRANSPORTATION publication, is in the very best position to keep the electric railway industry informed of the development of this special form of transportation. Your treatment of the subject from the standpoint of transportation requirements of the various communities will greatly aid in arriving at a proper conclusion."

How to Keep Cars on Time

Representatives from the Transportation and Equipment Departments of New England Companies Give Their Views at Club Meeting Held in Boston

THE meeting of the New England Street Railway Club on the afternoon of Dec. 1 was devoted to the question of how to keep the cars on time. Abstracts of the two papers presented on the subject appear below.

Troubles of Keeping Cars on Time

By HOWARD F. WHITNEY
Assistant to the President Springfield (Mass.) Street Railway

I SHALL confine my remarks in this paper to those delays outside of schedule making which I believe we can help to reduce.

In Massachusetts, Section 84 of the revised laws says that "whoever willfully obstructs a street railway company in the legal use of a railway track, or delays the passing of cars thereon, or abets in such obstruction or delay, shall be punished by a fine of not more than $500 or by imprisonment for not more than three months." I know of several cases on our own properties where cars were willfully delayed, and a case which recently came to my attention is probably typical of others. A truck broke down on a single-track line, and the driver of the truck refused to allow the crew or the inspector, who later arrived on the scene, to move the truck until the proper repair part arrived from a nearby town and was duly installed, when the truck moved off the track under its own power. In this case the company considered itself fortunate in collecting from the owner of the truck one-half of the cost of the delay, but I do not think that we would have received that much if the car that was delayed had not been carrying the U. S. mail. I do not believe in the policy of looking for a fight, but a few cases of willfully delaying cars, taken into court, would give the public a wholesome lesson in the rights of the street railway, and if we insist on these rights, we shall win the respect of our various communities.

There has seemed to me a tendency in recent years for street railway operating officials, instead of riding on the cars themselves and obtaining first-hand knowledge of the conditions, to step into their automobiles at their homes and either be driven to the office by a chauffeur or to drive themselves, avoiding the car tracks near their home so that they will not have to pass up their friends waiting on the corner for a street car.

I have heard one official say that he drove to work in his machine to avoid the constant criticism to which he was subjected while a passenger on the car. The public, upon whom we depend for a living, should not get the idea that we cannot use our own cars to go to and from our office because they are too slow, even if some little time is taken —wasted perhaps you may think—in using the street car. I believe that every street railway official should use the cars as much as possible. I have seen a great many times in the "People's Forum"—and you undoubtedly have also seen them—letters signed "Strap Hanger," etc., stating that if the street railway officials rode on their own cars, they might occasionally get some first-hand knowledge of the conditions. Suppose that you had deposited your savings in a certain bank and found upon investigation that the president, vice-president, secretary, treasurer and most of the other officials of the bank deposited their money in a bank across the street. Would you not be afraid that there was something radically wrong with the bank and that you had better withdraw your funds and deposit them in the bank across the street? It is exactly the same with our patrons on the street cars. If they find that the street cars are too slow and too crowded for the officials of the company, why aren't they too slow and too crowded for the passengers?

The automobile is probably the cause of more delays than any other one thing, and the congestion caused by the automobile on our downtown streets is becoming a great problem not only to the street railway companies but to the city government as well. I believe that every street railway company should endeavor to have ordinances passed by the various city governments to stop the parking of automobiles on the main streets, especially during the rush hours. This may meet with stiff opposition from the merchants on the main streets, but when it is known that from recent traffic surveys in various cities it has developed that the automobile averaged only 1.9 persons to each machine, while our cars, especially during the rush hours, will average well up towards 100 people, it would seem as if the city officials could be made to see that the greatest good to the largest number lies in giving the street car the right of way. This, however, will never be done unless the street railway company itself brings it to the attention of the city government.

The city government should also stop the practice of allowing left-hand turns by automobiles on our main streets. All traffic should be routed straight across or by right-hand turn, and the street railway company should do its share to relieve the congestion by rerouting some of its own lines.

The Massachusetts Legislature, a year or two ago, passed the so-called 8-ft. law. This law has been very beneficial in making it easier for our patrons to reach the car, but it has also materially increased the congestion, especially where the streets are narrow and automobiles are parked at the curb, as it has forced the automobile onto our tracks so that after one car has stopped at a white pole the second car cannot get anywhere near the stopping place because of the automobiles lined up behind the street car.

A better way would be to have the city prohibit the parking of automobiles within 75 ft. in front of a white pole, and then by means of iron stanchions and light chains rope off a loading area 4 or 5 ft. from the track, and have the rule enforced that automobiles are always to go to the right of the roped-off space. This will permit the automobiles to keep moving while the car is being loaded and allow the second car to come up behind the first car and load at the same time. We find in Springfield that the 8-ft. law has practically eliminated the usefulness of the two-car stop, because of the congestion of automobiles on the track. If the roped-off area which I mentioned could be used, the two-car stop will again be of great advantage to us.

Another cause of many delays are poor track conditions. As rapidly as the companies get onto their feet again, we should spend our money in rehabilitating the tracks. In fact, good track will permit of higher schedule speeds and stop many of our delays.

DELAYS IN LOADING

The odd unit of fare is another cause for delay, as a great many people have to make change, and with the prepayment car—which has come to stay—the car is forced to stand until a large number of people have received their change. However, some things can be done to help in this. In remodeling old cars for prepayment cars we have placed the fare box in such a position that, with the usual crowd standing on the back platform, it is next to impossible for passengers to get by the box. Would it not be well to widen out the aisle so that access to the body of the car is not blocked by the box and the heavy iron stanchions which go to hold it in place? We should do all that we can to accelerate entrance into the car.

Today our business is surrounded with so much machinery that on some of our cars it is next to impossible to get onto the car. We force our passengers to climb a flight of stairs, crowd by folding doors which never open quite to their full width, and then crowd through a narrow passageway usually blocked by men and boys standing on the back platform. We ask them to have a nickel and one or two pennies ready to pay their fare, and then wonder why our cars are delayed.

The delays in loading may in some measure be relieved by street collectors which are being used quite extensively in various parts of the country. These street collectors could very materially assist the loading at congested points, especially on the one-man cars, if the car was equipped with some device by which the street collector could open the rear door. This, of course, would have to be so connected that the operator could not start the car until the rear door was closed.

During the war an extensive drive was made for the reduction in number of white poles or stopping points, but I find on our own properties that the white poles are gradually creeping back until in a few years the condition will be as bad as it was before the war. Where we are confronted with jitney competition, of course, the tendency is to stop at every street corner. These white poles, however, should be kept to a minimum, if we are to increase our schedule speed and stop delays.

I have tried to show that the delays of which we complain are not entirely beyond our control. I realize that a great many delays are due to the public. but while we are appealing to the public to help us keep our cars on time we should do all in our power to obtain the same object. Let us, as far as possible, clean our own house first and then go to the public and say that we have done all that we can and ask for their support.

Keeping Cars on Time

By W. C. Bolt
Superintendent Rolling Stock and Shops, Eastern Massachusetts Street Railway, Boston, Mass.

AN ELECTRIC railway may be likened to any other manufacturing and sales organization. The motormen and conductors represent the sales organization, and the rolling stock employees represent the manufacturing organization. There must be close cooperation between these two departments or the service will not be adequate and cars will not be on time.

Our electric car of today is a very much different piece of machinery than the electric car of early street railway days. The first electric vehicle comprised a simple car body with open platforms, hand brakes, two simple motors and contactors. Contrast this equipment, if you please, with the highly complicated modern electric railway car of today—a car equipped with folding doors, folding steps, door engines, electric signals, electric buzzers, illuminated signs, electric heaters, heat control, electric or pneumatic contactors, control and motor switches, emergency valves, engineer's valves, pneumatic sanding equipment, and a great many other details.

Maintenance Often Complicated by Variety of Equipment

The maintenance of cars is often complicated by the variety of equipment in use on each property. It is not at all uncommon for a large street railway to have between ten and fifteen types of motors in active service at the same time. A similar condition exists with practically every other principal unit. With this diversity of equipment it becomes very necessary for the rolling stock department to be in a position to be able to prepare specifications for new cars and to recommend the service to which each type of car is best adapted. It was not until the advent of the safety car that an attempt was made to use a standard car and construct schedules to fit the car, rather than to construct a car to fit the schedules.

The second and most important function of the rolling stock department is that of maintaining car equipment in a high degree of reliability. The gage by which the efficiency of the department is generally measured is the record of cars removed from service, or number of "car pull-ins."

Adequate car inspection becomes the most important means by which these can be reduced. On the Eastern Massachusetts Street Railway cars are thoroughly inspected about every 1,000 car-miles and are overhauled at approximately 30.000 car-miles, or its equivalent in kilowatt-hour energy consumption, where cars are equipped with automatic recording meters.

Full Complement of Snow-Fighting Equipment Necessary

To keep cars on time during the winter months every property must be equipped with a full complement of snow-fighting equipment. The investment in snow-fighting equipment becomes an obligation to enable passenger car equipment to perform its proper function and for the electric railway to give proper service to the public. Another important factor in keeping cars on time as viewed from the rolling stock department is to have the established line voltage uniformly maintained to prevent undue injury to motors, resistances, etc. Bad track, bad joints and broken special trackwork are all serious interferences in maintaining schedules. The bad results on the condition of rolling stock equipment through low line voltage, bad track conditions, I do not believe, are sufficiently realized by many operating managers.

Abuse of equipment on the part of operators and motormen is always one of the reasons given by rolling stock maintenance men for equipment failures and can be eliminated only by means of a thorough system of follow up and check. All of this in the ultimate analysis is a matter of discipline. If cars are reasonably well maintained by the rolling stock organization and schedules have been properly constructed, equipment failures will be materially less when cars are kept on time.

American Association News

Four Committees Meet at Indianapolis

President Todd's Home Town Scene of Association Activities for One Day—Executive Committee Decides to Hold Midyear Conference in Indianapolis on Feb. 28.

THE American Electric Railway Association is forging ahead rapidly in its business with the monthly meetings of the executive committee. At Indianapolis on last Friday, Dec. 2, the executive committee put into practice the policy of holding some meetings away from New York and some of the other committees followed suit, meeting in Indianapolis on the same day.

Executive Committee Meeting

The executive committee held an active session in President Todd's office on Friday morning. As was contemplated in the revised constitution, there was a large number of committee reports to present to the executive committee for its information for it to take action on.

One of the most important reports considered at this meeting was that of the subjects and meetings committee presented by its chairman, C. D. Emmons. As a result of this report and of that of the special dinner committee presented by its chairman, Harry Reid, it was decided by the executive committee to hold the mid-year conference at the Claypool Hotel, Indianapolis, Ind., on Tuesday, Feb. 28, 1922.

The subject and meetings committee presented a tentative program which provided for consideration of some of the most important subjects before the industry at this time. This program was approved by the executive committee with instructions to the subjects and meetings committee to make final plans along those lines. One important feature of the subjects and meetings committee report was the provision for plenty of time for active discussion. The subjects chosen were such as would lend themselves to discussion in the meeting.

The special dinner committee reported that it had made satisfactory arrangements with the Claypool Hotel for a meeting hall for the morning and afternoon sessions and for a real Indiana dinner in the evening. The management of the Claypool Hotel had promised to warn all other people away from it on Feb. 27, 28 and March 1, so that the association would have full sway for the conference.

The special dinner committee announced the appointment of H. J. Kenfield as chairman of its sub-committee on transportation, M. B. Lambert chairman of its sub-committee on publicity, and S. W. Greenland as chairman of its sub-committee on reception.

As the result of the report and recommendation of the finance committee submitted by J. G. Barry, one of its members, the committee was authorized by the executive committee to engage Arthur Andersen & Company as auditors of the association's books.

A progress report of the membership committee, presented by its chairman, F. R. Coates, was read. It was recommended by the executive committee that the membership committee and the committee on co-operation with state and sectional associations work together in bringing to the attention of the railways scattered over the country the advantages of membership in the association.

A report was heard from the special committee on co-operation with manufacturers, presented by its chairman, E. F. Wickwire, and the plans approved for enlisting the more active education of manufacturers' employees as to their relation to the electric railway industry.

Report of Publicity Committee

A report of the publicity committee was received, presented to the executive committee by Labert St. Clair, of the advertising section. Attention was called to the new publicity section in *Aera*, to the co-operation between the advertising section and the various state public utility information committees, and to the activity of the advertising section in connection with various local situations which have a national importance.

Some tentative plans for the future were submitted. A sub-committee to pass on all proposed advertising copy was appointed. The members of this committee are: J. N. Shannahan, chairman; B. G. Collier, vice-chairman; P. H. Gadsden and L. S. Storrs.

Upon recommendation of the publicity committee, the executive committee approved the plans: to prepare an article or statement to be submitted to the executive committee setting forth an interpretation of the attitude of the association on the motor bus; to assist in the formation of state committees on public utilities information in states where they do not now exist; and to notify companies of its readiness to review proposed national public utility publicity campaigns for which financial assistance is asked.

Formal approval was given to the admission of the following associate members, Class 1: Stone & Webster, Boston, Mass.; Day & Zimmerman, Philadelphia, and H. L. Doherty & Company, New York.

The names of some two railway companies and nine manufacturer companies who indicated desire to resign from the association were referred to the membership committee.

The committee referred the question of payment of expenses of special representatives of the association and affiliated associations when traveling on necessary work for the association—not including committee meetings of the association—to the finance committee for recommendation.

Progress reports were also heard from the public policy committee and the national relations committees.

Those present at the meeting were: Robert I. Todd, president; C. D. Emmons and F. R. Coates, vice-presidents; L. H. Palmer, president affiliated association; H. E. Chubbuck and W. H. Sawyer, operator members at large; C. R. Ellicott, J. G. Barry, and L. E. Gould, manufacturer members at large; A. N. Brady and C. L. Henry, past-presidents; and J. W. Welsh, executive secretary.

Special Dinner Committee Meeting

A meeting of the special dinner committee was held in the office of Harry Reid, chairman, on the morning of Friday, Dec. 2, in Indianapolis. Various details of the arrangements for the dinner on Feb. 28 were discussed and a report drawn up for presentation to the executive committee. The special dinner committee has been given the duty of providing all entertainment for the evening and something out of the ordinary is promised, but naturally plans will not be revealed until Feb. 28.

The following members, the total committee membership, were in attendance: Harry Reid, chairman; L. E. Gould, E. C. Faber, S. W. Greenland, and M. B. Lambert.

Meeting of the Committee on Co-operation of Manufacturers

A meeting of the special committee to enlist the co-operation of manufacturers in spreading electric railway information to their own employees and through them to the general public was held at the Claypool Hotel, Indianapolis, on Friday morning, Dec. 2.

It was brought out by this committee that there is a real opportunity to put into play the ideas expressed by Mr. Wickwire at the October convention and the committee took very definite plans to enlist the various manufacturers in this work. This committee also had its full membership present: E. F. Wickwire, chairman; E. C. Faber, Frank Gale, P. N. Jones, and J. C. McQuiston.

Meeting of the Committee on Membership

The meeting of the membership committee was held in President Todd's office on Friday afternoon, Dec. 2.

A complete survey of the present membership of the association was made and particular attention was paid to the analysis of individual membership situations on account of the modified provisions of the constitution as well as to the new classes of membership created, namely the three divisions of associate members.

Some new and vigorous methods of placing the advantages of membership before the various classes of individuals and companies who are eligible for membership were discussed and definite plans made by the committee to carry them into execution. The committee has set certain definite goals for itself this year and non-member companies of the association, both operating and manufacturing, may expect to hear from the membership committee with telling arguments.

At the close of the meeting one member remarked that most membership committee meetings of most associations were perfunctory and ended about where they started; but that this meeting of the membership committee of this association had been the most instructive of any he had ever attended.

Members of the committee in attendance were: F. R. Coates, chairman; L. E. Gould, P. N. Jones, M. B. Lambert, E. F. Wickwire, and Frank Gale for E. P. Waller, and H. V. Bozell for H. H. Norris.

President Todd Entertains at Dinner

President Todd entertained the combined personnel of all committees meeting at Indianapolis on Friday, Dec. 2, at a wonderful Indiana chicken dinner out in the country. He ran his special car No. 600, into the terminal so that the party had exceptionally fine transportation out to the farm house of local renown for its chicken dinners. Everyone in attendance authorized the statement that if this was a sample of Indiana culinary art, there could be no better place selected for the mid-year dinner.

Traffic & Transportation Committees Appointed

PRESIDENT PALMER of the T. & T. Association has announced the appointment of the following committees. The personnel named indicates the committees in so far as they have been appointed.

COMMITTEE ON MERCHANDISING TRANSPORTATION

E. M. Walker, chairman, Terre Haute Traction & Light Company, Terre Haute, Ind.
G. H. Clifford, sponsor, Northern Texas Traction Company, Fort Worth, Tex.
Edward Dana, sponsor, Boston Elevated Railway, Boston, Mass.
W. R. Alberger, San Francisco-Oakland Terminal Railway, Oakland, Cal.
W. H. Boyce, Beaver Valley Traction Company, Beaver Valley, Pa.
Victor S. Curtis, The Connecticut Company, New Haven, Conn.
F. C. Lewis, Boston & Worcester Street Railway, Framingham, Mass.
V. L. Lloyd, Cleveland Railway, Cleveland, Ohio.
A. Stuart Pratt, Stone & Webster Management Corporation, Boston, Mass.
Samuel Riddle, Louisville Railway, Louisville, Ky.
F. W. Shappert, Chicago, North Shore & Milwaukee Railway, Chicago, Ill.
K. A. Simmon, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.
J. B. Stewart, Jr., Youngstown Municipal Railway, Youngstown, Ohio.
S. L. Vaughan, Grand Rapids, Grand Haven, & Muskegon Railway Company, Grand Rapids, Mich.
H. B. Weatherwax, United Traction Company, Albany, N. Y.

COMMITTEE ON ONE-MAN CAR OPERATION

C. E. Morgan, chairman, Brooklyn City Railroad, Brooklyn, N. Y.
J. V. Sullivan, sponsor, Chicago Surface Lines, Chicago, Ill.
F. G. Buffe, Kansas City Railways, Kansas City, Mo.
S. W. Greenland, Indiana Service Corporation, Fort Wayne, Ind.
R. B. Hull, Conestoga Traction Company, Lancaster, Pa.
C. W. Kellogg, Stone & Webster, Boston, Mass.
Dudley Montgomery, Madison Railways, Madison, Mo.
D. A. Scanlon, Northern Ohio Traction & Light Company, Akron, Ohio.

COMMITTEE ON PERSONNEL AND TRAINING

J. E. Wayne, chairman, York Railways, York, Pa.
Arthur Gaboury, sponsor, Montreal Tramway Company, Montreal, Canada.
J. K. Punderford, sponsor, Connecticut Company, New Haven, Conn.
F. L. Butler, Georgia Railway & Power Company, Atlanta, Ga.
Edward M. Graham, Bangor Railway & Electric, Bangor, Me.
Dr. John Leeming, Chicago Surface Lines, Chicago, Ill.
A. P. Norris, Rochester & Syracuse Railroad, Newark, N. J.
H. H. Norris, ELECTRIC RAILWAY JOURNAL, New York City.
Dr. Arthur J. Rowland, Employees Mutual Benefit Association, The Milwaukee Electric Railway & Light Company, Milwaukee, Wis.

COMMITTEE ON TRAFFIC REGULATIONS

Herbert B. Flowers, chairman, United Railways & Electric Company of Baltimore, Baltimore, Md.
T. C. Cherry, sponsor, Rochester & Syracuse Railroad, Newark, N. J.
H. O. Butler, United Railways of St. Louis, St. Louis, Mo.
F. R. Cogswell, Pittsburgh Railways, Pittsburgh, Pa.
F. P. Edinger, Chicago Surface Lines, Chicago, Ill.
W. H. Maltbie, Baltimore, Md.
Fielder Sanders, Street Railroad Commissioner, Cleveland, Ohio.
Paul E. Wilson, Cleveland Railway, Cleveland, Ohio.

COMMITTEE ON SAFETY WORK

W. H. Boyce, chairman, Pittsburgh & Beaver Street Railway, New Brighton, Pa.
J. R. Blackhall, Chicago & Joliet Electric Railway, Joliet, Ill.
D. E. Parsons, East St. Louis & Suburban Railway, East St. Louis, Ill.
R. M. Reade, Quebec Railway, Light & Power Company, Quebec, Canada.
E. D. Reed, Chattanooga Railway & Light Company, Chattanooga, Tenn.
C. B. Scott, Chicago Edison Company, Chicago, Ill.
G. T. Seely, Pennsylvania-Ohio Electric Company, Youngstown, Ohio.
Claude C. Van Aucken, *Electric Traction*, Chicago, Ill.

News of the Electric Railways

FINANCIAL AND CORPORATE :: TRAFFIC AND TRANSPORTATION
PERSONAL MENTION

City and Company Agree

Operating Arrangement Perfected by the City of Detroit and Detroit United Railway

Negotiations between the Detroit (Mich.) United Railway and officials of the city of Detroit have resulted in an agreement which will give the city a unified railway system with a universal transfer. Although the company had stated that it would not agree to the transfer arrangement, the city's demands in this respect were finally met and passengers will be granted transfers between Detroit United Railway and city cars on all lines.

Woodward Avenue Case Settled

Another agreement reached at the conference between representatives of the company and city officials provides for the operating of cars of the municipal railway on Woodward Avenue, Fort Street and the Hamilton, Trumbull and Fourteenth lines on a day-to-day rental basis. For the privilege of operating over the company's tracks the city will pay 20 cents per car-mile. The company will pay on the same basis for operating over the municipal lines. The city will pay for operating over 69 miles of Detroit United Railway tracks while the company will operate over approximately 35 miles of city lines, including the 29 miles of Detroit United Railway lines to be taken over by the city according to the day-to-day agreement under which they were built.

Negotiations will be continued for the lease of the Detroit United Railway's entire city system on a day-to-day rental basis. The proposal to lease the lines was made by Mayor Couzens as it is desired to have the complete system operated under city control until a purchase plan can be submitted to the people. The Mayor's proposal to lease the lines with a view to ultimately purchasing them is the first serious discussion along that line since 1919 when the purchase proposition was voted down.

Day-to-Day Lease

No details as to the rental to be allowed the company or the price to be paid for the lines have been disclosed. The lease under which the city proposes to take over the entire system will be on a day-to-day basis subject to termination at any time by the City Council. In 1919 the company offered to sell the complete system to the city for $31,500,000. The plan to purchase at that price was voted down.

Under the present arrangements the city will operate cars over more than 150 miles of tracks and will have connections at both the east and west sides of the city as well as a route to the down-town section. It was announced following the last conference that there would be no change at present in the conditions of transfer arrangements. The Detroit United Railway will continue to collect the 1-cent charge for each transfer and the city will issue transfers on the same basis. When transfers are issued from one system to the other the 6 cents resulting from the 5-cent fare and 1-cent transfer charge will be divided equally between the company and the city. Traffic on Fort Street and Woodward Avenue, the two lines from which the people voted to oust the Detroit United Railway, will be divided by operating alternately company cars and city cars. No interruption of service is to be made while the details are being completed and the company has announced that the transfer arrangements will be effective on Dec. 12.

Peter Witt Cars to Be Used

The city plans to use the 128 cars taken over under the day-to-day agreement to match up with the company's cars on Fort Street and Woodward Avenue. It is not intended to use the one-man safety type cars on lines where the Detroit United Railway is operating large cars, but the Peter Witt type cars now in the possession of the city will be used. The even division of traffic on Fort Street and Woodward Avenue, two of the important lines, is expected to increase the city's car revenue materially.

The unified operation of all lines will give the city a very satisfactory railway service it is believed by city officials, in view of the fact that the municipal lines will be connected with the Detroit United Railway system and these lines supply railway facilities to sections of the city which were previously without railway service. Considerable new territory is tapped by the municipal lines.

The meeting on Dec. 1 which evidently ended the controversy was practically without friction between the two parties. The conference was held behind closed doors. On two occasions the negotiations were interrupted while one of the parties withdrew to confer privately. The company was represented at the conference by Allan F. Edwards, vice-president, Alex Dow and Jere C. Hutchins, directors; Elliott G. Stevenson, chief counsel; E. J. Burdick, general manager. The city officials present besides Mayor James Couzens were: G. O. Ellis and H. H. Esselstyn, members of the Street Railway Commission; Ross Schram, secretary of the commission; Clarence E. Wilcox, Corporation Counsel and Joseph S. Goodwin, general manager of the Detroit Municipal Railway.

No definite date has been set for further conferences and it is not anticipated that the details of the proposition to lease the complete system will be worked out for some time.

Paterson Has Ambitions!—The City Plan Commission of Paterson, N. J., has invited the cities of New York and New Jersey to a conference on Dec. 15 to consider a unified transportation plan for both states. The proposals include additional tubes under the East and Hudson rivers, electrification of all passenger lines and an interstate through-routing plan which will take New Jersey trains to Westchester and Long Island and vice versa.

$2,000,000 for Improvements

Expert Retained by City of Seattle Sees Great Need for Large Improvements

Peter Witt, retained by the Council of Seattle, Wash., as a consulting expert, has proposed to that body that a conference be entered into with the former owners of what is now the Seattle Municipal Railway who at present are holders of bonds of the city that would lead to a virtual rewriting of the contract under which the city took over the road. He favors deferring for ten years the payment of the purchase installments so as to give time for the absorption of $2,000,000, which he considers should be spent on the lines to improve them.

Mr. Witt's formal report has not yet been presented. He made a preliminary statement, however, to the Council recently which is accepted as showing the trend that his formal report will take. He is quoted in part as follows:

I have come to definite conclusions as to certain things that I shall deal at length with in my written report. I have asked, however, for this privilege of coming before you now that we may benefit by an oral discussion.

I have taken the position that it can't be any of my business how the city took over this property from its former private owners, or how its previous arrangements for payment have been made. Personally, I can't see why the car rider should pay for this property, and I feel that all any street car rider should be forced to pay for when he contributes to the fare box should be the maintenance, the overhead and the operating expenses. Under the provisions of your contract, however, you are decreeing that the car rider shall pay.

As your street car situation appears, it anticipates that all future capital outlay charges shall be met by issuance of utility bonds. Presumably, it is going to be impossible to sell any more bonds against this property.

But your property has to have new money. It must have replacements—not only ordinary replacements but extraordinary replacements—before it can ever be possible to bring about better service at less cost.

I am going to recommend the expenditure of several million dollars immediately for new equipment. For instance, there is only one place for many of the large, heavy cars—the junk pile.

Money must be raised some way to meet these necessary replacements. The only way that I see is for the city of Seattle to have a conference with the owners of the bonds and arrange for the replacement of the old bonds with new bonds. The new bonds should be issued for a longer period, say twenty-five years, and for at least ten years there should be no payment on principal required. In these ten years the replacement costs can be repaid from the earnings.

The principal of $15,000,000 should not be written off at the rate of $1,000,000 a year for the last fifteen years. The payment should provide for a lower amount in the early years and a larger amount in the later years, so that your property should have time to rehabilitate itself, and should be paid for in the end by the much increased population your city is destined to have.

Councilman Fitzgerald, chairman of the finance committee, in discussing Witt's remarks, said:

Personally, I think Witt did the wise thing to take this matter up now. We can talk it all over, call the Mayor into our conferences and maybe we can get somewhere and accomplish something that will actually relieve our situation.

Mayor Caldwell declined to comment

on the Witt report. He is reported to have said:

Witt is hired by the Council and is reporting to it. I will let the Council do all the commenting on it.

The finance committee, consisting of five of the nine members of the Council, approved the plan suggested by Mr. Witt and by a unanimous vote directed the Corporation Counsel to draft a resolution, authorizing the city law department to negotiate with the holders of the securities. When the matter was about to come before the Council meeting, Councilman Fitzgerald announced that it had not been introduced, and it was abruptly dropped, due, it is believed, to the storm of protest from the public at the proposed invasion of the general fund of the city.

DEFERRED PAYMENT PLAN BROACHED IN SEPTEMBER

Corporation Counsel Walter F. Meier, in an opinion on the proposed plan, said:

At the time when a bill was proposed in the last session of the State Legislature authorizing cities to refund utility bonds, I was of the opinion that under existing statutes it is doubtful whether such bonds can be refunded with anything but general obligation bonds, and I think it is still doubtful, there having been no change in the statutes.

The plan to defer payments on the city's $15,000,000 debt to the Stone & Webster interests was first broached by Mr. Fitzgerald last September, in connection with the movement to reduce fares on the railway. Subsequently Mr. Witt was engaged to survey the railway system, and his first recommendation was that the city negotiate with the bondholders for the purpose of obtaining their consent to the deferred payment idea.

When asked the probable effect of the proposed payment refunds upon fares, Mr. Witt replied:

Carfare cannot interest me. It was always dependable upon the cost of service. * * * Of necessity, the rate of fare is always involved in any transportation question. It has been the great problem for several years all over the country. Personally I am utterly opposed to the plan making the car rider buy this property. Better than 1 cent of every fare paid this last year has gone not for service, but for payment of the debt. * * *

This property must have some changes, and I don't see how you can get the money unless the payments on the principal are deferred. It was a most unusual situation in which this property was acquired. I never heard of such a purchase, but however that may be, this other money must be obtained. The city of course would not be asking the bondholders to do anything that would hurt them, because it would greatly improve the property. I can't see any chance of anyone purchasing any more bonds on the utility on account of the large first lien, and I understand there is no chance of issuing general bonds. The property which is worn out should be replaced by the car rider—the car rider has worn it out and the car rider should repay.

Pay of Interurban Men Reduced

The wage dispute between the East St. Louis & Suburban Railway, East St. Louis, Ill., and its employees, members of the Amalgamated Association, has been settled by the board of arbitration. Men employed on the interurban were reduced from 60 to 57½ cents an hour. The old scale had been in effect seven months in 1920 and up to April 30, 1921. Although all three arbitrators signed the award, the one chosen by the company submitted a separate opinion in which he stated:

In my opinion the award reflects the opinion of a layman who has become unduly impressed with the importance, in the scale of crafts, of the position of motormen and conductors on electric interurban railways.

Approximately $2,500 back pay will be paid the fifty employees affected, on account of the award being 6½ cents an hour more than has been paid the men since Aug. 1. At that time W. H. Sawyer, president of the company, agreed to reimburse the men if they got a larger award. The decision is retroactive to May 1, of this year, but up to August the men were paid 60 cents. Since August the pay has been 51 cents an hour.

Trackless Trolley Proposal Contemplates Local Ownership

At a recent meeting of the board of directors of the Virginia Railway & Power Company, Richmond, Va., it was decided to organize the Richmond Trackless Trolley Company and to set about at once putting in a line of buses along a route suggested in an application made to the Council.

This route will require ten buses to operate on a five-minute schedule and will necessitate the purchase of twelve buses—two for spares to insure continuity of service. To accomplish this, the company says, will require an investment of approximately $150,000.

Since it is not possible for the company in its present status to finance this plan it has been proposed:

1. To organize the Richmond Trackless Trolley Company with capital stock of $150,000—$75,000 of 8 per cent preferred stock (preferred as to both dividends and assets), and $75,000 of common stock.

2. To offer the preferred stock locally to investors, the officers of the Virginia Railway & Power Company being authorized to use treasury assets to borrow $75,000 with which to subscribe to the common stock of the Richmond Trackless Trolley Company.

The ability of the company to make this loan and to interest local investors is, of course, predicated upon the Council's offering a contract that will secure the investment and insure an adequate return thereon.

The offer of the company is for a complete line of transportation from Ninth and Grace Streets westward through the smooth-paved residential district where adequate and reliable transportation is greatly needed.

The application of the company for the right to operate under the plan just outlined was filed with the Council on Oct. 3. At that time the company said to the Council:

Assuming that you can offer a contract which the Virginia Railway & Power Company can use as a basis for the loan and on which the public is willing to invest in the preferred stock, the buses, we understand, can be secured in ninety days and the overhead construction can be done while the buses are being constructed, so that no long time should elapse after the necessary and satisfactory action by the Council before the service can be available to the public.

The entire proposal has been explained to the public recently by means of advertisements inserted in the daily newspapers. As indicated in the ELECTRIC RAILWAY JOURNAL for Dec. 3, page 1005, the application of the company for trackless trolley rights has been referred to the street committee of the Council to be considered along with the new blanket franchise for the company itself.

Mr. Maloney Seeks Sources of Original Information

Commissioner Paul Maloney of the Department of Public Utilities of New Orleans, La., has addressed letters of inquiry to the executive heads of two hundred cities in the United States, Canada, the British Isles and Australia, asking for information regarding the operation of their public utilities. The questionnaires are intended to furnish him with knowledge regarding electric railways, gas, electric light and power, motor and telephones, of other communities under any and all conditions.

He is especially anxious to secure data as to the rate of fares which obtain in each city, the issuance of transfers whether free or charged for, the character of the service, whether good, bad or indifferent; also the prevailing rates charged for gas, electric light and power; water and telephone for residential and commercial purposes and the service tendered, as it is Mr. Maloney's belief that low rates or low fares do not necessarily imply good public service or successful operation.

The questionnaire also includes general matters such as the earnings of the utilities and whether same are satisfactory to the investor; whether existing rates have been determined or are still open for adjustment; does the city or state exercise rate making powers; whether the utilities in communities where they are public owned, are operated at a profit.

These are the problems which Mr. Maloney since assuming the office of Commissioner of Public Utilities at New Orleans has encountered and has had to solve, in the pending utilities tangle of the New Orleans Railway & Light Company. He feels that the information will be of great assistance to him in dealing with the matter intelligently and permitting him to profit from the experience of other communities.

French Railways to Be Electrified and Reorganized

According to a cable received at the Department of Commerce recently from Economist Consul Westcott at Paris, plans and estimates are in preparation for the electrification of 5,000 miles of French railways. It is also under consideration to have the six main line railways of France rehabilitated and reorganized under a single agreement with the State.

The bill under the provisions of which it is intended this work shall be carried out provides for pooling of net revenues into a common fund, from which any deficits of weaker lines will be paid: Maintenance of this fund at a specific figure, after an initial contribution by the State, by periodic advances or reductions of tariffs, as required: Fixing of maximum rates by the government, and the layout of a broad policy, in which the government will exercise a supervisory control for operation of the roads.

A supreme council, in which the operating companies, the government and the people will be represented, will formulate the future policies of the roads. Actual administration and operation will be by the corporations. The State guarantees operating expenses, bonded indebtedness and preferred dividends, the corporations to raise the capital for the necessary improvements and extensions.

Brooklyn Officials Sign Waivers

Testimony Helpful to Commission Given by Officials of Brooklyn Company—President Williams on Stand

Timothy S. Williams, president of the Brooklyn (N. Y.) Rapid Transit Company since 1903, took the witness stand before the Transit Commission on Dec. 7, for a long examination about company finances and particularly the 1917 dividends. He unhesitatingly signed a waiver of immunity. Nicholas F. Brady, chairman of the directorate of the company, joined President Williams in signing the waivers. In presenting these documents the Transit Commission followed its policy established with the Interborough Rapid Transit Company directors, who, however, declined last week to sign and were not examined.

MR. WILLIAMS put much of the blame for B. R. T. receivership on the city's failure to finish dual system construction on time. He denied that the 1917 dividends—the last paid by his company—had any material effect on the corporation's financial troubles the next year, when Lindley M. Garrison became receiver.

At the afternoon session Mr. Williams was questioned about the alleged over-capitalization of the Brooklyn Rapid Transit. He said that the total capitalization was $144,385,159.37, and asserted that "every dollar of stock issued and every dollar of bonds issued represents an actual cash investment at par." Mr. Williams was glad to have an opportunity to dispute the charge that Brooklyn Rapid Transit securities were "watered."

"Looking back on it now," asked Mr. Shearn, counsel to the commission, of Mr. Williams, "wouldn't you frankly say that it was a grave mistake to have followed the policy of declaring dividends during a year (1917) when your expenses were mounting and when you were confronted with a receivership if you could not market these $57,000,000 in notes maturing in July, 1918?"

"Not in the light of the information before us at that time," replied the Brooklyn Rapid Transit president. "I am frank to say that personally I would not have changed my attitude in the slightest. The mistake we made, for which we are to be criticised, if we are criticised at all, is in the fact that in 1902 when we created our $150,000,000 refunding mortgage we limited the rate of interest to 4 per cent. At that time we thought it was wise to do so."

Mr. Williams went on to explain that it was intended to refund all existing mortgage loans and to provide a continuous source of funds for capital expenditures. The mortgage was made on the advice and with the assistance of such well known financiers as E. H. Harriman, Norman B. Ream, Governor Flower, A. N. Brady and H. H. Porter.

Mr. Williams said that the Brooklyn Rapid Transit had difficulty in marketing the 4 per cent, bonds with consequent financial difficulties which culminated after other developments in receivership. The witness said most railroads have to make back loans even when they are in good condition. He said he did not know of any road in the country "unless it is some particularly rich railroad company—and I don't know of such nowadays—that carries a sufficient working capital for all needs."

Asserting that he considered obligations to investors "equally sacred with obligation to your employees or to the public so far as extending facilities are concerned," the witness said, "we might have stopped the extension and improvement of our facilities. That undoubtedly would have been a public disadvantage, but inasmuch as we were attempting to develop a system so that it would be a service to the public and a profit to its security holders, why we tried to please both sets of people at the same time."

After explaining that refusal of the War Finance Corporation to help the company in 1918 also hurried the B. R. T. receivership, Mr. Williams said he believed "if we had shown on our books an accumulating surplus of from $5,000,000 to $6,000,000 a year never expended except for capital purposes, the banking community would have been rather suspicious of our bookkeeping. There have been companies in the past showing large surpluses, and bankers who depended on these book surpluses have been sadly fooled."

COMMISSION PLAN CRITICISED

During the course of his examination President Williams read into the record a long statement in which he offered many suggestions for the modification of the tentative plan of the commission for the reorganization of the traction lines and practically presented an alternative plan. Limitations of space prevent more than this reference to the statement at this time, but it is proposed to publish an outline of his remarks in the issue for Dec. 17.

Howard Abel, comptroller of the Brooklyn Rapid Transit Company, was examined on Dec. 6. He testified with respect to the earnings of the company for the six months ending Dec. 31, 1916. He said that although the gross revenue of the period increased $832,224, the net result was that there was $585,849 less income available for dividends. This showing was due to the largely increased amounts charged for taxes and interest, taxes showing an increase of $391,206, or 45.72 per cent, and interest showing an increase of $441,312.

Notwithstanding these additional burdens, the net income of the system for dividends was more than $500,000 in excess of the dividend requirement at the rate of 6 per cent per annum for this period. Mr. Shearn, for the commission, sought to show that about this time the excess of bills payable by the Brooklyn Rapid Transit Company to subsidiary companies over the bills receivable from those companies was $5,678,805. At this time however the treasurer's statement of cash balance of the system on deposit was $1,260,900. On Feb. 25, 1918, the executive committee adopted a resolution to the effect that although the company's net profits justified a declaration of the usual dividend payable on April 1 the committee believed that in view of the maturity on July 1 of that year of $57,735,000 of secured gold notes, issued for rapid transit purposes, it would be wise to withhold action on the dividend. The directors approved this recommendation. The last dividend was declared Dec. 1917, payable on Jan. 1, 1918. On the last day of that year the road was thrown into the hands of Lindley Garrison as receiver.

Judge Shearn read in evidence a circular signed by Chairman Brady and President Williams dated Jan 31, 1919, showing that during the twenty years which ended with the last fiscal year the net profits of the system from operation were $51,043,824, of which $29,022,334 was distributed to stockholders in dividends. Practically all the remaining $22,021,490 had gone back into substantial property improvements.

Before leaving the matters connected with the Interborough Rapid Transit Company counsel for the New York Transit Commission on Dec. 6 called as a witness James R. Sheffield, receiver of the Interborough Consolidated Corporation, the successor to the Interborough Metropolitan Company. He corroborated the statement brought in previous testimony that $800,000 had been transferred from the Interborough Consolidated Corporation to the use of the Interborough Rapid Transit Company on March 20, 1919, the day before he had been appointed receiver.

Mr. Sheffield doubted the legality of the transaction, but as at that time he was only a receiver in bankruptcy, he had very limited powers. As soon as he became trustee in bankruptcy, however, he referred the matter to his counsel who after considering the matter advised him that in their opinion the transaction was illegal and he should take steps to recover the money.

This he did and the late Mr. Shonts, president of the Interborough Rapid Transit, replied by letter that it was the opinion of counsel for that company that the loan was in all respects legal and proper. On the representation of Mr. Shonts that the $800,000 could not be paid at once, the situation that confronted Mr. Sheffield, he said, was either to begin an action to recover or to accept the equivalent of the $800,000 in proper collateral. Some of the bondholders were opposed to pressing suit.

Finally a petition was presented to the court by the receiver in which he stated all of the essential facts. The court instructed Mr. Sheffield to refrain from instituting proceedings to test the legality of the transaction. An agreement was made, however, that the money should be paid back on or before Dec. 1, 1919. On Nov. 8, 1919, Mr. Sheffield received principal and interest to the amount of $248,000 to apply to the indebtedness. On Nov. 29, he received the sum of $605,875, being the payment of the $800,000 in full with interest.

That fulfilled all the obligations under which that agreement was drawn with the exception of the payment of the $500,000 which had been borrowed in 1918, and that amount was paid on Dec. 22, when he received $502,395, thus closing out the transaction.

A few days after receiving this payment, the Interborough Consolidated Company loaned $1,000,000 to the Interborough Rapid Transit Company. This was done on order from the court after a conference of all the interests involved. Counsel Cook said it was a hectic New Year's eve. As he recalled it it was Dec. 31 when the order was received from the court. According to

Mr. Cook it was a question of a receivership or a Happy New York.

Memoranda made by J. P. Morgan & Company, and Lee Higginson & Company of Boston, advising the Interborough Rapid Transit Company greatly to reduce its dividends in order to meet charges, were introduced as evidence in the hearing on Thursday morning. Mr. Ficher, secretary of the company, presented the data as the first witness of the day.

The first of the data presented was a letter dated July 6, 1917, from E. A. Hallowell, of Lee Higginson & Company, to A. M. Anderson, of J. P. Morgan & Co., which contained statistics showing how much the Interborough Company was running behind and the recommendation that "it is advisable for the Interborough Rapid Transit Company to reduce its dividends to meet the interest charges." The letter continued, "It seems a certainty that this dividend must be suspended sooner or later."

In a memorandum dated Aug. 1, 1917, from Mr. Anderson to the Interborough Company, the former pointed out that the liability of the company under the contract with the city for construction was limited to some $58,000,000, but that the company's liability for equipment was unlimited. A final estimate had placed it at $44,000,000 which was an increase of $23,000,000 over preliminary estimates. Other figures proved that for a period of years the actual gross earnings had been much less than the estimated earnings. Particularly was this true of 1915, and the memorandum stated that in all probability there would be a larger divergence in the coming years. It further recommended that the dividend rate be reduced to 10 per cent, the amount needed to pay interest on Interborough Consolidated Company's 4½s.

In reply, the Interborough brought out certain errors made in estimating, which swelled the estimate and reduced the actual operating figures. For example, revenue from the elevated lines was included in the estimate for 1913, whereas the new elevated lines were not put in operation during that year.

Mr. Garrison, the next witness after Mr. Fisher, in reply to Judge Shearn's question to "describe the break-up of the system since your appointment," said that the company was suffering from several troubles. The war affected the labor market through the infiltration of incompetent men, prices increased out of all proportion, and the contract with the city made operation so expensive that the property could not be run economically. Mr. Garrison then continued with a history of changes in transfer systems on subway and surface lines and the discontinuance of operation of certain lines.

Saginaw Votes in Favor of Buses

At a special election on Dec. 7 the voters of Saginaw, Mich., rejected the proposal for the return of street cars and decided in favor of motor buses by a majority of 869. Less than half of the registered vote was cast. Buses received 6,028; electric cars 5,159. Although this was an advisory vote, it is believed that the Council will proceed to have a motor bus system established in Saginaw, and there will probably be no further conference at this time with representatives of the bondholders of the Saginaw-Bay City Railway, which ceased operations on Aug. 10.

New Franchise Proposal Made in Houston

The Houston (Tex.) Traction Company has made a new proposal to the City Commission in the franchise and fare controversy. It has proposed to the city that the fixed valuation and guaranteed net earnings, on which the company won its fight in the Federal Court, be abandoned and that in return the city grant a franchise extension to which is added a guarantee to spend $1,200,000 in extensions and improvements.

The franchise fight has waxed warm in the City Council meeting, some members apparently being in favor of giving the company a fare that will yield an adequate return. At the last meeting Tax Commissioner H. A. Halverton charged that "somewhere, somehow, somebody is trying to kill the railway, and if such is the case, let him be frank enough to speak up." Mr. Halverton's charge went unchallenged.

In the informal negotiations looking to the submission of new franchise proposals representatives of the company told Mayor O. F. Holcombe that the new plan with the contemplated improvements would add something like 700 men to the company's pay roll. They also told the Mayor that efficient service in Houston is one of the chief aims of the traction officials.

Labor and Tax Problems Discussed by President Harding

The matters of greatest interest to electric railway executives touched upon by President Harding in his message to Congress were the reiteration by him of the right of labor to organize and the need for ending all issues of non-taxable bonds. President Harding said:

> The right of labor to organize is just as fundamental and necessary as is the right of capital to organize. The right of labor to negotiate, to deal with and solve its particular problems in an organized way, through its chosen agents, is just as essential as is the right of capital to organize, to maintain corporations, to limit the liabilities of stockholders.
>
> As we have great bodies of law carefully regulating the organization and operations of industrial and financial corporations, as we have treaties and compacts among nations which look to the settlement of differences without the necessity of conflict in arms, so we might well have plans of conference, of common counsel, of mediation, arbitration and judicial determination in controversies between labor and capital. To accomplish this would involve the necessity to develop a thoroughgoing code of practice in dealing with such affairs. It might be well to set forth frankly the superior interest of the community as a whole to either the labor group or the capital group. With rights, privileges of immunities and modes of organization thus carefully defined, it should be possible to set up judicial or quasi judicial tribunals for the consideration and determination of all disputes which menace the public welfare.
>
> I think our tax problems, the tendency of wealth to seek non-taxable investment and the menacing increase of public debt, federal, state and municipal, all justify a proposal to change the Constitution so as to end the issue of non-taxable bonds. No action can change the status of the many billions outstanding, but we can guard against future encouragement of capital's paralysis, while a halt in the growth of public indebtedness would be beneficial throughout our whole land.
>
> Such a change in the Constitution must be very thoroughly considered before submission. There ought to be known what influence it will have on the inevitable refunding of our vast national debt, how it will operate on the necessary refunding of State and municipal debt, how the advantages of nation over state and municipal, or the contrary, may be avoided. Clearly the states would not ratify to their own apparent disadvantage. I suggest the consideration because the drift of wealth into non-taxable securities is hindering the flow of large capital to our industries, manufacturing, agricultural and carrying, until we are discouraging the very activities which make our wealth.

Cities Co-operate to Retain Service

Community committee meetings, composed of representatives from Elgin, Aurora, Batavia, St. Charles, Dundee and other Illinois cities touched by the Aurora, Elgin & Chicago Railway have been held during the past few weeks to ascertain if the communities themselves could not find a way to keep cars of the railway company in operation. If not, the company may be ordered by the court to discontinue its service. The controversy between the railway company, which seeks an order to discontinue service on Fox River valley interurban and the city lines of Aurora and Elgin, and the cities which would be affected, has been noted previously in the ELECTRIC RAILWAY JOURNAL.

Related to these meetings are several important developments. First, Elgin voted on Nov. 26 to adopt the "home-rule" policy whereby the city itself will regulate utility rates. The legality of the election has since been attacked by Attorney General Brundage, but city officials declare the Council will act on rates as soon as the company asks for a franchise. Second, Elgin may have one-man cars. This much is the expressed opinion of Mayor Arwin E. Price, formed after a conference in Elgin with officials of the company. Third, there is little possibility that railway service will be discontinued on the Aurora-Elgin lines, according to the announcement of Attorney Alschuler, representing the receiver for the company. Fourth, a uniform franchise for all the cities and the company is the plan proposed by Judge Evan Evans.

The community committee meetings were the result of Judge Evans suggestion that the communities themselves try to settle the problem. A uniform franchise has been considered almost impossible to conclude, since many Aurora streets need paving, and Elgin streets do not, with a few exceptions. The city administration of Aurora, however, has announced through its counsel that it would waive the future paving assessments providing the company gave lower fares; paid up its past obligations of $5,000 for its share of the cost of paving Lincoln Way and South River Street, and other indebtedness, making a total of $25,000; and cut down salaries now paid to the management of the road.

A sub-committee composed of representatives of the various communities concerned, investigating the financial affairs of the company, preparatory to working out some agreement as to a franchise found that Elgin lines had been operated at a small profit, but that the interurban lines of the Fox River division had operated at a loss.

Home-rule in Elgin now gives that city the right to govern rates. It formerly possessed only the right to govern on what streets the railway could operate. Now the commerce commission will act only in case the city and traction officials fail to agree on a schedule of fares rates. The Commerce Commission promulgated the home-rule provisions about five months ago, and Elgin is the first city to adopt them.

Financial and Corporate

$20,602,766 Estimated Value Toronto Railway

Item of $1,558,574 Included As Cost of Bringing Bare Property Into Going Concern

Testifying before the board of arbitration in Toronto, Ont., on Nov. 25, A. L. Drum, consulting engineer. Chicago, said he had made an appraisal of the property of the Toronto Railway and found the value on the basis of cost to reproduce new less depreciation as of Sept. 1, 1921, to be $20,602,766. This valuation is on the basis of applying average unit prices for the three years from Aug. 31, 1918, to Sept. 1, 1921, to the quantity inventory as of Aug. 31, 1921. A second similar appraisal was submitted by Mr. Drum on the basis of unit prices prevailing Sept. 1, 1921. The following table gives a comparison of the two appraisals:

	Three Year Average Aug., 1918, to Aug., 1921, Inclusive	Sept. 1, 1921	Sept. 1, 1921 per Cent of Three-Year Average
Land	$1,655,484	$1,655,484	100.00
Track	2,782,823	2,728,692	98.05
Bridges and subways	94,922	94,922	100.00
Electrical distribution system	1,566,246	1,385,024	88.43
Rolling stock	5,928,309	5,742,407	96.86
Power station equipment	570,145	554,971	97.33
Substation equipment	1,335,254	1,310,170	98.12
Shop tools and miscellaneous equipment	344,642	309,844	89.90
Buildings	1,834,768	1,864,542	101.62
Furniture and fixtures	53,750	45,687	85.00
Contingencies and omissions	288,324	278,827	96.71
Engineering and superintendence	592,940	575,610	97.08
Administration, organization and legal expense	674,800	674,800	100.00
Taxes during construction	151,600	151,600	100.00
Interest during construction	1,170,185	1,142,063	97.60
Total	$19,044,192	$18,514,643	97.22
Cost of placing the physical property in operation	1,558,574	1,514,647	97.19
Total physical property	$20,602,766	$20,029,290	97.22

The appraisal of the property was made in accordance with the special act of the Canadian Parliament enacted in 1891, and under which the city of Toronto took over the property of the Toronto Railway on Sept. 1, 1921. The valuation clause in the statute, which covers the basis of the appraisal, is as follows:

> In determining such value the rights and privileges granted by the said agreement and the revenue, profits and dividends being or likely to be derived from the enterprise are not to be taken into consideration, but the arbitrators are to consider only the actual value of the actual and tangible property, plant, equipments and works connected with and necessary to the operation of the railways, which is not to include any land, property or rights acquired or used in connection with the said street railway, and which do not actually form a part of the said street railway undertaking necessary to the carrying on of the same.
>
> In arriving at such value the arbitrators are to consider and award only the value of the said several particulars to the city at the time of the arbitration, having regard to the requirements of a railway of the best kind and system then in operation and applicable to the said city.

In determining the actual value of the physical property to the city, Mr. Drum found the present value on the basis of depreciating the existing physical property from the standpoint of existing depreciation due to wear and use, giving due regard to age and remaining economical service and life of the several component parts of the property. To the value of the bare physical property, Mr. Drum added $1,558,574 as an estimate of the actual cost of placing the physical property in operation, which he contended is an element of cost that is encountered in creating a street railway system and bringing the bare physical property into an efficient, operating and going concern. This cost includes the cost of creating and training the existing operating organization of the company.

The basis used for determining this estimate was that a fair measure of such cost is an estimate of the loss of interest that would accrue on the cost of the property during the period of time that would be necessary to bring the property to an efficient, operating going concern; that is, the development period of the property. Such loss would be equivalent to a loss of interest averaging 2 per cent per year for the three-year development period, this being the period estimated to elapse between the beginning of operation and the time when the business will earn operating expenses and taxes and a fair return on the cost of the property.

Reorganization Details Being Worked Out

Plans are expected to be announced before the beginning of the new year for the reorganization of the Springfield Terminal Railway & Power Company, Springfield, Ohio. The property has already been sold, but the committee in charge of the proposed reorganization has not progressed far enough, however, to be able to submit a reorganization plan. The representatives of the bondholders are confident that the property can be made to show an earning capacity ample to pay the principal and interest on the proposed bond issue from the outset with possibilities of a much greater earning power in the course of a little time.

The desire now is so to reorganize the line as to prevent ultimate loss to any of the bondholders. The holders of the first mortgage 6 per cent serial gold bonds of the company are represented by a protective committee consisting of R. F. Hyney and Guy L. Emerson of Hyney, Emerson & Company, Chicago, and Edward A. Farmer and S. M. Sorrey, with Guy M. Walker as counsel. The depositary is the Ft. Dearborn Trust & Savings Bank, Chicago, Ill.

Stock Dividend Refused

Michigan Commission Declines to Accept Cooley Appraisal As Conclusive Proof of Utility's Value

The Public Utilities Commission of Michigan, in an order issued on Dec. 2, denied permission to the Detroit United Railway to issue a stock dividend of $334,000, "with which to regain the confidence of its stockholders." The opinion was written by William W. Potter and concurred in by the other members of the commission. It denied the company's contention that the appraisal and audit recently completed by Dean Mortimer E. Cooley of the University of Michigan had been recognized by the State.

Officers of the company who appeared before the commission asked permission to issue the stock from the company's unissued securities, pointing out that the company has $35,281,000 in bonds, $4,748,000 in notes and $5,375,000 in stock outstanding, and that the company has properties of a book value of $62,400,000 and of an appraised value considerably in excess of this.

It appears that the figure of $62,400,000 for the property was set by Dean Cooley at an expense to the company of $300,000. An officer of the company is reported to have said before the commission that "we assume that the State would not cause us to spend $300,000 for an appraisal and then not be bound by the appraisal." Mr. Potter, for the commission, retorted that this was precisely the claim he thought the commission would make, whereas, he said, "the record will show that the appraisal was made at the request of the company and not the commission. The commission said:

> The commission having gone further than it should at the request of the Detroit United Railway to accommodate it, the petitioner now alleges that this commssion put the company to an expense of $300,000 in making this inventory and appraisal; that the appraisal is the commission's appraisal, made on behalf of the State; that this commission is bound by it, and that without proof of its accuracy it is sufficient in and of itself to establish a prima facie case of its own correctness.
>
> ... An appraisal made at the petitioner's request, at its own expense, for its own purposes, by men of its own selection, without any proceeding pending before the commission, in pursuance of an order made without jurisdiction, has no such standing as a public document as to make it, of itself evidence of anything. ...
>
> I think the Cooley appraisal a private document and entitled to no force as evidence until its correctness and accuracy are proved.
>
> Representatives of this commission are engaged in the inventory, appraisal, audit and study of the interurban properties of the Detroit United Railway, in pursuance of Public Acts 115, 1921. When this shall be done, if petitioner is entitled to the order requested, one should issue.

It is set forth in the opinion that with Detroit United Railway stock not now earning a sufficient sum to pay cash dividends, and "its stock selling on the market at from 60 cents to 70 cents on the dollar, to issue more stock now without increasing its assets would normally tend to further depreciate its stock."

The cases of the Bay City-Saginaw Railway, now in bankruptcy, and the Muskegon Traction & Lighting Company, which recently asked for permission to cease service, are cited in the opinion as ample evidence that an electric railway company should not be permitted to declare a stock dividend "because some time in its prosperous past it invested surplus earnings in property."

Money Cheap Under Service-at-Cost

Montreal Tramways Floats $1,750,000 Loan to Net 6.5 Per Cent to Pay for Improvements

The Montreal (Que.) Tramways has just floated through Harris, Forbes & Company, New York, N. Y., an issue of $1,750,000 of 5 per cent first and refunding mortgage gold bonds to pay for improvements authorized and made during the year ended June 30, 1921. The offering price was 83½ and interest, yielding about 6.50 per cent. According to the bankers, this was the first time in several years that an offering of street railway bonds has been made in any considerable sum. The issue is non-callable before 1941 except in full. All of the bonds were subscribed before the public offering.

It is understood that competition for the issue was keen among the bankers, showing that in instances where existing fares are capable of producing sufficient revenue to meet the conditions of operation the electric railways can secure loans on terms as favorable as any other class of borrowers. It is true, of course, that interest rates have been declining steadily for some time now, but the success of the railway in placing the new loan is attributed largely to the element of stability which the service-at-cost grant of the company lends to its earnings and to the fact that the tramway has been able materially to cut the cost of operation since the termination of the last fiscal year. In the first place, materials have declined in cost and then the company has been able to utilize more hydro-electric power at a figure very much lower than steam power can be generated.

During its last fiscal year the company paid 10 per cent on its common stock in addition to paying a deferred dividend of 5 per cent. At the present market price the yield on the common stock is only 7 per cent, but by some Montreal brokers the stock is considered an investment with possibilities of considerable further appreciation in price, particularly in view of prospective future "rights."

The bankers reported earnings of the company for the year ended Oct. 31, 1921, as follows:

Gross earnings	$11,784,965
Operating expenses, taxes and maintenance	9,058,208
Net earnings	$2,726,757
Annual interest charges on all bonds outstanding	1,051,533
Balance	$1,675,224

The service-at-cost franchise under which the company holds the exclusive right until 1953 is unique in that fares must be so adjusted as to produce revenue sufficient to meet (1) operating expenses and taxes; (2) maintenance and renewals; (3) 6 per cent per annum on a capital value of $36,286,295 as established by a valuation based on reproduction cost new, less depreciation using 1917 prices; (4) 7 per cent on addition capital supplied during the war and for a fixed period after the termination of hostilities; (5) 6 per cent on working capital; (6) 0.5 per cent of $36,286,295 capital value per annum ($181,431) to cover expenses incurred in providing additional capital; (7) rental of $500,000 per annum during the life of the contract for the city for the use of the streets but payable only when earned after all prior charges.

The conditions worked out as follows for the fiscal year ended June 30, 1921, on a basis of $11,773,005 gross earnings:

Revenues:		
Allowance from contract	$2,355,970	
Other revenue	55,359	
Gross revenue		$2,411,329
Less the following expenses:		
Interest on bonds	$1,082,418	
Interest on debentures	850,313	
Other expenses	17,540	
Total expenses		$1,950,272
Net income available for dividends		$461,057
Dividends paid (10 per cent on $3,891,310 common stock)		389,131
Surplus for year		$71,925
Surplus for year June 30, 1920		941,175
Total profit and loss surplus		$1,013,100

From this surplus the company has paid the quarterly dividend of 2½ per cent due the quarter ended March 31, 1919, which leaves now outstanding only a 5 per cent deferred dividend to meet all dividend payments in full.

This ability to pay deferred dividends demonstrates the value of the new franchise from the credit point of view and although these deferred dividends were paid from the profit and loss surplus nevertheless they were made possible only by the assurance that the recurring annual dividends would automatically be met by franchise allowances which also provided for the continuing the excellent physical operating condition of the property.

Among improvements to be paid from the proceeds of the sale of $1,750,000 bonds is the new Cote substation.

Consolidation of Charleston Lines Planned

The executives of the Charleston (W. Va.) Interurban Railway and the Charleston & Dunbar Traction Company are of the opinion that the systems can be operated more efficiently and effectively by consolidation under one management and have petitioned the State Public Service Commission to permit the companies to merge under revised rates and schedules to go into effect after January. The Charleston Interurban recently effected a lease of the Charleston & Dunbar Traction Company.

The combined organizations propose:

1. To lease all lines of the Charleston Dunbar Traction Company to the Charleston Interurban for an unnamed period of years, these lines to be operated by the interurban as a part of its own system.
2. To abandon tracks of the Charleston & Dunbar line on Pennsylvania Avenue and on Roane Street.
3. To connect the Kanawah Valley Traction Company's tracks on Virginia Street, business district, and the Summers Street line of the new consolidation, so that cars may be sent in a continuous loop from the east to west side of Elk River.
4. To operate city cars east of Capitol Street in three loops, one going east as far as Smith Street, the middle loop turning at Ruffner Avenue, and the other and third loop extending to Duffy Street. Revised schedules to go into effect in the city.
5. To raise the rate of fare on all Charleston & Dunbar lines from 6 cents to 7 cents, in conformity with the 7-cent rate on the interurban lines.

Cleveland Deficit Reduced

Improved Business Conditions There Reflected in Railway Company's October Statement

Signs of improved business conditions in Cleveland, Ohio, are indicated in the October report of the Cleveland Railway. On Sept. 1 the deficit in the company's interest fund, which is the fare barometer, was $206,158. During September this deficit was decreased by $10,165, while in October the deficit was reduced to $23,785, making the deficit in the fund on Nov. 1 $172,207, a net reduction of more than $33,000 in two months.

In addition to this indication that the bottom has been touched in the general business depression in Cleveland, the Cleveland Railway's directors learned that $43,094 was added in September and $80,777 added in October to the company's operating reserve as surpluses, making the total in the operating reserve $415,235.

Since, under the Cleveland plan of operation, all the accruals in the various funds must be transferred to the interest fund at the end of the ordinance year, March 1, there is now a prospective balance in the interest fund, anticipating the transfer to be made, of $230,000.

That the balance in this fund will be considerably greater before March 1 is foreseen from the fact that the operating allowance of the company has been in excess of expenditures each month, due to the reduction in the wage scale of operatives and other economies affected by the company.

No prediction is being made at the offices of the company or by the city street railway commissioner as to when any change may be made in the rate of fare, but in both quarters it is felt that the worst effects of the general industrial depression are over.

This is further evidenced in the traffic figures for October. During this month 32,740,409 riders were carried, as against 38,726,694 in October, 1920, a decrease of 15.46 per cent. The decrease in the preceding month had been 17.56 per cent.

The street railway committee of the City Council was scheduled to meet on Dec. 5 to consider increasing the company's allowance from 10 cents a carmile to a figure that will extinguish an accumulated deficit of close to $700,000 and at the same time provide for necessary improvements.

The Council at its last meeting authorized the company to take more than $200,000 from earnings for the purpose of writing off obsolete tracks in the downtown section and obsolete equipment at the West Twenty-fifth Street battery house, abandoned since the company began purchsaing most of its power.

Reorganization Plan Declared Effective.—Notice has been given that the plan of reorganization for the Monterey Railway, Light & Power Company, Monterey, Mexico, has become effective and binding on the holders of the 5 per cent first mortgage debenture stock. Holders of the debenture stock are called upon to deposit the certificates for their stock at the office of the British Empire Trust Company, Ltd., London, for exchange for new securities which will be issued in accordance with the reorganization plan.

New Company Formed to Operate Shore Line

The report that a new company has been formed to operate the Shore Line Electric Railway from New Haven through Saybrook and Chester, Conn., has been officially confirmed. The Shore Line Traction Company has been incorporated and will take over all the assets of the old operating company, the Shore Line Electric Railway, in the territory to be served. Under present plans service will be maintained from 6 a. m. to 10 p. m. on a one-hour schedule. Ford, Bacon & Davis, New York, N. Y., will superintend all operations.

In their report the engineers estimate that it will require at least four months and possibly longer to restore the road to a successful operating basis. The work of rehabilitation of the line, which has not been in operation for two years, involves the installation of new power house equipment, the overhauling of all rolling stock and the cleaning and repairing of track and working equipment.

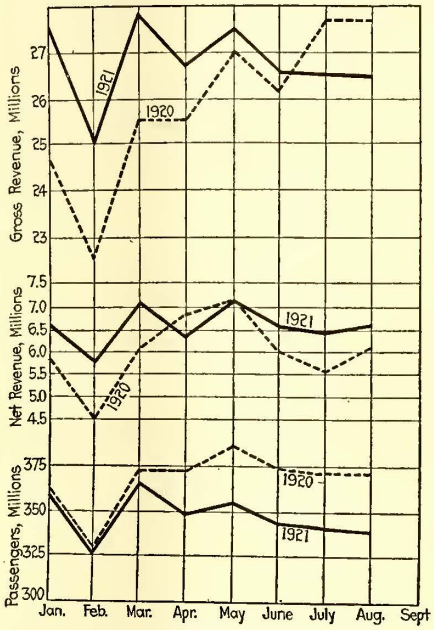
The cost of this work has been estimated at approximately $900,000. To secure the capital the company has provided a $1,000,000 issue of first mortgage 7 per cent gold bonds, with a thirty-year maturity. The capitalization of the new company is less than half that of the old. The latter earned all its fixed charges and carried a substantial amount of surplus during favorable years. With a substantial reduction in the burden imposed on the company in the form of fixed charges, the success of the line is said to be practically assured.

The net revenue from operations it has been estimated will exceed $110,000 a year. This affords a liberal margin of safety for the interest requirements of $63,000 of the bonds to be outstanding. A large part of the bond issue has already been subscribed by individuals and corporations whose homes or business properties will be served by the line.

Lines Seek Partial Abandonment.—The San Jose (Cal.) Railroads have petitioned the State Railroad Commission for permission to abandon the Santa Clara line running from the Southern Pacific depot at Santa Clara to the south town limits known as the depot line. The Peninsula Railway, operating suburban lines in Santa Clara County, wants to abandon service on part of its Naglee Park line.

$5,000,000 Gain in Net Operating Revenue

Although the operating expenses of a group of electric railways, whose earnings represent approximately 25 per cent of the total earnings of the industry, shows an increase of about $800,000 for the first nine months of 1921 over



A GRAPHIC PICTURE OF BUSINESS AND EARNINGS OF REPRESENTATIVE ELECTRIC RAILWAYS

the corresponding period of last year, the net operating revenue during that time totals about $8,000,000 more. The table below compiled by the American Electric Railway Association, includes the reports from 72 companies for the group of the first eight months and 62 for the ninth month. When these figures are totaled it is revealed that the operating ratio for 1921 has fallen from 76.7 to 75.5.

The accompanying chart will serve to picture the trend of the electric railway industry in regard to the number of passengers carried, operating and net operating revenue.

Reorganization of United Railways Investment Company Considered

Plans relative to a reorganization of the United Railways Investment Company, Jersey City, N. J., are being considered and an attempt made to bring the interests of the company together in such a way that the accumulated dividends on the preferred stock may be liquidated.

These dividends now amount to 75 per cent, for no payments have been made on the outstanding $16,000,000 of 5 per cent cumulative preferred stock since 1907. United Railways Investment has $20,400,000 common stock outstanding also. The company owns 58 per cent of the $42,943,000 common stock of the Philadelphia Company, which derives its income almost wholly from dividends.

San Francisco Asks Price on Market Street Railway

The Board of Supervisors of San Francisco, Cal., on Dec. 6 decided to request the Market Street Railway to name terms and conditions upon which it will turn over its railway system to the city to be operated in conjunction with the present municipal railway system. A charter amendment adopted a year ago permits the city to take over the public utility and pay for it out of the earnings of the utility. In case a price can be agreed upon, it is not proposed to issue bonds for the purchase, but to take over the properties on the pay-as-you-go plan.

The purchase is being urged by the Chamber of Commerce, Civic League of Improvement Clubs, Building Trades Council, Downtown Association and other organizations.

If an agreement is reached as to the price to be paid, the matter would still have to be submitted to popular vote in September.

City Engineer O'Shaughnessy estimated the value of the company's railway system at $40,000,000. The Railroad Commission's valuation is about $41,500,000. The company itself has placed the figure at $51,800,000.

Some of the company's most important franchises expire in about ten years, while others continue for twenty-five years.

COMPARISON OF OPERATING REVENUE, OPERATING EXPENSES, PASSENGER REVENUE AND REVENUE PASSENGERS OF SEVENTY-TWO ELECTRIC RAILWAYS MONTH BY MONTH FOR THE FIRST NINE MONTHS OF 1921 AND 1920

	January			February			March		
	1921	1920	Per Cent Increase	1921	1920	Per Cent Increase	1921	1920	Per Cent Increase
Operating revenue	$27,581,198	$24,712,598	11.6	$25,046,916	$22,498,452	11.3	$27,940,298	$25,500,359	9.6
Operating expenses	21,009,454	18,846,047	11.5	19,307,654	17,990,835	7.3	20,849,874	19,294,557	8.1
Net operating revenue	6,571,744	5,866,551	12.0	5,739,262	4,507,617	27.3	7,090,424	6,205,802	14.3
Operating ratio	76.2%	76.1%	0.1	77.2%	80.0%	3.5 (*d*)	74.6%	75.6%	1.3 (*d*)
Passenger revenue	$26,735,211	$23,876,612	12.0	$24,229,453	$21,718,302	11.6	$27,078,330	$24,632,467	10.0
Revenue passengers	361,546,245	362,229,993	0.2 (*d*)	327,076,392	328,782,242	0.5 (*d*)	365,493,508	373.081,771	2 0 (*d*)

	April			May			June		
	1921	1920	Per Cent Increase	1921	1920	Per Cent Increase	1921	1920	Per Cent Increase
Operating revenue	$26,743,454	$25,627,551	4.4	$27,424,197	$27,021,052	1.5	$26,590,202	$26,169,820	1.6
Operating expenses	20,075,345	18,781,559	6.9	20,274,181	19,802,057	2.4	20,006,325	20,162,854	0.8 (*d*)
Net operating revenue	6,668,109	6,845,992	2.9(*d*)	7,150,016	7,218,995	1.0(*d*)	6,583,877	6,006,966	9.6
Operating ratio	75.2%	73.4%	2.5	74.2%	73.4%	1.1	75.2%	77.2%	2.6 (*d*)
Passenger revenue	$25,889,883	$24,709,943	4.8	$26,557,004	$25,986,203	2.2	$25,607,552	$25,183,835	1.7
Revenue passengers	349,781,601	373,598,840	6.4 (*d*)	356,876,091	387,099,601	7.8 (*d*)	344,775,722	374,406,617	7.8 (*d*)

	July			August			*September		
	1921	1920	Per Cent Increase	1921	1920	Per Cent Increase	1921	1920	Per Cent Increase
Operating revenue	$26,510,903	$27,655,426	4.1 (*d*)	$26,363,501	$27,727,414	4.9 (*d*)	$23,617,527	$25,139,793	6.1 (*d*)
Operating expenses	20,088,668	22,055,726	8.9 (*d*)	19,800,524	21,584,202	8.2 (*d*)	17,583,710	19,646,307	10.5 (*d*)
Net operating revenue	6,422,235	5,599,700	14.7	6,562,977	6,144,212	6.8	6,033,817	5,493,486	9.8
Operating ratio	75.8%	79.8%	5.0 (*d*)	75.0%	78.0%	3.9 (*d*)	74.6%	78.2%	4.6 (*d*)
Passenger revenue	$25,564,568	$26,620,025	4.0 (*d*)	$25,401,494	$26,696,993	4.9 (*d*)	$21,267,213	$22,593,767	5.9 (*d*)
Revenue passengers	342,403,463	372,586,593	8.1 (*d*)	338,984,874	372,063,589	8.9 (*d*)	303,516,114	333,601,903	9.1 (*d*)

(*a*) Only sixty-two companies are represented in the summary for September. (*d*) Decrease.

Merger Petition Renewed

The Indiana Electric Corporation has filed with the Public Service Commission an amended petition for the consolidation of seven public utility companies in the State, three of which companies the corporation now owns. The petition sets out that "the fair aggregate value of the properties of the utility companies described is not less than $18,500,000." The petition also asks authority for the corporation to issue $5,500,000 in bonds, $3,000,000 in common stock and $1,500,000 in preferred stock. The service commission set Dec. 14 for the first hearing on the new petition.

The property valuation of the companies, as set out in the petition, is $250,000 higher than the valuation of the properties as set out in the former petition of several months ago, which was denied by the service commission.

The corporation in the first petition proposed to have outstanding approximately $21,000,000 in securities. In the amended petition the corporation proposes to cut this figure to $18,500,000, an amount equal to that placed in the petition on the valuation of the property, or a reduction of approximately $2,500,000 from the former figure.

The new petition requests authority to issue $3,000,000 in common stock, a reduction of $1,000,000 as requested in the former petition. In the old petition authority was asked to issue $750,000 in notes, due one year after issue, but the new petition does not ask authority to issue any notes. In the amended petition authority was asked to issue preferred stock of the par value of $1,500,000, which is a reduction of $350,000 from the amount fixed in the former petition. Figures covering the valuation of several of the companies also are slightly changed.

The companies which the corporation plans to consolidate are the Merchants Heat & Light Company, Indianapolis; the Elkhart Gas & Fuel Company and the Valparaiso Lighting Company, which are now owned by the corporation, and the Indiana Railways & Light Company, Kokomo; the Wabash Valley Electric Company, the Putnam Electric Company and the Caluga Electric Company.

The Public Service Commission on Sept. 13 declined to authorize the merger of the companies on the first petition of the corporation, holding that the property valuation of the utility companies was not sufficient to warrant the issuance of the securities for which permission was asked. The new petition also requests that the commission set aside its order on the former petition.

Service Suspension Allowed

The Muskegon Light & Traction Company, Muskegon, Mich., is authorized to discontinue service on Dec. 30, if jitney competition is not eliminated by that time. The order was issued by the Public Utilities Commission on Nov. 20 and requested that within thirty days Muskegon and Muskegon Heights should hold an election to decide on the question of jitney elimination.

Following this decision, officials of both cities set Dec. 14 as the date for the election. If the electors vote to retain electric railway in service city officials must terminate bus lines which compete with the railway. In case the vote is in favor of jitney service, the traction company may cease operation on Dec. 30.

The railway claims that it can operate only at a loss with bus competition, but could be successful without it. Both city officials and the company are said to be satisfied with the decision of the commission.

Defunct Line May Be Operated

Gasoline cars may be operated over the Plymouth-Norwalk line of the Sandusky, Norwalk & Mansfield Electric Railway, Norwalk, Ohio. This is the latest development since the purchase of the road by the Wilkoff Company, Youngstown, Ohio, as reported in the ELECTRIC RALWAY JOURNAL for Nov. 26, 1921. The new owners will wait five weeks before junking the road, to give the stockholders and patrons an opportunity to decide whether they shall buy and operate it.

Chances for operating the road are considered better than for some time, for the present owners will sell any part of the road and junk what they do not sell. If the stockholders decide to operate the road with gasoline cars they would purchase only the road bed, track and ties. The present owners would then junk the equipment not needed for the operation of gasoline cars. While the court had custody, the road had to be sold in its entirety, but now that it is owned by private interests, the advocates of gasoline cars may have some success, it is said.

Financial News Notes

Detroit United to Pay Bonds.—Fifty thousand dollars of first mortgage 5 per cent gold bonds of the Detroit (Mich.) Railway, due on Dec. 1 will be paid at the office of the People's State Bank, Detroit, Mich.

Stockholders' Meeting Postponed.—The meeting of stockholders of the Interborough Rapid Transit Company, New York, N. Y., which was scheduled for Nov. 29, has been postponed until Dec. 29.

Receiver for Line in Pennsylvania.—Walter C. Graeff has been appointed receiver of the Ephrata & Lebanon Street Railway, Lebanon, Pa., operated by the Ephrata & Lebanon Traction Company.

Seeks to Issue Stock—The West End Street Railway, Boston Mass., has petitioned the Massachusetts Department of Public Utilities for permission to issue $2,700,000 of thirty-year 7 per cent bonds to refund a similar amount maturing Feb. 1, 1922.

Paving Assessment Upheld. — The Supreme Court of North Carolina has affirmed the right of Durham to collect $102,942 from the Durham Public Service Company as its part in the pavement of Main Street, on which the company has a street railway line.

Abandonment Authorized. — Permission has been granted to the Hopatcong Shore Railroad by the Board of Public Utility Commissioners to abandon its line and to sell its property and assets. The corporation was organized in 1911, but discontinued service on Sept. 7, 1917. The line provided passenger service between the Morris County Traction Company's terminus at Landing and Bertrand's Island, Lake Hopatcong, a distance of approximately 2 miles. In its petition the company set forth an operating loss of about $5,000 from 1911 to 1917, exclusive of any return on either stock or bonds.

Maturing Bonds Extended. — Announcement has been made by Dillon, Read & Company, New York, N. Y., that the $5,000,000 first consolidated mortgage bonds of the Minneapolis (Minn.) Street Railway, issued jointly with the Minneapolis, Lyndale & Minnetonka Railway, and which mature Jan. 15, 1922, have been extended to Jan. 15, 1925, with interest at the rate of 7 per cent from Jan. 15, 1922. They will be secured by the original lien. Bondholders are offered the privilege of extending their bonds to Jan. 15, 1925, bond for bond, with the payment to them of $10 for each bond.

May Resume Interest Payments.—The improved financial condition of the Third Avenue Railway, which, according to the last statement of the treasurer, had $1,770,871 in cash and $1,419,000 in Liberty bonds and United States certificates of indebtedness, led President Huff to state that, if normal improvement continues, the resumption of interest payments on the company's adjustment income bonds might be started within the next few months. It is the policy of the company to keep a large surplus on hand to meet such conditions as arose last winter when the interest on underlying bonds could not be paid by the current earnings.

Stock Issued for Power Plants.—The Indiana Public Service Commission issued an order recently approving the issuance of $4,500,000 of common stock and $1,250,000 of bonds by the Indiana Hydro-Electric Company to finance construction of electric power plants to utilize water power of the Tippecanoe River in northern Indiana. The company is to issue $1,125,000 of stock at once to finance the construction of the first unit at Norway, near Monticello, county seat of White County. The company is backed by Eastern capitalists and by the Insull interests. Governor McCray has instructed R. Lieber, director of the state department of conservation, to make an investigation of the plans of the company.

Court Fixes Status of Bonds.—Federal Judge Mayer has answered the request for advice made by counsel for the Guaranty Trust Company, trustee of the first mortgage of the New York (N. Y.) Railways, as to what property of the defendant was covered by the mortgage. This information was needed in the foreclosure proceedings instituted by the trustee. Judge Mayer found that the most valuable assets of the company, the franchises and equipment, together with odd items, were subject to the lien and then, summarizing the various properties owned by the railways, said the property, consisting of stock of the various companies in the system, should be held for the benefit of the general creditors. Judge Mayer said his opinion on the various properties at this time could be considered only as advisory because of the many other undetermined questions that must be answered before a final decree was entered.

Traffic and Transportation

Fare Increases Denied

California Commission Says Further Advances at San Jose Would Drive Business to Autos

Expressing its belief that increased fares would reduce earnings by driving travel to the automobile, the Railroad Commission of California on Nov. 30 denied the applications of the San Jose Railroads and the Peninsular Railway for 10-cent fares in San Jose and Palo Alto. The companies also proposed a 7-cent token fare when five are bought at one time. Both lines desire to increase school children's commutation fares and to make a number of minor adjustments. The present city fare is 6 cents. The Peninsular Railway did not ask any increase in its interurban fares or freight rates.

Both lines are owned by the Southern Pacific Company. San Jose Railroads operates local service in the city of San Jose, the town of Santa Clara and in unincorporated parts of Santa Clara county. The Peninsular Railway operates electric interurban service, passenger and freight, between San Jose, Palo Alto and Los Gatos. Local service is also given in San Jose on the Naglee Park Line and between Palo Alto and Stanford University.

The commission recommended to the San Jose Railroads that it put into effect service and other recommendations, made by the engineering department of the commission after a survey, and expressed the belief that the revenues of the road would continue to increase with the growth of the community. The company claimed a net loss of $89,432 for the nine months ending Sept. 30, 1920, but it was pointed out by the commission that this interest on a funded debt of $2,423,000 issued against a historical reproduction cost of $1,523,933.

The commission proceeded to point out that applicant's so-called financial requirements are not a proper basis for computing rates, adding, that the company under existing rates is making a substantial operating income. In referring to the future prospects of the road the commission said:

> While there has been no apparent increase in business this is, no doubt, a temporary condition. San Jose has a good record of growth in population, with no indication that such growth has been arrested. The number of passengers and revenues should increase; operating expenses because of declining costs of labor and materials should decrease. The estimated net income of over $84,000 is greater than that of any year except 1913 and 1914, before the general use of the private automobile. Returns in the future, then, should be greater and not less than 5.55 per cent.

In the case of the Peninsular Company the commission pointed out that the Palo Alto city lines which are operated separately from the interurban system are earning 8 per cent on the company's own valuation and with economies a return of 9.5 per cent is possible. The commission declared that patrons of the line between Palo Alto and Stanford University should not be compelled to pay a higher rate in order to enable the company to make a small increase in its net return on the investment of its entire system.

The commission declared that it could not subscribe to the doctrine advanced by the railroads that they had a right to assume the risk of loss of business through increased fares. On this point the commission said:

> When rates are too high, they not only retard and reduce the earnings of the carrier but result in loss to the traveling public, who either go without the service entirely or turn to the other channels of travel. In a situation of this kind it becomes the duty of this commission to deny increases in fares which we believe would have the effect of further reducing passenger earnings by driving travel to the automobiles.

United Railways Asks Fare Extension

Continuation of the 7-cent fare is asked in a petition of the United Railways & Electric Company, Baltimore, Md., filed with the Public Service Commission on Nov. 29. The order for a 7-cent fare will expire on Dec. 31, and the company asks for its extension until the order "shall be further modified, extended or repealed."

The rulings of the commission in 1919 state that the company's rate should be such as to yield a net surplus not exceeding $1,500,000 and not less than $1,000,000. The company points out that its net income for the ten months ended Oct. 31 was $475,445 which would indicate a net balance to surplus for the entire year of 1921 of $609,870. This amount is $1,045,772 less than one-half its fixed charges for that year and $390,130 less than the minimum of $1,000,000 allowed by the commission, based on the fixed charges of 1919.

The decline in passenger traffic is laid to the recent depression in business. Revenue passengers for October of this year showed a 10 per cent decline as compared with those of October, 1920.

Commission Against 10-Cent Fare

The Interstate Commerce Commission in decision of Nov. 3, 1921, just published, holds that the 10-cent passenger fare between Louisville, Ky., and New Albany, Ind., on the lines of the Louisville & Northern Railway & Lighting Company, was unreasonable and that the 10-cent rate for the future will be "unreasonable to the extent it exceeds or may exceed 10 cents per passenger for a single trip and a commutation fare of 9 cents per passenger upon the purchase of not exceeding twelve tickets."

The case was called to the attention of the Commerce Commission by the complaints filed by the city of New Albany on Dec. 17 and 18, 1920. At that time the defendant corporation operated two separate and distinct division of interurban electric railway, but since the hearing, the Interstate Public Service Company, an Indiana corporation, has acquired all the rights and property of the defendant company. In March, 1919, the fare was increased from 5 to 7 cents between Louisville and New Albany, and in 1920, a 10-cent cash fare was instituted and no commutation tickets were sold. The total distance of the route was 4.76 miles.

Routing for Kansas City, Kan., Before the Court

After many meetings and many delays it now appears that the original routing suggested by John A. Beeler for the Kansas City Railways will be adopted for use in Kansas City, Kan., with slight modifications. The whole matter is now before the courts as the result of the rejection by the Board of City Commissioners of Kansas City, Kan., on Nov. 3 of all four plans of rerouting presented from time to time during the last several months by the Kansas City Railways. At that time Francis M. Wilson, one of the receivers, said:

> I cannot say what we will do now, but it is a general practice for the receivers to ask the advice of the court when they have proceeded as far as they can along any one certain line and failed to obtain results. We very likely will ask the advice of the court in the matter, as we have done all that we can do. We tried earnestly to adjust the matter to the satisfaction of all parties concerned and to give to Kansas City, Kan., the same high-grade service we are giving to Kansas City, Mo., obtaining desired economies at the same time. It is apparent from the vote of the commissioners we have failed.

Later Mr. Wilson carried the case to the court. A hearing was held before Judge Kimbrough Stone in the federal court at Kansas City, Mo., on Nov. 25. F. G. Buffe, general manager of the railways, answering a question as to which plan the company preferred, produced the revised Beeler proposal, decided on by the company on Nov. 23. He said that the Beeler plan, with some modification, would allow the company to put into effect some of the economies it has desired to put into practice and still give the people first class service. Mr. Buffe explained the Beeler plan would save the company $147,000 a year.

It was declared by both Mr. Buffe and Mr. Fennell, the traffic manager for the company, that operation of a modified Beeler plan in Kansas City would eliminate about thirty cars a day. Their explanation was that cars would be transferred from points where the travel was light and pressed into service where travel justified. Both insisted no cars would be transferred to relieve Kansas City, Mo., traffic.

Throughout the hearing Judge Stone indicated the liveliest interest in the points raised and gave particular attention to the matter of checks and suggested turnbacks and changes in routes, all plans therefore being discussed. He said:

> In the last analysis, rerouting of the street cars, if done at all, must be by the balance of two factors, one of which is proper service of the public and the other economies in the operation of the property.

Judge Stone questioned officials of the railway closely relative to routes, character of travel over them and of comparative importance of localities, residential and business, as relating to both Kansas City, Kan., and Kansas City, Mo., showing especial interest in theories advanced as to possibility of a greater and more rapid growth for Kansas City, Kan., along lines suggested under the original Beeler plan.

Favors Bus Franchise — Geneva (N. Y.) Chamber of Commerce recently adopted resolutions favoring a franchise permit by the Common Council to the Geneva and Auburn bus line. The proposed line is to operate between Geneva and Waterloo.

Argument Completed in Chicago Case

Burden of Proof in Fare Reduction Proceeding Placed on Illinois Commerce Commission—Wage Question Injected in Hearing

The 8-cent fare still prevails on the Chicago Surface Lines, and hopes of immediate dissolution of the injunction writ against the restoration of a 5-cent fare did not look bright at the close of arguments in the United States District Court on Dec. 2. Attorneys for the companies, the commission, the city and the Attorney General spent the day in presenting their side of the case before Federal Judges Baker, Carpenter and Page. They were told to file briefs by Dec. 8, after which the matter would be taken under advisement.

THE judges announced early in the proceedings that the only point of interest to them was the question of the sufficiency of the 5-cent fare and they cut short the city's legal representative whenever he attempted to wander into other phases of the situation.

Judge Baker presided. He made the caustic comment at the close that if the city and state were really solicitous of the interests of the car-riding public the city would forego "levying a tax" by having the companies collect 55 per cent of the net earnings. "Street car fares," he said, "should be the rate which would enable the company to pay its operating costs and leave an honest return on a fair valuation. That is the total amount passengers should be required to pay."

Judge Baker said that, in addition to this, Chicago is putting on a special and discriminatory tax and requiring the companies to collect it for them. If Chicago wants this extra money it should collect from the proprietors of stores, not from the clerks in the stores and other riders who do not enjoy the use of private automobiles.

Another pointed comment was made by Judge Baker on the matter of rate of return. "Why should not the companies be held to the 5 per cent limit of return fixed by the ordinances?" inquired Attorney Cleveland for the city. "Because the United States Constitution says nothing about 5 per cent," answered the court. Attorney Cleveland had also made reference to the overcrowding of cars and its possible result in damage claims against the companies.

The commission had evidently taken this point of view in declaring that the present payments of the companies for damages were extravagant and should be cut in half. "The burden is on you to point out facts," said Judge Baker, "not to make nebulous statements. Where in the record is there a figure to show that the claim department paid more than ought to be paid by a prudently, efficiently managed claim department?" The city lawyer was silent on this subject.

Attorneys for the company, however, had taken advantage of the suggestion by filing an affidavit from Joseph V. Sullivan, assistant to the president, showing that the commission had come to this conclusion without any evidence, whereas figures which he produced showed the Chicago companies were paying out less than other large properties both in per cent of gross earnings and in cost per 1,000 passengers carried.

By the court's ruling, the positions of the city and the companies were reversed. By the companies' flat challenge to the city to prove a single finding by the commission which was based on evidence, the court held that the burden of proof had been shifted to the city. An unusual event during the hearing was the appearance of Frank L. Smith, chairman of the commission, whose order was under review. He insisted on explaining the reasons for the order.

Mr. Smith stated that the commission in arriving at its decision considered not only whether a fair return on capital was to be allowed, but whether a rate of return for improvident management should continue to be maintained. The judges made it plain that all they were interested in was whether the 5-cent rate was confiscatory, not whether the 8-cent fare was excessive, and that the commission should have shown in dollars and cents how savings could be made sufficient to offset the loss of $23,000,000 in revenue which would follow a reduction of 3 cents in the rate per passenger.

Attorney H. E. Wood, for the commission, cited some of the data which the commission had in mind to make up this total, but all he presented at the hearing amounted to about $10,000,000, which included about $5,000,000 allowed each year for renewals.

The court said that apparently the commission wanted the companies to experiment with a 5-cent fare while endeavoring to reduce costs. "Evidently," said Judge Baker, "because you believed the companies committed misfeasance under their contracts and because they violated service orders of the commission, they were to be punished by rate less than compensatory."

While the temporary order of the court continues in force, transfers are being issued as rebate slips. It is said that not a great proportion of riders insist on getting a final transfer to be held for this purpose.

Throughout the hearings before the Illinois Commerce Commission, the city's representatives and the commissioners refused to be led into a suggestion that wages of employees of the Surface Lines be reduced. They, therefore, had difficulty in making a showing before the federal court as to how a large saving could be made.

A few days after arguments had been concluded one of the newspapers announced apparently with authority that the commission contemplated a direct cut of $5,176,000 in wages when it entered the order. The total possible savings considered by the commission, according to the newspaper in question, were listed as follows:

Savings	Amount
"Layover" time	$1,740,000
Official and other salaries	1,014,000
Maintenance	451,000
Materials	900,000
Renewals	4,853,000
Damages	1,000,000
Rerouting, new cars, wages	6,177,000
	$16,135,000

It was made plain by the federal judges that the city lawyers would have to show from the record that such savings could be made. It developed during the hearing that the city and the commission were not in agreement on several of these items.

Advance of New Jersey Case Asked

The Supreme Court of the United States has taken under advisement the motion of Attorney General Thomas F. McCran and the Board of Public Utility Commissioners of New Jersey to expedite the argument on the appeal of the commission from the 8-cent fare recently granted to the Public Service Railway by the special statutory court.

The motion of Mr. McCran was filed with the clerk of the court on Dec. 6. Frank Bergen, general counsel of Public Service Railway, in reply, filed a memorandum, which stated that the railway was as anxious for an early determination as the utilities board, but it would ask the court, in disposing of the motion, to allow a reasonable time to prepare for the argument. Mr. Bergen said this could not be characterized as opposition to Mr. McCran's motion to advance, but merely an insistence that the cause be not unduly rushed.

In his brief on the motion Mr. McCran first sets out the facts of the controversy between the Public Service and the Utilities Board, up to and including the action of Judge Rellstab at Trenton in naming former Judge Haight to take testimony and to make a report to adjudge whether the preliminary injunction ordering the 8-cent fare to be put into effect shall be made permanent.

Reduce Service to Lessen Deficit

The Columbia Railway, Gas & Electric Company, Columbia, S. C., which during the first ten months of 1921 suffered an operating loss of $91,000, has petitioned the City Council to discontinue service on Gadsden and Richland Streets, which connect Elmwood and Main by way of the Governor's mansion.

Officials of the company, in advertisements in the daily papers, have set forth the problem the company faces, and have asked for the co-operation of the citizens in solving the financial difficulty. This the company hopes to do without resorting to increasing the fare to 10 cents. F. H. Knox, president of the Columbia company, said that the installation of one-man cars would hardly relieve the situation because of the heavy expenditure, and that the company hoped to avoid a drastic reduction in wages of the employees.

All the lines of the company showed a loss in October.

Railway Wants Permanent Fare Settled

The Duluth (Minn.) Street Railway has petitioned the State Railroad & Warehouse Commission to set a date on a hearing for a permanent fare. Engineers for the city and the company have completed their valuations.

The actual valuation and a fair rate of return will probably be argued at length. Under the law passed last winter, the permanent fare must allow the company a fair return on its valuation.

Monthly Pass for Joliet

Ten-Cent Cash Fare Retained but Lower Rate Authorized for Regular Riders

The present 10-cent cash fare of the Chicago & Joliet Electric Railway in Joliet, Ill., is to be reduced for the regular patron by the addition of a monthly pass selling for 75 cents which will entitle the holder to ride upon paying a 5-cent cash fare. There will be no advantage in the monthly pass to anyone who rides only sixteen times a month, but if a person rides fifty times in a month, the average rate of fare will be 6.5 cents and 5.75 cents if 100 rides are taken in a month.

J. R. Blackhall, general manager, applied for this reduced rate of fare for the regular riders on the morning of Dec. 1 and the Illinois Commerce Commission heard the case and entered an order approving the same day. Mr. Blackhall estimates that with an increase in traffic of 5 per cent over that of 1921 on the Joliet city lines, and with the probability that 25 per cent of the total fares will be on the ticket plan and resulting in an average fare of 7 cents, which is conservative, the revenue of the company from transportation will be reduced approximately $50,000 as compared to 1921.

Mr. Blackhall comments that notwithstanding a large deficit from operation of the property this year, he felt that some concession would have to be made to the regular riders on account of the reductions in wages of from 10 to 25 per cent that have been made in the past several months. If the gross earnings from operation for 1922 are approximately the same as for 1921, it will require a reduction of $100,000 in the pay roll and $100,000 in all other operating expenses to make it possible to earn the fixed charges.

The contract with the organized employees of the company was entered into July 1, 1921, and expires this Dec. 31. A reduction of 5 cents an hour was made on July 1 and it is now proposed to make a further reduction by Jan. 1. A 20 per cent reduction in wages would be necessary in order to effect a reduction of $100,000 for the year in the pay-roll expense.

New Routing and Fare Collections in Effect

During the negotiations for the service-at-cost franchise in Youngstown, Ohio, the City Council, acting upon the advice of its street railway expert, decided that all railway lines in the city should terminate at the Public Square, thereby dividing the city, so far as electric railway service was concerned, into four distinct sections, namely, north, south, east and west.

This method of operation was continued until Nov. 27, 1921. On that date the Youngstown Municipal Railway, operating the lines in Youngstown, placed in service twelve additional Birney one-man safety cars and routed three of the lines operating on the west side of the city through to the easterly section of the city.

Prior to that date the fares had been collected on the inbound trips as the passengers entered the car and on the outbound trips as the passengers left the car. This method of fare collection was very simple and easily understood by the public, but when the cars were through-routed it became necessary to devise a new system of fare collection. It was suggested that a trial be made of the "pay-as-you-leave" system on through-routed cars, and after considerable investigation and discussion this system was placed in effect and is working out satisfactorily.

Commission Ends Long Time Litigation

The Pennsylvania Public Service Commission recently handed down a decision establishing a 7-cent fare for the Reading Transit & Light Company in Reading, Pa. The order also allows eight tickets for 50 cents. Patrons in Reading have been fighting for a 5-cent fare.

The commission at the same time upheld the 9-cent rate on the Norristown division, dismissing the complaints of residents of the Twenty-first Ward.

Asks Reduced Fare Schedule

The Empire State Railroad Corporation, operating between Auburn and Syracuse, N. Y., whose rates of fare are fixed by an order of the Public Service Commission which runs out on Dec. 31 of this year, has filed a new schedule of rates with the commission, asking that the new schedule go into effect on one day's notice.

In its new schedule so filed it asks for a reduction in its city fares from 8 cents to 7 cents and in fares from Auburn to Owasco Lake of from 10 cents to 7 cents. The order requested by the company will be granted by the commission this week. This is not a general reduction in fares but a change in the fare schedule.

More Passengers at Five Cents, but Greater Operating Loss

With an increase of more than 100,000 passenger fares, there was a decrease of $6,470 in receipts on the lines of the Bridgeport division of the Connecticut Company in the first week of the 5-cent fare with transfers.

The report sent to the Public Utilities Commission by L. S. Storrs, president of the company, is as follows:

The following is a statement of the operating results of the Bridgeport Division for the week ending Nov. 26, being the first week under the fare test as compared with revenue on like days for the preceding week in which at flat 10-cent fare was charged, this covering the entire revenue of the Bridgeport Division.

5-Cent Fare		10-Cent Fare	
Nov. 20	$3,570	Nov. 13	$4,479
Nov. 21	$4,800	Nov. 14	$5,903
Nov. 22	$4,847	Nov. 15	$5,490
Nov. 23	$5,266	Nov. 16	$5,722
Nov. 24	$3,761	Nov. 17	$5,641
Nov. 25	$4,998	Nov. 18	$5,568
Nov. 26	$5,554	Nov. 19	$6,455

During the periods we carried a total of 406,659 5-cent passengers and 125,672 10-cent passengers.

Of course, it is impossible to compare the number of passengers carried, for during the 10-cent fare period every individual riding within the 10-cent fare area within the city of Bridgeport was counted as a single passenger, whereas under the present scheme it is quite possible that many of the individuals are counted twice by reason of the fact that they have crossed the fare limit in the center of the city.

You will note that the revenues show a decrease of $6,461 over the revenues obtained for the preceding week, and as revenues heretofore obtained have been insufficient to pay operating costs, the result of this first week's test is materially greater losses sustained by the operation of the street car service in this community.

Court Divided on Jitneys

New Jersey Tribunal Split on Question of Property Rights of Electric Railway

The refusal of the Court of Chancery to restrain the operation of jitneys in New Jersey in three test cases brought by the Public Service Railway was upheld by the Court of Errors and Appeals on Dec. 2 by a divided vote of seven to seven.

In refusing the injunction sought by the railway Vice-Chancellor Griffin held that the Public Service Railway, not having an exclusive right in the streets, had no standing to ask for injunctive relief. The unusual situation of an affirmance of that ruling by an equally divided court precludes any majority opinion by the Court of Errors.

JUDGE MINTURN EXPLAINS

Justice Minturn, however, who voted to reverse, filed an opinion concurred in by Chief Justice Gummere, Justice Bergen, Justice Katzenbach, Judge Heppenheimer, Judge Williams and Judge Gardiner, all of whom voted with him. The Minturn opinion expressed the view that the company occupies a legal status, entitling it to present its grievances to a court of law or equity and obtain a hearing. Judge Minturn said:

It is not contended that as against the state under its reserve power other forms and methods of transportation may not be inaugurated and utilized as progress and public necessity may require. But such a contention cannot be revoked by a mere trespasser (the jitneur), whose hands are soiled with usurpation, and who, in defiance of the provisions of the law recognizing and regulating his business, raises this question against a legitimate State agency.

The impression seems to have gained ground rapidly with the public that the decision settled the question as to the right of the buses to operate in the public streets without having secured a franchise under the limited franchise act. What the Court of Errors passed upon was not the rights of jitneys, but whether the Public Service Railway, because of its franchise to do business, had the right to challenge the jitneys in the courts.

The fact is that the application of the Public Service Railway for an injunction against certain jitney owners on the ground that they were operating illegally and were competing against the railway came before Vice-Chancellor Griffin originally. He merely reached the decision that the Public Service Railway had no standing in court—that is, that the company had no property right involved that warranted it in asking for the injunction. No other legal question that had been raised in the litigation was passed upon by the vice-chancellor.

VERDICT A NEGATIVE VICTORY

In this connection it is explained:

The one question that came before the Court of Errors on appeal was whether the vice chancellor's decision as to the right of the Public Service Railway to seek an injunction was correct. It was on this question that the fourteen members of the state court of last resort who voted were evenly divided. One-half of them believed that the railway had a property right that was necessary to sustain the injunction proceedings, and the other half took the opposite view.

Unless there should be a request for a reargument of the case, these proceedings are at an end, and if the legal points raised are to be decided some new method of bringing them before the courts must be tried. As the case now stands, the railway has suffered a defeat, while the jitneys have won a negative victory that may later be reversed.

New Bus Line Operates in Toledo

Does Not Parallel Railway Lines, but Other Companies in Direct Competition

A new bus line began service in Toledo, Ohio, on Nov. 28, operating on streets not served by trolleys. Six owners form the operating company, which will provide six-minute service from 5 o'clock in the morning till midnight. The route to be covered extends from Detroit and Bancroft Streets to Detroit and Buckingham, to Junction, Belmont, Ontario, Monroe, Superior, Adams, Summit, Monroe and return. At several points the route crosses car tracks. Those in the operating company are H. A. Schmuhl, C. F. Daine, Ralph Streeter, Burdell Taylor, Otto Steve and John Andrews.

Before the new bus service was installed sixty-five buses were operating in Toledo. They quite generally duplicate trolley service and follow almost the identical routes. Buses charge a 5-cent fare and give no transfers, while the electric railway charges 7 cents and gives transfers for 1 cent. Interurban buses are also competing strongly with the electric railways, radiating from the city.

The Toledo Bus Transportation Company was recently organized to unite a number of bus drivers. Busmen have thrown their equipment into the company and received stock in the company equivalent to the value of the equipment they contributed. Operation has been directed from central offices and revenues and expenses managed centrally.

The Monroe-Lincoln-Bancroft route of this company serves a community which is only partially taken care of by the electric railways. It has been successful from the start. It was fostered in the beginning by real estate interests. The success of this route has led officials of the Toledo Bus Transportation Company to declare that they do not intend a warfare with the electric railways, but rather would seek to develop new routes of their own.

City and electric railway officials estimate that the buses which do operate on streets where there are railway lines carry approximately 15,000 passengers daily and divert $30,000 a month from the revenues of the railways.

The new passenger bus of the Ace Motor Bus Company, Newark, Ohio, is now in operation between Toledo and Sylvania and in direct competition with the Toledo & Western Railroad. The receivers for the electric railway reported in the federal court that the inroads of the buses had reduced their gross receipts about 30 per cent.

The Commissioner of Street Railways, Wilfred E. Cann, has appealed to the city administration several times to enforce the bus regulations, which he claims are violated every day and by most of the bus drivers. Only two or three violations have been reported by the police.

It is generally believed that the new administration is more favorable to limited competition between the two methods of transportation. Mayor Schreiber, the outgoing Mayor, fought the traction interests through ten years of connection with the city government, and it is felt that his leniency has made possible the infractions of the ordinances against overloading, schedules and routes.

The buses used are not uniform. Many are converted from truck chassis while a few are modern, newly built buses.

Bus Advertising Centralized

In northern New York State all motor bus advertising is taken care of by one company. This company, the Rochester (N. Y.) Bus Line Advertising Corporation, has exclusive advertising privileges for a period of years in all motor buses operated in intervening territories from Niagara Falls and Buffalo, on the north and west to Watertown and Binghamton on the south and east. The buses in this territory are being equipped with advertising sign racks so as to carry the standard size street car advertising card. The company reports that it will soon start solicitation for advertising to fill these places and that it will not only attempt to sell to the merchants in the town through which the buses run, but will go after national advertising. Information on hand indicates that this company can reach 102 different towns by means of its advertising service.

Motor Buses in Columbus, Ohio

The Ohio Motor Bus Company, with offices at 30 North Water Street, Columbus, Ohio, operates a bus line between Columbus and Westerville, a village about 15 miles northeast of the city. Three buses are in operation and they have been successful from the start. The president of the company is T. C. Robinson and R. E. McCullom is general manager.

Another route is operated on East Broad Street, Columbus, connecting the business center with Bexley, a suburb. Four buses are operated on this line and an 11-minute headway is maintained. It is understood that at first the buses were not financially successful, but in October, 1921, they had become able to earn the cost of service. The buses were manufactured by the American Motor Truck Company, Newark. They are known as the "Aces." The bodies are built by the same concern, but have been especially designed for use in the Buckeye capital and have a capacity of 30 passengers without crowding. The entrance is at the front opposite the driver, who collects the fare.

After a service of six weeks the four buses on East Broad Street were carrying about 60,000 passengers per month. The Westerville line, which charges 20 cents each way, or 18 cents when tickets are brought, is somewhat cheaper than the traction line operating over the same route. The fares on the East Broad Street line are 5 cents straight to Franklin Park and 10 cents to Bexley or intermediate points.

The Columbus Coach Company, another Columbus concern, on Sept. 23 started a twelve-minute service on Bryden Road. This route is about 3 miles long and serves streets not covered by electric railway routes. The same type of buses is used on this line as that used by the Ohio Motor Bus Company. The fare is 5 cents. John B. Gager is general manager of the Columbus Coach Company, which is a partnership.

These two motor bus concerns maintain a large garage and service station at 564 East Mound Street, where the buses of the two companies are stored.

Restricted Bus Service Discussed

Los Angeles Hearing to Settle Dispute between Pacific Electric and Interurban Lines

Curtailment of the interurban service of motor transport companies which have competed stiffly with the Pacific Electric Railway, Los Angeles, Cal., will be discussed by officials of the affected cities and the railway and engineers of the California Railroad Commission. The conferences were arranged for at the hearing before the California State Railroad Commission at Los Angeles, Nov. 14, 15 16.

The Pacific Electric Railway claims that 60 per cent of the business developed by the bus lines in competitive territory takes $2,000,000 annually from the railway.

At the hearing the commission's engineers presented a report recommending that the Pacific Electric supplement the present trolley service with motor transportation, and in some cases substitute motor service entirely. The company made known its intention to institute such service in more or less new territory or as extensions of present trolley routes and as feeders to existing rail lines. In some cases it will amount to giving additional service to people now using rail lines but who go some distance to reach them.

The report of the commission's engineer, Richard Sachse, stated that it would be impossible to dispense with service on electric lines running between the outlying cities. Traffic would block a fleet of motors during rush hours and delay the schedule. Moreover, it was brought out that the greater carrying capacity of the large type of electric interurban car, the quicker service possible in getting out of the cities on a private right-of-way and the better facilities of permanent terminals favor the continuation of the electric lines.

A further argument brought against the motor bus was that it was of doubtful economic service because of the small investment and the lack of standardization of buses.

Mr. Sachse stated that municipalities wishing to keep the Pacific Electric alive must decide at an early date to what extent they are willing to curtail motor transportation activities.

Motor carriers claimed in their protest filed with the commission that they were unfairly represented by the commission in its engineers' report and stated to the commission that when bus lines give a service that electric lines cannot give or when they come into competition with electric lines and give lower rates than the electric carrier they should not be interfered with by any governing body.

The commission does not have jurisdiction over jitney operation in any particular city, but it does have control over autos doing intercity business and has been trying to figure out for some time how best to deal with the intercity lines. There were in existence, before the law regarding auto stage service in the State went into effect, nineteen buses running between Sawtelle, Santa Monica and Venice in competition with the electric railways. These were automatically left in business, but persons since then establishing bus service between cities have had to obtain certificates from the commission.

Buses Operated by Toronto Transportation Commission

The Toronto Transportation Commission, which on Sept. 1, 1921, took over the entire transportation system of the Toronto (Ont.) Railway, has begun to operate vehicles other than those which run on rails. A motor bus line has already been opened up in the northeastern part of the city over Hummberside Avenue on which eight buses will be necessary to take care of the traffic.

The commission announces also that it has placed an order for four Packard-Brill trolley buses using Westinghouse Electric equipment throughout. The route over which these vehicles will be operated is approximately 1.25 miles long and extends from Yonge Street, North Toronto, where connection is made with the Metropolitan Division of the Toronto & York Radial Railway, east through Merton Street and thence north out Pleasant Road as far as Eglington Avenue, east.

This route is over a newly bound macadam road and will serve a territory not otherwise reached. Free transfer arrangements are to be made with trolleys so it will be possible to ride over any part of the whole system of the Toronto Transportation Commission upon payment of a single fare. Temporary housing facilities are being built on Merton Avenue.

Poughkeepsie to Improve Bus Terminal Service

The Retail Merchants' Association at Poughkeepsie, N. Y. is considering plans for improving the bus terminal service in the city by the enlargement of the waiting room and the addition of all needful services and conveniences. The plan is to move the present waiting room back into an addition which is now being erected and to fit up the basement underneath to form a part of the general waiting rooms. The terminal is located on New Market Street and Main.

The bus companies are to co-operate by assuming a part of the necessary expense of fitting up the new station and maintaining it, and an agreement will probably be established by which the buses may line up at the curb underneath a shed or coping where passengers boarding or alighting from the buses will be protected from the weather. The directors of the Chamber of Commerce have approved the general plan.

Bus Company Files Objections to Ordinance

Action against the city of South Bend, Ind., to restrain it from putting into force a city ordinance passed on Oct. 24, naming certain streets preferential traffic streets, was filed by the Elkhart & South Bend Bus Company in Circuit Court recently. The suit also asks that the new ordinance be declared null and void.

The complaint holds that the ordinance is discriminatory in that it provides that certain streets over which electric railways operate shall be preferential traffic streets and that taxis, jitney buses and other buses operating within the limits of the city may use the streets, but that the interurban bus company is barred therefrom.

The suit also sets out that a license fee of $500 is unreasonable.

No 5-Cent Fare for Lowell

Lowell, Mass. need not expect a 5-cent fare, though Fall River now rides twenty times for $1. This is the attitude of Homer Loring, chairman of the trustees of the Eastern Massachusetts Street Railway, which was expressed in a letter to Mayor Perry D. Thompson of Lowell. The deficit of $82,329 for the period from Jan. 1, 1920, to Nov. 1, 1920, will not permit a fare reduction in Lowell, but Fall River, with a surplus of $62,865 for the same period, could stand it, Mr. Loring said.

Transportation News Notes

Jitneys Charge Six Cents.—A 6-cent fare on jitneys operating in Houston, Tex., became effective on Nov. 21. This was the first step in the plans of the city to improve transportation facilities. A 5-cent fare is now charged by the Houston Electric Company with twenty tickets for $1. This change was referred to in the ELECTRIC RAILWAY JOURNAL for Dec. 3.

Separate Bus and Trolley Routes.—Except in minor instances, bus routes will not duplicate trolley routes in Decatur, Ill., according to the recent announcement of the City Council. Final announcement of the streets on which buses may operate will soon be made, and thereafter the Commerce Commission will probably issue certificates of convenience, it is said.

Wants Approval for Buses.—An application has been filed with the Common Council of Syracuse, N. Y., by C. R. Winslow for approval of seven different auto lines. Mr. Winslow proposes to establish bus lines at once from Oswego to Syracuse, Watertown to Syracuse, Rome to Syracuse, Ithaca to Syracuse, Geneva to Syracuse, Norwich to Syracuse and Cato to Syracuse.

Bus Travel Increases.—Buses in Camden, N. J., carried 59,040 more passengers in October than in September, according to figures obtained from City Treasurer George A. Frey. Reports showed jitneys carried 446,717 persons in September and 505,757 during the month of October. Members of the Camden County Bus Association are elated over the increase in patronage on their buses.

Red Versus White.—The State Road Commission of West Virginia, has taken under consideration the application of Toney Alloy and Walter Moore, of Beckley, for a license to operate a line of buses between Beckley and Thurmond to be known as the Red Star line. Their application was contested by counsel for J. Queensberry and Walter Holliday, who are operating a line of buses between the same points under the name of the White Star line.

Fourth Bus Line Started in Hartford.—The Connecticut Company, New Haven, Conn., beginning Sunday, Nov. 27, at Hartford started another bus line, making the fourth such service to serve the city. The new line is from Barnard Park, the south central part of the city, to the Connecticut Institute for the Blind. It is a two-hour schedule most of the day, buses leaving the institute at 6.30 a.m., 8.30 a.m. and then every two hours until 6 p.m.

Lower Fares in Effect.—Reduction of passenger fares amounting to 40 per cent effective after five o'clock in the evenings was put into effect on the line of the Indiana Railways & Light Company, Kokomo, Ind., about Dec. 1. Under this reduction fares will be based on a rate of 1.8 cents per mile and will be good only on round trip tickets. The purpose of putting this reduction into effect is to stimulate evening traffic and will benefit farmers and many others.

Railway Complains of Bus Operation.—The Southern Pennsylvania Traction Company, Chester, Pa., has protested before Public Service Commissioner Benn against the granting of certificates of convenience for the operation of buses in the company's territory. An official of the company stated that there were fifty-two jitneys operating in Chester which took about $120 a day from the railway. The matter will be referred to the commission.

Buses Serve as Feeders.—The Twin City Rapid Transit Company, Minneapolis, Minn., has decided to try out motor bus transportation as feeders to its railway system. The first bus began on Nov. 7 to serve suburban communities, with one fare and transfer service to electric lines. The company also has promised to try out a new type of motor bus running on paved streets without rails on any street which the Minneapolis City Council may designate.

Steam Line Adopts Motor Bus.—A new type of motor bus which runs on rails, self propelled, has been tried out by the Northern Pacific Railway on its branch between St. Paul, Minn., and White Bear Lake, a distance of about fifteen miles, with some twenty officials of northwest railroads as passengers. The experiment was highly successful and the White Bear road was selected because of its steep, winding grades. The bus is designed for branch lines and suburban traffic.

New Ticket Scheme in Effect.—Beginning Dec. 3, the Tacoma Railway & Power Company, Tacoma, Wash., placed on sale twelve car tickets for $1, in place of the present rate of twenty-five for $2. City Attorney Charles Dennis is investigating to find out if the State Public Works Department at Olympia authorized the change with slight boost in fares. The company announced the new ticket sale in a large display "ad," urging the public to "use the street car and save money."

Washington Bus Routes Granted.—Two motor bus companies in Washington, D. C., have been granted permission to open new routes by the Public Utilities Commission. The Washington Rapid Transit Company, by the grant, will operate from Union Station to Sheridan Circle on Massachusetts Avenue, and the Northern Virginia Motor Transportation Company will run buses from Fairfax, Va., to Twelfth and C Streets, over the chain bridge and through Georgetown. The latter can carry only passengers who intend to cross the District line. The Rapid Transit Company's route was changed to compete less with the existing electric railways.

Rerouting Deferred.—The Wisconsin Railroad Commission has issued an order granting the Milwaukee Electric Railway & Light Company an extension of time of ninety days to effect the rerouting in the Milwaukee down-town district of the Vliet and Third Street lines. This rerouting was to have gone into effect on Dec. 1, 1921. At the same time the commission announced that similar rerouting of the Walnut Street line will be postponed until the commission has had an opportunity to pass upon the application of the Milwaukee Safety Commission for a reconsideration of the commission's order in so far as it affects the routing of the Walnut Street line. The postponement in the case of the Vliet and Third Street lines was due to the inability of the company to get special work by Dec. 1. The original order of the commission was reported in the ELECTRIC RAILWAY JOURNAL of Oct. 22, page 757.

Fare Reduction Offered in San Antonio.—Fares in San Antonio, Tex., will be reduced from 8 cents to 6 cents under proposals made to the City Commission by the Public Service Company, which owns and operates the railway lines. The acceptance of the proposal by the city brings a settlement to a controversy that has been in progress between the city and the company over fares for several years. The company went into Federal court seeking relief from what it termed confiscatory fare regulation, and won its case. The 8-cent fare was the result. Since that time the city has been seeking by various means to force a reduction, and litigation on the part of the city to bring about the desired fare cut was in prospect. The company's proposal is contingent on the city stopping the operation of jitney buses in all parts of the city except to Camp Travis, which is not served by the railway. It is expected the reduction will become effective early in 1922.

City Prevented from Running Buses.—On the ground that it was to the best interests of the city to have only one transportation system, the Legislature of British Columbia on Nov. 26 refused permission to the city of Vancouver to operate motor buses. It was asserted by members that two transportation systems would be a calamity. Other members said that competition in city transportation would lead to the chaotic conditions there had been in Seattle. The leader of the opposition, W. J. Bowser, charged the members of the government party with playing the game of the British Columbia Electric Railway as this would give that company a perpetual monopoly, but Attorney-General Farris replied that the private bills committee lost interest in the city's petition when the rumor became current that the city did not really wish to enter into competition, but merely to hold its power over the head of the electric railway as a club. Another member asked the house to consider the effect on the credit of the province if the city were allowed to step in over the head of the electric railway. The city's petition was prompted by the railway refusing the demand of the residents of West Broadway for a railway line. The company has offered a motor bus service in connection with its railway system, provided the city will pave the street, an expenditure the city is not likely to incur at present.

Personal Mention

Mr. Brendel Promoted on Michigan United Railways

Wallace W. Brendel has been appointed superintendent of the Northern and Southern divisions of the Michigan United Railways, Jackson, Mich. Mr. Brendel assumed the position made vacant a short time ago by the resignation of Dean McLaughlin, who accepted a position with Ohio Brass Company.

Mr. Brendel's connection with the Michigan United Railways began in June, 1916, when he was appointed train dispatcher on the Northwestern division at Holland, Mich. He continued in this capacity for a year and a half, when he was made chief train dispatcher of the Southern Division at Battle Creek, Mich. It was from this latter position that he was promoted about a month ago to superintendent of the Northern and Southern divisions, which are composed of the interurban lines operating between Jackson, Battle Creek and Kalamazoo, and Jackson, Lansing and Owosso.

Before his connection with the Michigan United Railways in 1916 he was for several years in the service of the Union Traction Company of Indiana as train dispatcher. Mr. Brendel entered the service of that company in 1905 as a motorman.

Frank Adair a Division Superintendent

Frank Adair, Lebanon, Ind., has been appointed superintendent of the Ben-Hur division of the Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind., succeeding H. H. Arnold, who held the position for four years, recently resigning to accept another position. The appointment became effective Nov. 30. Mr. Adair has appointed Fay Caldwell of Lebanon as chief train dispatcher on the division. Mr. Adair will retain his residence there, but Mr. Caldwell has removed to Indianapolis.

Mr. Adair's appointment is a deserved promotion. He has been connected with the Northwestern division since its organization. Previous to that he was an operator with the Western Union Telegraph Company. He held the position of chief train dispatcher for several years, until he resigned to take charge of the live stock traffic department, which he will continue to manage, with E. G. Crane and R. R. Rogers as assistants.

C. Coxon has been promoted from meter superintendent of the Albany Southern Railroad to the position of chief engineer.

J. B. Webber, former treasurer of the Kankakee & Urbana Traction Company, Urbana, Ill., has been made secretary of the company, while his position as treasurer is now filled by U. G. Fowler.

E. F. Herrick, mechanical engineer, and Frank Miller, master mechanic, are no longer connected with the Chatauqua Traction Company, Jamestown, N. Y. J. Alson has been appointed chief engineer and C. F. Cole has been appointed electrical engineer.

E. W. Alexander, general manager of the Charleston & Dunbar Traction Company, Charleston, W. Va., has offered his resignation, effective Dec. 10. He will assume the position of general manager of the Tygart's Valley Traction Company, Grafton, W. Va.

William M. Crowe has been elected secretary of the Springfield Railway Companies, Springfield, Mass., following the resignation of F. P. McIntyre. This company controls the Springfield Street Railway, and is in turn controlled by the New England Investment and Security Company.

Charles K. Bowen, assistant engineer of the Pacific Electric Railway, Los Angeles, Cal., has been appointed special engineer of the Southern Pacific Railroad of Mexico. He will be associated with H. B. Titcomb, vice-president of the Pacific Electric Railway until he was recently made president of the Southern Pacific of Mexico. Mr. Bowen took up his duties with the chief engineer of the latter road on Dec. 5.

Obituary

Henry J. Davies Dead

Eminent Authority on Accounting Was Prominent in Solution of Cleveland's Traction Problem

Henry J. Davies, for thirty years connected with the electric railway transportation system in Cleveland, died Sunday afternoon, Dec. 4, in St. John's Hospital, where he had been confined for two weeks.

Mr. Davies' death will shock electric railway executives throughout the country as there are few men in the industry who did not have his acquaintanceship, due to his lengthy service with the American Electric Railway Association. Mr. Davies was one of the founders of the American Electric Railway Accountants' Association and served in the year 1902-03 as president of that body. A tireless and conscientious worker, Mr. Davies' name was always to be found on one of the important committees of the A. E. R. A. He was probably the most eminent authority on the subject of insurance risks in the railway industry.

In Cleveland he was, throughout his railway career, a dominant figure in assisting to supply this city with electric railway transportation. Much of the Tayler grant that ended ten years of street car warfare in Cleveland and which was the first service-at-cost franchise in the country was the work of his genius. He was the author of a monograph of the accounting features in this grant.

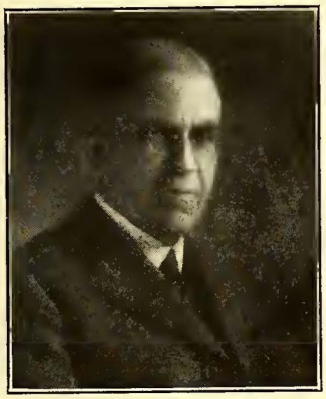
Mr. Davies was sixty-two years old at the time of his death. Born near Toronto, Canada, on July 26, 1859, he became a resident of Cleveland four years later when his family moved to that city. After being educated in the common schools of Cleveland he became a shorthand reporter and for a

number of years was an expert court reporter.

In 1889 Mr. Davies entered the electric railway business when he became private secretary to the late Tom L. Johnson, who was subsequently to be elected Mayor of Cleveland and to wage a bitter fight for a 3-cent fare in Cleveland. In January, 1890, Mr. Davies was elected secretary of the old Brooklyn & South Side Railway, Cleveland, Ohio. Two years later he was one of the hardest workers in arranging for the eleventh annual convention of the American Electric Railway Association, which was held in Cleveland that year.

The Brooklyn & South Side Street Railway was the first Cleveland railway to electrify and Mr. Davies took a leading part in promoting this electrification. In 1893, when the Broadway & Newburgh line, then operated by the late Horace Andrews and John J. Stanley; the East Cleveland Railway, owned by Dr. A. Everett and the Brooklyn line were merged into the Cleveland Electric Railway. Mr. Davies became secretary of the new company.

Between 1899 and 1901 Mr. Davies



HENRY J. DAVIES

was not engaged in the electric railway business, which was during the period when the Stanley and Andrews interests were out of the active operation of Cleveland lines. In 1901 he returned as secretary of the Cleveland Railway. As such he prepared much of the company's case in the negotiations that led up to the final settlement of the electric railway fight in Cleveland.

Mr. Davies was a contributor of a number of articles to the ELECTRIC RAILWAY JOURNAL on accounting and financial subjects.

E. F. Schaaf, superintendent of transportation Northwestern Elevated Railroad, Chicago, died of double pneumonia Nov. 13. He had been with the elevated railroads for nearly thirty years, entering the service first in 1895 on the Oak Park Elevated Railroad when the motive power was being changed from steam to electricity. He was transferred to the Northwestern "L" in the spring of 1900, about two months before this road was placed in operation. He was shop foreman and in charge of the mechanical work until 1903, when he was made inspector of motive power. In 1906 he was given the additional duties of roadmaster and in 1909 became trainmaster as well. He was made superintendent of transportation upon the installation of unified operation of the various elevated companies in 1913.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER, SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES BUSINESS ANNOUNCEMENTS

Resistor Deliveries Back to Normal Basis

Current buying of resistance grids on the part of electric traction companies is quite different from what it was at about this time last year. Manufacturers now have a fair supply on hand and deliveries are no longer a question of innumerable delays in the receiving of raw material by the manufacturers and of numerous interruptions in the various stages of production. The output of the different manufacturers is on a more normal basis since they no longer must contend with the difficulty in obtaining grey iron for castings. An analysis of individual orders placed by electric railways will reveal, it is stated, that traction companies, as has been their custom in the last few years, are placing orders which follow requirements very closely. In spite of small and numerous orders the aggregate demand is quite large.

Railway stocks of reserve grids are said to be low and even with cold weather at hand when the breakage and burnouts of resistors is very large, railway purchasing agents feel that the improved raw material, manufacturing and transportation conditions make it unnecessary to take the precautions required last year to prevent a possible shortage. It is quite probable that the actual requirements this winter will not be different from those of last year though apparently the more evenly distributed buying this year give the appearance of slack buying.

Prices, it is pointed out, are from 10 to 15 per cent lower than they were a year ago. This reduction of course follows from declines in raw material, labor, etc., all along the line. A portion of this reduction, some claim, can be attributed to a reduction in breakage losses in the process of manufacture. This breakage has always constituted an excessive overhead and is one toward the reduction of which efforts have been continuously directed.

Spanish Electrification Contract for General Electric

A contract for the electrification of 40 miles of the Spanish Northern Railway is announced by the Sociedad Iberica de Constructiones Electricas, Madrid, Spain. one of the associated companies of the International General Electric Company, Inc., New York. This initial order constitutes the most recent and one of the largest European railway electrification projects now under development.

The Spanish Northern electrification will employ the high-voltage direct-current system, which has been adopted in Europe as standard for the railways also of Great Britain, France and Holland.

The equipment to be supplied by the Sociedad Iberica de Constructiones Electricas will consist of six 78-ton (metric), six-motor locomotives, two complete substations, each comprising two, 1,500-kw., three-unit motor-generator sets, transformers and switchgear and the material necessary for line construction.

The first electrification project of the Spanish Northern comprises about 40 miles of the Leon-Gijon line, running through the mountains between Ujo and Busdongo. Although this is a single-track line, traffic is extremely heavy, as it is a link between the mining district and the northern seaboard through a mountainous region with many tunnels, considerable grades and severe climatic conditions.

The electric locomotives on order will be for freight service. They are of the following dimensions:

Length over bumpers	46 ft.
Height	13 ft. 11 in.
Width of cab	9 ft. 8 in.
Rigid wheelbase	11 ft. 6 in.
Maximum wheelbase	35 ft.

The locomotives, arranged for regenerative braking, will operate at 3,000 volts. The locomotive speed at continuous rating is 35 km. per hour. Pantograph collectors, having a double contact shoe, which is a type similar to those on the Chicago, Milwaukee & St. Paul Railroad locomotives, will be used.

Country Rapidly Making Economic Progress

While the United States just at this time is experiencing a seasonal slump, the country is making economic progress and is much better off than at this time a year ago. Business is improving gradually and is being built on a sound basis. Europe is better off than at any time since the armistice, with one broad reservation—fiscal finance in most countries is going backward. The railroads are operating actively. There is a reasonable sufficiency of food and fuel. Agriculture and manufacturing are back to normal. The political and social status are much more stable. These are the opinions of an authority in a position to be particularly well advised on these subjects. Further views from the same source follow:

The degree to which Europe's economic rehabilitation can go depends greatly on the reductions that can be made in the expenses of land armaments. Governmental deficiencies in Europe represent almost exactly the same sum as do the costs of land armaments.

Despite the fact that Germans seem to have made a greater profit out of the world, in the sale of the ordinary exports, in the disposition of marks to speculators abroad and by sending much removable property out of the country, and despite the fact that they do not have to support an army, it is apparent that the reparations payments cannot be met. The situation in Germany is trending more and more toward a financial débacle. It is very evident that world currencies will have to be stabilized at about present levels. Inflation must stop. Taxes must meet expenditures.

The United States is now suffering as much from German competition as it can. Germany some time ago reached its maximum strength as a business

competitor. It is now having difficulty in holding its trade. One of the worst effects of the war on Germany was the destruction of its skill. Now that its plants are running at full capacity there is a great shortage of skilled labor, and as a result there is very general failure of quality in German goods.

France has attained a strong economic position. During the war there was a large manufacturing development in the south to replace that of enemy held territory in the north. Since the armistice, the mills in the north have been rehabilitated. To these have been added the industries of Alsace-Lorraine. France does not feel the effects of the international storm as do England and the United States, where larger percentages of the populace are dependent upon manufacturing and foreign trade.

The reduction of naval armament will go through. The announcement of the Hughes proposal caused all exchange to go up. An enormous movement of goods would have been necessary to create that effect upon it. It was caused by the increased confidence which it engendered. The economic results which will follow such an agreement are immeasurable. It makes war between the United States and Japan an impossibility and removes that cloud which has hung over business so long. While there is serious doubt if much progress can be made in the reduction of land armaments at this time, there is every reason to believe that the danger of another war in this generation has been removed.

Consumers Have Forty-three Days Coal Supply

An inventory of coal stocks as of Nov. 1, taken jointly by the Department of Commerce and the Geological Survey, shows that there was at that date a total of about 47,400,000 tons of coal in the hands of consumers, or approximately forty-three days supply. This compares with stocks as high as 63,000,000 tons in the past. The estimated average number of days' supplies in various consumers hands are as follows:

Railways	29 days
Steel plants and coke industry	42 days
Other industries	67 days
Gas works	87 days
Electric public utility	54 days
Coal dealers	47 days

It must be borne in mind that these are averages and that many individual industries and dealers are far below the average.

Electric Railway for Norway

The Norwegian Storthing has granted a concession to "A/S Akersbanerne," according to the *Electrical Times*, for the construction of an electric railway from the center of Christiania to Ostensjo, a distance of about 8 km. Work on this line will probably commence simultaneously with the construction of the Majorsteun-Sognsvandet railway, a concession for which was granted recently.

Engineering Advertisers' Association Publishes Monthly Bulletin

The Engineering Advertisers' Association of Chicago is now publishing a monthly bulletin in the interest of its members. The bulletin gives a digest of the speeches made at the various meetings and also includes other information and facts regarding the movement of goods from industry to industry, personal notes, etc. At the present time there is a limited number of extra copies of the "bulletin" which will be sent upon request to the advertising concerns selling technical or engineering products.

Rolling Stock

Rockford City Traction Company, Rockford, Ill., has placed an order with the White Company, Cleveland, Ohio, for six motor truck chassis to be equipped with bus bodies. Delivery is to be made on Jan. 15, 1922. The cost will be about $42,000. They are to be operated as feeders to the street railway lines.

Track and Roadway

Los Angeles (Cal.) Railway was recently ordered by the City Council to build tracks from First and Olive Streets to First and Hill Streets.

Pacific Electric Railway, Los Angeles, Cal., has received permission from the State Railroad Commission to construct a spur track at grade across Palm Avenue, in Orange, Orange County.

Public Service Railway, Newark, N. J., will be asked by the Camden City Council to relocate its tracks and poles from the Cooper River to River Avenue, Camden. The poles are now in the street and will be placed along the sidewalk.

American Public Service Company, Abilene, Tex., has expended $110,000 in rehabilitating its lines. The improvements include new trolley poles, new roadbed and rails. The company has pledged an extension of about half a mile to McMurray College, now being constructed.

Scioto Valley Traction Company, Columbus, Ohio., will buy 15,000 new ties and have them delivered at intervals during the winter months. This property is also looking after the condition of its bridges, culverts, rails, stations and overhead equipment and is preparing to repaint four bridges the coming spring.

Chicago (Ill.) Surface Lines will order promptly for the four-track special work quadrants necessary to place in effect the loop district rerouting plan recommended by John A. Beeler and approved by the Illinois Commerce Commission in connection with its recent 5-cent fare order. This rerouting plan was described in ELECTRIC RAILWAY JOURNAL for Nov. 26, page 938.

Power Houses, Shops and Buildings

Gulfport & Mississippi Coast Traction Company, Gulfport, Miss., will soon reinstate a turbine which has been at the manufacturers for repairs. Since the engine was disabled some time ago, the one remaining engine has carried a heavy overload to supply power for the entire coast.

Corpus Christi Railway & Light Company's (Corpus Christi, Tex.), power houses and all electrical equipment were destroyed by fire that caused damage amounting to $75,000. The plant will be rebuilt at once, but the owners say it may be three weeks or longer before current is available for the resumption of car service.

Los Angeles Railway, Los Angeles, Cal., has completed the first substation of a $450,000 series. The station is located at Vernon Avenue and Pacific Boulevard and houses a 1,000 kw. converter. The structure is 42 x 52 feet and cost $58,000. New feeder cables will be installed and officials of the company plan to have the station serving power before the Christmas rush.

Cincinnati (Ohio) Traction Company, which contracted for electric current from the Union Gas & Electric Company for the operation of a majority of its cars, is now receiving power at its Price Hill, Cumminsville and Hunt Street substations. The substations at Hartwell, Norwood and Walnut Streets are being put into shape and will be ready for use within a few weeks. The traction company is planning to abandon all its power houses with the exception of the Pendleton plant, which is modern and well equipped.

Trade Notes

Railway Service Corporation, Indianapolis, Ind., has changed its name to the Railway Service & Supply Corporation.

Blaw-Knox Company will move its New York office from the City Investing Building to the Carbide & Carbon Building, 30 East Forty-second Street, on Dec. 15.

Okonite Company, Passaic, N. J., has opened a branch office in Atlanta, Ga., Room 1513 Candler Building. E. A. Thornwell has been appointed Southeastern sales representative, and John L. Phillips manager. Their territory will be North and South Carolina, Georgia, Tennessee, Alabama, Florida and the city of New Orleans, La.

Fred H. Ogden severed his connection on Dec. 1 as sales manager of the International Steel Tie Company, Cleveland, Ohio. On that date Mr. Ogden became general sales manager of the Wyrick Register Corporation, Detroit, Mich. This concern will begin marketing on Jan. 1 a self-printing autographic register, which will turn out printed forms in either duplicate or triplicate. Mr. Ogden has had nineteen years' experience in electric railway engineering work and in the sale of electric railway supplies.

Habirshaw Electric Cable Company, Inc., Yonkers, N. Y., and two affiliated companies the Electric Cable Company and the Bare Wire Company, were placed in the hands of receivers on Nov. 26. The debts of the companies aggregate about $5,000,000, and the assets, it was stated, are in excess of $7,000,000. It was explained that the reason for the receivership was a lack of liquid assets to meet maturing obligations. John B. Johnston and John S. Morley were the receivers for the three concerns, named by Judge Knox of the federal court.

Westinghouse Electric & Manufacturing Company has made its Salt Lake City service department a branch of the Denver office under the direction of A. F. MacCallum, district service manager, Denver. M. R. Davis, formerly district service manager at Salt Lake City, will remain there and devote his time to sales service work and to securing repair business for both shops. There have been changes also in the Seattle office, according to the announcement of the company, B. B. Burkett having been appointed district service manager to succeed N. P. Wilson. Mr. Wilson has been transferred to sales service activities in the Seattle territory.

Hardinge Company, 120 Broadway, New York, which recently acquired the pulverized fuel department of the Quigley Furnace Specialties Company, has made the following announcement in regard to the new organization: H. A. Kimber, formerly of the Quigley Furnace Specialties Company, is now in charge of the sales of the Quigley pulverized fuel department of the Hardinge Company. L. W. Marso, who is in charge of the branch office located at 427 Oliver Building, Pittsburgh, Pa., has now become associated with the company and will continue in the Pittsburgh office under the name of the Hardinge Company. O. M. Rau, formerly consulting engineer to the Philadelphia (Pa.) Rapid Transit Company, has now become associated with the company and will specialize in the handling of pulverized fuel systems as applied to boilers. W. O. Renkin has become associated with the company in the capacity of managing engineer of the fuel department.

New Advertising Literature

National Tube Company, Pittsburgh, Pa., is now ready to issue the "National" Bulletin No. 8C which deals with a protective coating for pipe that is intended to be used in underground service or in other locations where it is subject to excessive corrosion.

Westinghouse Lamp Company, 165 Broadway, New York, has issued bulletin E-101 with the title, "Illumination Values and Their Measurements." It contains tables of present standards of desirable illumination for various purposes, illustrations of instruments for measuring the intensity of the illumination, etc.