Electric Railway Journal

Consolidation of STREET RAILWAY JOURNAL and ELECTRIC RAILWAY REVIEW

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The next issue of this paper will be the annual statistical number. The most striking facts that the tables will show are that of the cars ordered in the United States by city surface lines nearly 75 per cent were of the one-man safety type, and that of the motor passenger cars ordered by these lines the percentage was even higher. The statistical issue will contain a suggestive symposium on the electric railway situation from a number of points of view.

Notice About Binding

THIS issue of the ELECTRIC RAILWAY JOURNAL completes Vol. 54. There have been twenty-three issues which should be included in the bound volume, namely, the twenty-two issues which carry the regular serial numbers and the report issue of the Daily, published on Oct. 11 with the report of the Atlantic City convention. The publishers recommend that this report issue, whose pages are numbered from 1 to 130, should be bound at the end of the volume as a supplement.

The editors believe that the index to Vol. 54 which accompanies this number will prove especially useful because more than the usual care has been given to its compilation. The system of key words adopted some years ago to standardize the terms used in the index has been continued and somewhat elaborated. A description of the plan followed will be found on page II of the index. A large number of subscribers to this paper bind their issues at the end of each half-year, and it is a plan which could well be followed by all.

A Decade of Mid-Year Meetings of the Association

THE Cleveland meeting of the American Electric Railway Association, to be held on Jan. 8, will be the tenth in the series inaugurated in 1910 under the presidency of James F. Shaw. The first five of these were held in New York but beginning in 1915 a different city has been chosen each year, namely, Washington in 1915, Chicago in 1916 and Boston in 1917. They were begun because a definite need was felt by the railway executives for an opportunity to talk over pressing problems of the business away from the bustle of the annual convention and the distraction of every-day work. The conference plan sprang immediately into favor, and in due course the conference was made an official meeting of the association with full legislative powers.

At first the winter meeting was rather incidental to a group of committee meetings which were called at the same time. As the committees were naturally made up of leaders of thought and practice in the several departments of the industry a representative attendance at the conference of all branches of the business was assured. Gradually, however, the practice of holding these various committee meetings at the time of the mid-year meeting fell into disuse, the principal reason being the general feeling that the work of the affiliated associations and of the committees should be started earlier in the association year. The present plan by which this work is begun soon after the October convention is desirable in many ways. Nevertheless, the earlier plan has many advantages and we suggest the matter again be considered before the 1921 meeting to determine whether possibly the circumstances have changed sufficiently to warrant a return to the older order.

The Mid-Year Meeting Programs Epitomize the Industry's Thought

AS the mid-year meetings enter their second decade, one's thought naturally turns back to review the 1910 to 1919 meetings in perspective as they changed in character from conference to full-fledged meetings. All have related directly to the financial side of the industry, and it is instructive to recall that even at the first (1910) meeting, emphasis was laid on the declining attractiveness of the electric railway as an investment and on the necessity for higher fares. This led naturally to studies of the proper rate of return (1911) and to proper bases for rates of fare (1912-13). By 1913 the drive of cities for lower fares had largely subsided, but the upward tendency of operating expenses was even then so marked as to cause great apprehension, and this was seven years ago. The principles of commission regulation logically came in for attention in 1914, and the 1915 meeting was appropriately held at the nation's capital. The great war had then begun, and it was not difficult to foresee that very close relations between the federal authorities and all industrial and transportation enterprises were inevitable, especially if we should enter the war. The 1915 meeting was addressed by President Wilson, who declared in memorable words that if the companies treated their employees and the public fairly and if their methods were above reproach, they could "pile up profits as high as the Rockies, and nobody will be jealous of it." The following two meetings (Chicago and Boston) immediately preceded our entry into the European conflict, and were given over to valuation, rate of return, regulation, employees' welfare and, last but not least, the adaption of merchandising principles to the selling of transportation. No winter meeting was held in 1918, but last March many of our representative men got together to confer as to the fundamentals of economical operation which had to be applied immediately in view of the crisis forced upon them directly by the war and indirectly by several factors which would have acted adversely even without the war. These have continued to act during 1919.

The experience of the past ten years has shown mid-year meetings to be decidedly worth while, and we expect definite progress from that at Cleveland.

Massachusetts Anti-Strike Bill Was in the Right Direction

SPEAKING of the coal strike in 1902, Theodore Roosevelt said: "No man and no group of men may so exercise their rights as to deprive the nation of the things which are necessary and vital to the common life." This sound principle was again emphasized recently in several statements issued by President Wilson to the striking bituminous miners whose obstinate tactics threatened for a time to bring serious disaster upon the nation, as they had already resulted in real discomfort for millions of citizens.

There can be no gainsaying the statement that a strike which ties up the transportation of a great community is a strike invested with a public interest, and as such it should merit the condemnation of right-thinking persons everywhere. For this reason an unusual interest attaches to the draft of an act recently recommended to the Massachusetts Legislature by the Street Railway Commission, the purpose of the proposed legislation being "to secure continuity of service on street railways under public control." In brief, this bill was an anti-strike measure. It was printed in full in the JOURNAL of Nov. 8, page 873, and while it subsequently failed of passage the issue involved deserves serious consideration.

People no longer question the right of men to combine and strike for a lawful purpose, but when in doing so the strikers trespass upon other rights which are no less sacred, a sharp line must be drawn between the liberty of the individual and the interests of the greater public. This is peculiarly true in the case of a strike on a railway system. Here is involved the distinction between the carrying on of public utilities and of a private enterprise.

Presumably, a person enters the service of a public utility voluntarily. He may quit that employment without hindrance when he chooses to do so. But when the public service is interfered with "by concerted action, combination or agreement" of employees, as the proposed Massachusetts act contemplated, a greater issue is at stake. As the United States Supreme Court pointed out in passing upon the validity of the Adamson law, the right of an employee to leave the employment if he desires and by concert of action to agree with others to leave, is "necessarily subject to limitation when employment is accepted in a business charged with a public interest." Also, in the well-known Debs case, the Supreme Court sustained the action of the lower tribunal which took steps to prevent the wrongdoing of one resulting in injury to the general welfare.

Agitators and supporters of the radical labor point of view often are heard to say that proposals to prevent strikes have a tendency to create "involuntary servitude." As a matter of fact, the law which was recommended in Massachusetts would not restrain a man from refusing to work, but it would prevent his stopping an important public service by a combination with others.

Thinking people of all civilized nations have had occasion in the past year to give more than the usual amount of serious consideration to the labor situation. Apostles of discontent have sown the seeds of dissension everywhere, and there seems to be an almost universal demand for the highest possible pay for the least possible amount of work. It would seem that the average workman no longer takes pride in work for itself and that he places his pay above all other considerations. While this situation in itself is fraught with peril, the disturbances are still more threatening when they tend to paralyze whole communities in their commercial and social activities through strikes on street railway systems or in any business affecting the greater part of the public. We believe from recent public utterances of candidates for political office and other reasons that sentiment is tending toward passage of anti-strike legislation as regards the kind of properties mentioned, and we look upon it as a tendency in the right direction.

Some More Bus Calculations

IN OUR issue of Nov. 1, we had occasion to analyze some recent bus-promotion literature under the title of "Bus Facts Versus Bus Fancies." This time we are not concerned with the J. Rufus Wallingford promises of the private promoter, but with the optimism of the municipal officer who confuses utility to the public with profit to its civic purse. As an instance, we have in mind the estimate of bus costs presented to the Board of Estimate and Apportionment, New York, on Nov. 21, by Grover A. Whalen, Commissioner of Plant and Structure. Mr. Whalen is the official who is in charge of the extemporized bus services that are now in vogue on nearly a dozen lines, either to replace abandoned car lines or to give a more convenient service than is possible with the disrupted routes of some of the railway companies. Realizing that the present scheme of haphazard operation with individually-owned buses cannot be continued with safety to the public, let alone fairness to the railways, Mr. Whalen has presented an estimate for a municipal bus system.

In figuring that of 100 buses, not more than ninety-two would be constantly available, Mr. Whalen is within bounds; nor is his estimate of $5,500 for a twenty-six or twenty-seven-seat bus unreasonable. It is also noteworthy that he has allowed 30 per cent for depreciation, although a careful bus operator might get up to five years effective life. On the other hand, his estimate of $10,000 each for "spare parts" and "garage equipment" totals only 3.6 per cent of the $550,000 required for new buses in comparison with an allowance of 10 per cent by actual operators of bus systems. A responsible bus company, just like a street railway, must also be prepared to operate in snowstorms and on icy pavement. Hence snow scrapers and sand spreaders are a necessity unless the buses are going to stay in the garage until the street railways and the street cleaning department clear the streets for them. Mr. Whalen's estimate makes no allowance for such equipment; nor can we find any reference to the service vehicles which would be needed for pulling in broken-down buses, carrying repair parts between the garages, handling cash, etc. Unless the "garage" item of $25,000 covers all storage and upkeep structures the omission of "land and buildings" indicates that a kindly city will place facilities of that nature at the disposal of the bus department! This is a typical instance of how real costs can be covered up in an undertaking where one department can sponge on another.

In the still more important matter of operating costs, we are informed that the total daily charge per bus will be $17.40, which compares with an actual derived average cost of $20 a day for smaller buses in the same service. As a matter of fact, the cost of operating buses of less than the capacity proposed has run as

high as 35 cents per bus-mile. To secure more than seven 5-cent passengers per mile average with a twenty-seven-passenger bus in order to break even means that the bus services will have to stick to the short-haul, dense-traffic sections. In other words, neither the city of New York nor any other operator of buses can make money at a 5-cent fare unless said operator deliberately robs the electric railway of its only profitable traffic. If, on the contrary, the bus services are for localities where the street railway is no longer available, or accessible, they will undoubtedly be a public benefit but a financial loss generally. Our objection is simply that our public officials deceive both themselves and their citizens when they fail to point out that they are embarking on a general philanthropic enterprise, whereas some give the impression that there's a lot of money in it. The bus is bound to have an ever-wider field as highways continue to improve and electric railway burdens continue to increase, but let it be understood that wherever there is any worth-while density of traffic an organized, responsible, 365-days-a-year bus service costs more and not less than the modernized electric railway.

True Economy Must Operate from the Bottom Upward

SEVERAL pages in this issue are devoted to a symposium on operating economy which formed an important part of the program of the Grand Rapids meeting of the Central Electric Railway Association. It is worthy of careful study because it gets right down to the ground in this matter. There is apt to be a great deal of talk about economy without much real saving being accomplished unless the co-operation of the ultimate spenders of a company's money is enlisted. On the other hand, without a comprehensive view of the matter undue attention to detail may result in a policy of "saving at the spigot and wasting at the bunghole." The Grand Rapids symposium ought to be helpful in guiding the thought of the readers between these two extremes.

The program committee for the C. E. R. A. meeting asked F. R. Phillips to outline the field of possible electric railway savings preparatory to having the details of the many-sided problem presented by representatives of the several component departments. The theory of this is ideal, it is the basis of conferences of competent advisers which in these days are held before any important matters are decided. And it worked out very well in this case. To be sure all departments do not agree in details. For example, the operating man wants more car speed to cut down labor and other costs chargeable to him, while the claim agent fears that too much speed may cut into the allowance for accident claims. Obviously a compromise must be effected here. The master mechanic says that the painstaking work of the shop men can be "knocked into a cocked hat" by a few minutes of reckless operation. Obviously the far-reaching effects of carelessness need to be preached to the car crews if the mechanical department is to be placated. But why multiply illustrations? These indicate the principle which we have in mind, a principle which is being applied increasingly well. We hope that maintenance costs will be sensibly decreased as a result of the discussion at Grand Rapids. Also, the poly-sided symposium plan of program so profitably used there might well be used at other meetings and on other electric railway topics.

Municipal Roads Are Not Independent of Economic Laws

DELEGATES to the conference of the Public Ownership League of America, held recently in Chicago, appeared to be a well-satisfied aggregation as they adjourned after adopting resolutions in support of the principles to which they are all committed. They had heard their leaders tell of the growth of sentiment in favor of public ownership, and they seemed happy in the thought that the dawn of a new era was at hand.

Two papers were read at that conference in which statements were made which tended to show that even municipal ownership cannot accomplish the impossible —that is, pay all the costs of street railway service out of a 5-cent fare. One of these was made by the city engineer of San Francisco who had much to do with the construction of the municipal line, and the other by the chief executive of the Seattle property. Of these two roads, the former is one of the oldest, and the latter is the largest of our municipal railway undertakings.

Mr. O'Shaughnessy of San Francisco explained that it had been the custom to set aside 18 per cent of the gross receipts to cover depreciation and damages. He admitted that in order to meet the July expenses it was necessary to borrow money from this fund, and he did not know whether this practice would be continued. He also conceded that "it is much more desirable that the returns to the corporation or to the municipality be sufficiently high to insure first-class service rather than to retain a low fare and allow the service to deteriorate."

Mr. Murphine of Seattle declared that no amount had been set aside for depreciation of the municipal railway—that the authorities believed rather in spending this fund than in allowing it to accumulate. He did not think it a proper railway expense under city ownership and management to care for and maintain that portion of the street covered by tracks, and this is not being done in San Francisco. This official also admitted that municipal ownership alone would not make a nickel fare go as far as formerly, saying that it would have to be accompanied by relief from franchise obligations and by economies in operation. "Relief from all franchise obligations is imperative," said he, "and under public ownership and management there can be no just reason why any portion of the nickel fare should be taken to pay other than legitimate railway expenses."

A Massachusetts advocate of public ownership recently said: "Even if public ownership be adopted we shall have to utilize the service of human beings." He might just as truly have said that under public ownership a nickel fare would not be found any more elastic nor would it have lower expenses to meet either for labor or materials.

These M. O. "fans" are inclined to be very frank among themselves. They admit that they cannot work miracles. But they do boast that they can furnish local transportation for a 5-cent fare *"if"*—Ah, there's the answer!—if they are relieved of non-transportation charges such as paving, taxes, etc.—burdens which they have been refusing for years to lift from the shoulders of those who have been striving to make a success of the 5-cent fare under private operation.

As a recent Massachusetts report stated: "Public ownership will not change these facts. All these amounts must be met either by the car rider or by the taxpayer, whatever be the system of ownership or management adopted. Facts exist even when concealed by the magic mist of public ownership."

Preparing the Public for the Zone Plan

The Inauguration of the New Method of Charging for Transportation on the Connecticut Company's Lines Was Preceded by a Long Program of Publicity

SUPPLEMENTING the general article on the inauguration of the zone plan in Connecticut, printed in the Nov. 8 issue of this paper, the officials of the Connecticut Company have furnished more detail regarding the methods used in preparing the public and the employees for the new system. According to these men the chief fact by virtue of which the zone system was established on the company's 700 miles of track without the slightest disturbance from the public or material interruption of service was the existence of close co-operation between the company and its employees, and between the employees and the public. The zone system is declared by all of the officers of the company to be "an unqualified success." It was inaugurated on Nov. 2. Eight days later the company issued a statement to the press that the system was a success and that, while it was too early to make financial comparisons, the situation was very satisfactory.

Company Agreeably Surprised as to Revenues

Since that announcement was made there has been a steady improvement, both as to the smoothness of the system's operation and in the company's financial condition. Although the company expected a temporary decrease in revenue when the new system, with its radical changes in the customs of passengers and crews, was established, there was only a single day that showed a decrease in revenue as compared to the corresponding day in the preceding year, that day being the one which had to be compared to "armistice day" of 1918, when railways throughout the country did holiday business.

The co-operation which made possible the successful establishment of the new system was not brought about in a day. It was the result of a very carefully planned educational campaign, designed first of all to inform the company's 4500 employees regarding the condition of the company, and, secondly, to bring the public to realize that the continuance of electric railway service in Connecticut—and anywhere else, for that matter—depended entirely on the willingness of the people to pay a fare that would enable the company to meet its obligations and obtain a return on its investment, so that it might provide the improved service made necessary by the growth and development of the communities. This educational campaign was a success.

The decision to try the zone system had been under consideration for many months before it was put into effect, for the company concluded not to make the change until the most favorable time came. Meantime the campaign to educate the employees and the public as to the necessity of obtaining increased revenue was carried on.

Services of a Newspaper Man Were Secured

About a year ago President L. S. Storrs decided that the time had come when the company should employ an expert in publicity. Although it is one of the largest electric railway properties in the United States, the Connecticut Company had never attempted any definite program of education. Mr. Storrs obtained the services of a man who had spent his life in the editorial end of the newspaper business, and who had, in some degree, been a student of street railway problems. The company gave him the title of "Executive Assistant," and told him that it was largely up to him to work up a program and carry it through, subject of course to the approval of the president.

The first work attempted was the education of the company's employees. As a beginning, a short bulletin, printed on the president's letterhead, was mailed to the home address of every employee to emphasize how important it was that the company should win the goodwill of the public. It declared that the officers and the employees formed "one big family" which must work together, and called on every officer and employee to give the company's problems his very best thought. It invited suggestions from the men and included a sheet bearing the letterhead of the company and the following paragraph:

"I believe the service of The Connecticut Company on the ——— Division would be improved if attention were given the following matters:"

An envelope addressed to the president was inclosed with this letter so that employees might have every facility for sending in their comments. This letter resulted in several hundred constructive suggestions being received by the company, many of which were valuable.

State Commission Inquiry "Aired" the Company's Needs

About the time this circular was sent out an inquiry into the condition of the electric railways of the State was begun by a special commission appointed by the Governor and the General Assembly. The hearings before this commission resulted in much publicity about the condition of the company, which, because of increased expenses, had been unable to pay its State taxes or to meet various other obligations. These hearings focussed public attention on the railways and as it had been known that The Connecticut Company, which then had a 6-cent fare, was considering a higher fare, there was considerable guessing in the newspapers as to what the company would do.

Then came the report of the special commission to the General Assembly, and hearings before committees of the assembly to which the bills reported by the commission were referred. Everybody agreed by this time that the electric railways of Connecticut needed help, but the legislators and other representatives of the cities and towns who appeared before the legislative committees were unwilling that their particular communities should be deprived of any of the financial assistance the railways were required by law to give them. The limits to which the Legislature was willing

to go were the passage of a bill requiring bonds for jitneys and the instruction of the Public Utilities Commission of the State to investigate the electric railways and report to the next General Assembly.

The denial by the assembly of the relief from paving and bridge obligations, and other assistance sought by electric railways, served to emphasize their condition, and the guessing of the newspapers as to what The Connecticut Company would do went on. There were guesses that the fare would go to 7 cents, that it might be 8 cents, that it might be 5 cents, and that it might be a zone system. None of the guesses was ever specifically denied. The company said in every instance that when it was ready to announce what it would do a full statement would be made to the public.

In the meantime the company had sent bulletins to the employees on the amount of money that had to be spent through accident claims, and a graphically compiled bulletin showed the manner in which the 6-cent fare was spent as compared with the distribution of the 5-cent fare in 1916. This bulletin showed the employees that practically one-half of every fare taken in was paid to them in wages, and it called attention to the increased expenditures for power and equipment, and the diminution of the return on investment to an almost negligible percentage.

While the company was carrying on its own campaign of education the Committee of One Hundred was presenting the case of the electric railways before the Federal Electric Railways Commission in Washington. The Connecticut Company sent out 1500 copies of the daily reports prepared by the Committee of One Hundred to a list of city and town authorities and influential business men throughout Connecticut. It sent out 2500 copies of a booklet containing excerpts from testimony published by the committee. It saw that the newspapers in its territory obtained the testimony which was of particular local interest.

Every member of The Connecticut Company section of the American Electric Railway Association was supplied with a leather loose-leaf book in which could be placed printed leaflets containing information about the industry and about the company in particular.

About the end of last summer the public was prepared for any announcement the company might make. The public and the men knew that the company had to do something to increase its revenue.

Getting Ready for the Zone System

In the meantime the officers and managers were working in close harmony on the details of the zone system. It was looked at from every angle. If anyone thought that a certain feature which "looked good" to somebody else was really not desirable, he presented his objections, and if he proved his case his advice was taken. Before any announcement of the zone system was made, every officer, manager, superintendent and foreman was told about it, among those to get advance information being the joint conference board of the employees' organization.

On Oct. 6 the company issued a brief statement that it had decided to put the zone system into effect. This statement gave only scanty details, but said that ten days notice would be given before the system became operative.

This announcement created great interest, yet there was no opposition to the zone system on the part of the press with the exception of certain newspapers that had been constitutionally opposed to anything the electric railways might seek, and whose opposition had been expected. Certain chambers of commerce and similar organizations did become very much interested, however, and arranged for conferences with President Storrs, who very frankly stated the position of the company, and in all cases convinced his hearers of the fairness of the zone system and the justice of the company's case. The newspapers were supplied with abstracts of the statements made by Mr. Storrs so that there might be the fullest publicity as to the reasons for the adoption of the zone system by the company.

On Oct. 20 the company announced that the system would be effective on Nov. 2. From the day of the announcement until the new system was inaugurated Mr. Storrs was at the service of the public. Any organization that invited him to discuss the situation found its invitation promptly accepted. At the meetings those present were invited to ask questions which were gladly answered. In the meantime meetings of the company's employees were being held at which the details of the system were repeatedly given. Every man showed the keenest interest in the new system.

The Newspaper Advertising Campaign

On Oct. 27 an intensive advertising campaign was started. Advertising space was bought in practically every newspaper in all the cities and towns served by the company. Advertisements were run every day giving the details of the system. Passengers were informed that beginning Nov. 2 they should enter cars at the front door, get a zone check from the motorman, take seats as near the rear as possible, have change ready for their fares, pay their fares before the car stopped at their destination and step to the platform ready to alight when the rear door was opened. This information was repeatedly given, and information regarding the new transfers was carefully disseminated. In large cities full-page advertisements containing the zone boundaries were printed on the two days preceding Nov. 2. On Nov. 2 and 3 a large advertisement was run declaring that "The Zone System Is the Public's Suggestion as the Best Means to Increase Trolley Revenue," in which it was stated that the zone system was the only fair and logical means of charging for street railway rides, that there were certain alternatives from which the public could choose if the zone system should fail, that while the company knew that there would be delays in service the first few days of the new system these delays would be much less serious than passengers might imagine and that very quickly conditions would become normal again.

In connection with the newspaper advertising the company sent out posters printed in six languages for distribution in factories on its lines, where thousands of men unable to speak or read English are employed. The foreign language press was extensively used also.

Placards informing the public of the new fare, asking its co-operation in maintaining schedules were liberally used. Three days before the system went into effect a personal letter was mailed to every employee describing the details of the system and calling on the men for their co-operation. This circular among other statements contained the following:

"The success of the new system depends in large measure on the co-operation of our employees. We be-

lieve that you will heartily work with us to make it a success."

It asked the employees to be helpful to passengers, to take a personal interest in the successful operation of the system and to bear in mind that the company could not continue to pay good wages or even to run the cars unless it could obtain sufficient income to pay its bills.

ADVERTISING SMOOTHED THE WAY FOR THE LAUNCHING

The results of all this preliminary educational work were apparent on the first day the zone system was applied. Passengers seemed to know that it was to their advantage to go immediately to the rear of the car so that they need not have far to walk when their destination was reached. Most of them had correct change for their fares, although there were some whose humor it was to present bills. But the public had been so thoroughly drilled regarding the necessity of having exact fare ready that those who sought to delay service heard caustic comment from other passengers. The public itself co-operated with the crews on the cars. The crews showed a most wonderful co-operative spirit toward the public and the company. Even during the first two days there was no serious delay on any line, although in some of the cities served by the company the streets are narrow, automobile and jitney traffic is very heavy, and traffic conditions are unfavorable.

It was to be expected that there would be protests against the zone system, and some have come from communities where commutation rates formerly had been effective, but where, under the zone system, they are abolished. Hearings on the system are now being held by the Public Utilities Commission of the State of Connecticut, but the fact is that the zone system was successfully established on the lines of The Connecticut Company under conditions which would have been considered by many as exceedingly unfavorable. The following editorial from the issue of the New Haven *Register* of Nov. 11 gives a very plain statement of what happened in Connecticut:

> The trolley company quite rightly takes cognizance of the important part which the public has played in making the zone system so quickly successful. Two weeks ago there was talk of the difficulty and confusion it would cause, there were predictions of calamity, there were almost promises of attempts to defeat its purpose. But with the system in operation, those prophets of disaster found that they spoke only for themselves, that the New Haven public were determined to give the system a fair trial, regardless of their opinion as to its justice or injustice.
>
> As a result today the zone system is adopted as a custom, the public forebearance during the trying first days, its helpfulness in assisting the employees of the company meet a difficult situation, and perhaps most of all the unexpected condemnation of all those who sought to interfere with the movement of the traffic by argument or ridicule of the system, have brought the condition related in the company's report. When the new system was first discussed, the objectors were certain that the public would never accept it and would do all they could to hinder its operation. But those objectors saw only their own viewpoint, they forgot the majority of intelligent, fair-minded people who believed in giving the company a chance. It is to this majority that the credit for the quick adoption of the system is due—and none realizes this more than the trolley company.

Comment similar to this was printed in practically every city and town served by the company.

The publicity policy which The Connecticut Company has set for itself may be summed up as follows: (1) Win the co-operation of the employees. (2) Answer every question. (3) Side-step nothing. (4) Be absolutely frank. (5) Use advertising space liberally and sensibly for the information of the public.

The company feels that it does not need a "press agent" and for that reason it avoids the use of the word "publicity" so far as possible. Its information department aims never to put out an item that does not have strict news value, and that could not be printed by any conscientious editor strictly on its news merits. It believes it has convinced every open-minded newspaper man in the State of its honesty of purpose, its desire to serve and the need of public co-operation.

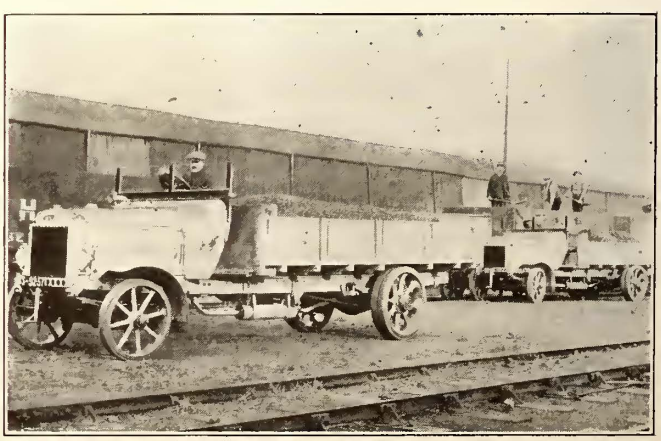
Edinburgh Tramways Demonstrate Resourcefulness

WHEN the railway strike in Great Britain suddenly cut off the usual supply of coal to the Edinburgh (Scotland) Corporation Tramways, it was necessary to have prompt action in order to keep the Tramways Department's four power stations supplied with coal. It so happened that the department had inaugurated, during the summer of 1918, a service of tourists'

TOURISTS' CAR OPERATED BY EDINBURGH CORPORATION TRAMWAYS DURING SUMMER OF 1918

pleasure cars, which starting from Princess Street, the hub of Edinburgh's universe, took tours through the most notable streets of the city not served by the tramway lines. When the coal crisis occurred, the pleasure cars were withdrawn from their usual service and converted into coal lorries, which supplied the power plants direct from the local colliery railway sidings.

The accompanying pictures show the appearance of the cars before and after the transformation.



CONVERTED PLEASURE CAR DRAWING COAL DURING RAILWAY STRIKE

An Outsider's Observations on the Connecticut Zone System

Street Railway Engineer of New Jersey Board of Public Utility Commissioners Studies Operation of New Plan and Makes Favorable Report

AT THE REQUEST of the Board of Utility Commissioners of the State of New Jersey, H. C. Eddy, street railway engineer, recently spent several days on the property of The Connecticut Company for the purpose of observing the operation of the zone system of fares which was inaugurated on Nov. 2, 1919. This system was described in the issue of the ELECTRIC RAILWAY JOURNAL for Nov. 8, 1919, page 852. In his report, besides describing the Connecticut plan in some detail, Mr. Eddy made a number of comments based on his observations, the substance of which is given in the following paragraphs.

Referring to the general effect of the zoning scheme, he said that the results produced were to confine the average ride to two zones and to include practically the entire built-up section of each city or community within at least the first two zones from the traffic center. Other apparently desirable resulting conditions were the inclusion of the principal business sections of the cities and towns within two zones and the riding of many of the factory workers within the same distance.

OPERATING DETAILS WHICH PROVED SUCCESSFUL

Certain details in the method of operation, according to Mr. Eddy, which tend to make the system successful are as follows: (1) Conductors pass through the cars when an opportunity affords and make change for passengers. (2) Inspectors board heavily loaded cars and make change for passengers. (3) Motormen do not have zone indicators to operate. (4) Zone indicators for conductors are so simply designed that they can be turned quickly with one hand. (5) The conductors stand inside the car off the platform, thus leaving the entire platform free for passengers who have paid their fares. (6) Neutral zone areas, extending two or three blocks from heavy loading zone points, have been established, thus relieving excessive loading or unloading at such points, and also otherwise accommodating the public. (7) Metal tokens are used for 6-cent fares. (8) Time is saved and greater insurance of collection of all fares is provided by the requirement that the passengers deposit fares in the boxes, fare boxes being exclusively used. (9) The system was liberally advertised, with suggestions as to how its operation could be facilitated, by means of posters in cars and otherwise. (10) Cars were redesigned by removal of bulkhead doors or bulkheads completely, thus facilitating the movement of passengers. (11) Both parts of double doors are used for entrance and exit quite generally. (12) Pay-as-you-enter cars are operated to and from certain industries employing large numbers of persons. The general characteristics of the property and the location of many of the industries tend to make this method simple and the result is the practical elimination of disorder and confusion.

The effect of the introduction of the zone system on transportation conditions in connection with a number of large industrial establishments was particularly studied by Mr. Eddy, and he found that the new system appears not to have been a disturbing element in handling this class of traffic. He attributed this to the following reasons: (1) The system is so designed that practically all factory workers are compelled to pay but one rate of fare, that is, 6 cents. They know this and usually have the fare ready. (2) Service to factories is supplied by two or more lines in many cases. (3) Where heavy loads are carried to factories, pay-as-you-enter cars are operated and most successfully. (4) The trolley traffic to the factories is not generally very heavy, much of the traffic being carried by jitneys. Many factory employees live within walking distance of their places of employment. (5) Many of the large factories have several entrances and exits for employees. This eliminates the necessity of unloading cars at one point and greatly relieves car congestion and delays. The majority of the larger industrial establishments throughout the State are made up of a number of comparatively small concerns which are more or less scattered. This condition materially helps the traffic situation.

Mr. Eddy found that the public in general is at least not antagonistic to the new system and in a large measure is favorable to it, with the possible exception of the residents of Bridgeport. The employees of the company generally favor the plan, although those employed in the Bridgeport division appeared generally to dislike it. The newspapers as a rule were favorable to the system, as indicated by editorials and news items, as well as through personal interviews by the board's inspector. Again, Bridgeport appears to have been an exception to this rule.

In general, Mr. Eddy considered the zone system as operated by The Connecticut Company to be a decided present and prospective success. While he found certain defects in the system these were incidental and can, and undoubtedly will, be rectified. He summarized the reasons for the evident success of the system as follows:

1. The confidence of the public, employees and press, in general, has been obtained.

2. The company has spared neither pains nor expense in educating its employees and the public in regard to the system and its operation. The methods used indicate great foresight and intelligence in regard to the matter of obtaining the public favor and meeting its requirements and in the obtaining of employees.

3. The system of zoning and rates of fare are especially well adapted to the characteristics of the property, particularly the traffic conditions.

4. There is in general an absence of great congestion of traffic.

5. The co-operation of many factory managers was secured, these agreeing to pay their employees with the trolley company's metal tokens, an amount equal to the difference between the old fares and the new fares under the zone system. This plan was to be in effect for six months.

In conclusion, Mr. Eddy notes that the long-distance rider is the greatest sufferer under the zone system on The Connecticut Company's property, but the company reports that while there has been some complaint in regard to this and some traffic has been lost, this is not considered a serious matter and it is expected that much of the lost traffic which has gone largely to the steam roads will ultimately return. Riders of this character are few as compared with the total number of riders on the system.

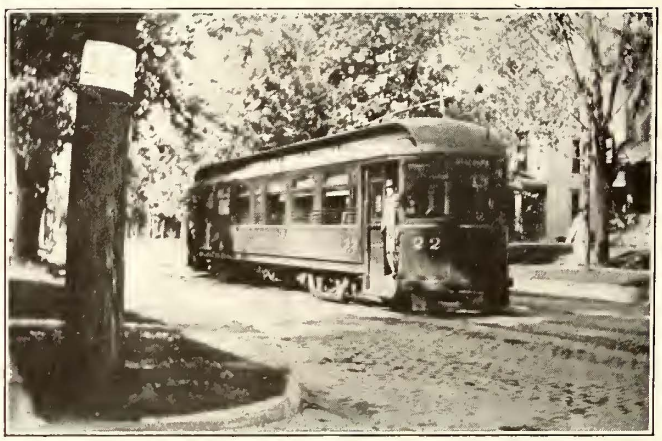
The report abstracted above was signed by John P. Petty, deputy chief inspector, Bureau of Utilities, as well as by Mr. Eddy, who made the inspection.

History Hath Its Lessons

Inside Story of the Promotion, Operation and Dismantling of One of Those Railways Built On Faith, Not Judgment

By CHARLES J. FINGER
Receiver and General Manager, Columbus, Magnetic Springs & Northern Railway

ON A COPY of the official interurban map issued by the Central Electric Traffic Association that hangs on my office wall, there are marked in green the railway lines, both steam and electric, that have been, are being or shortly will be dismantled. In the states of Ohio and Indiana alone there are eighteen thus marked. In one way or another I have been able to gain an insight into the affairs of six of them. With three of them I was closely associated when the time came to wind up their affairs. One of them I watched from time of construction until the last rail was loaded on the car in the process of dismantling after a career of thirteen years. Tracing the history of that particular road and comparing it with the history of some of the others that have disappeared from the map, I find conditions in it common to many roads that to-day are on the verge of bankruptcy. A condensed history of the first line that was dismantled in Ohio, and which shall be known as the Brown line, follows:



CAR WORTH MORE FOR MOVIE SMASH THAN ON THE LINE

The Brown line was built in 1903, and was dismantled in 1916. It was 24 miles long, but in the course of its brief life became the parent line in a little system that aggregated 100 miles. This system comprised three lines, two electric and one steam.

The Brown line was standard gage and connected with the N. & W. to the north and the Ohio River to the south. Midway it joined the E. J. & B. at a county seat. The original intention of the builders was to inaugurate a traffic in coal from the Pittsburgh district via the Ohio River to points in Ohio. The road passed through a county seat, with a population of 3000 and touched a town of 3500 at the river end, and one of 2000 at its junction with the N. & W. There were five other small settlements along its line. Counting the surrounding territory, the little road would perhaps serve 12,000 people. It touched the following industries: a large boat yard, three sawmills, a canning factory, a tobacco warehouse, a brick plant, three coal yards and some fertilizer warehouses.

E. Lytle, a banker of Cinatolis, who had personal interests in the neighborhod of the Brown line, was the original promoter. He induced a brother, G. Lytle, a banker in a Western state, to interest a Mr. Joyce, president of a bank with a national reputation. Being assured that the investment would take care of 6 per cent, Mr. Joyce promised his financial support.

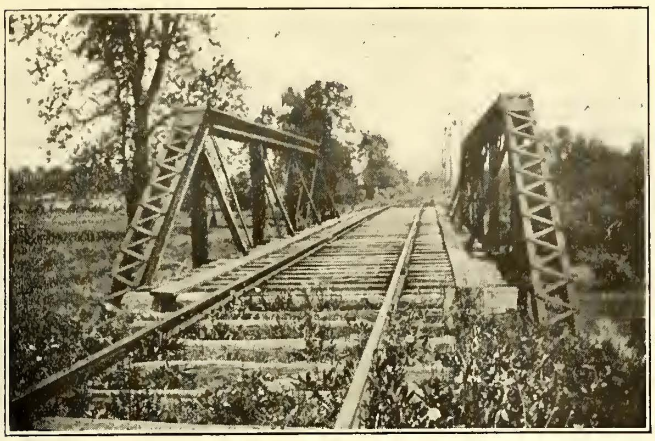
The company organized with a local directorate, was capitalized at $500,000, with a bond issue of an equal amount, and a construction company was formed. No expert opinion was taken as to the practicability of the scheme, nor did any of the three original promoters make any thorough investigation or prepare any statistical statement as to probable earnings and expenses. It seemed to be taken for granted that the mere fact of building the railroad would without other influence create traffic.

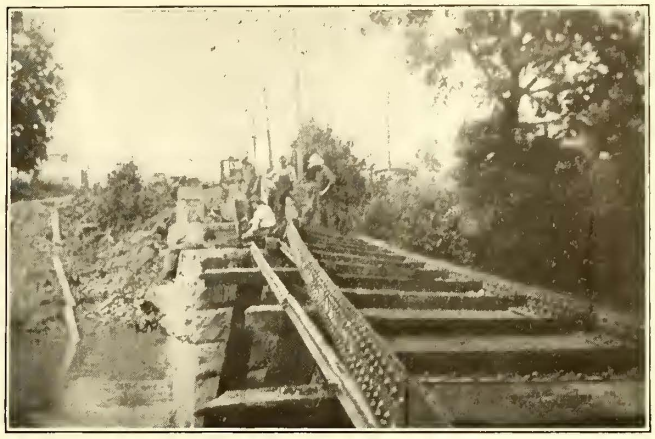
This error was also the fundamental error in the case of five other short lines in Ohio that have been dismantled with the past two years. It should be borne in mind that, despite all local opinion to the contrary, there was no idea whatsoever on the part of any of the promoters to enter into any speculative proposition or to make money by the sale of stock. In fact, in the case of five of the Ohio roads that have gone under, no stock was ever sold. The money was advanced by entirely disinterested parties.

In the case of the Brown line, the money for the construction of the road was furnished by the bank president, Mr. Joyce. Unfortunately, neither he nor his associates audited the construction company's bills. Week by week during construction, drafts were made upon Mr. Joyce for the cost of material and labor. These amounted in the aggregate to $480,000. When an audit was finally made, which was not until the road had operated for two years, a strange state of affairs was revealed. In some cases whole payrolls had been drawn for twice. In one case a draft was made for a carload of rails that was neither ordered nor shipped. An ordinary letter written by a supply house stating what the cost of a shipment of material would be, went through the local bank and was accepted as a draft. When construction was reported finished, one half of the length of the road was entirely without ballast, and the other half was ballasted in patches. Faulty construction of course resulted in unduly heavy maintenance cost. For two years, however, after construction ceased, operating officials charged a generous amount each month to capital accounts.

STATISTICS AS TO FINANCING

It has been said that the bonded indebtedness was $500,000. The original promoters hoped that the entire amount would be subscribed by the people along the line of the road. Instead of this no more than a face value of $85,000 worth of bonds were so disposed of





THESE RAILS COST ORIGINALLY $28 A TON, BUT AFTER BEING TAKEN UP SOLD FOR AS HIGH AS $70 A TON

and the net amount of real money gained locally was not more than $67,000. The $415,000 worth of bonds were then turned over to Mr. Joyce as collateral for notes which were made to cover money expended during construction. By subsequent arrangement, each of the Lytle brothers was to take care of one-third of the indebtedness thus incurred. As may be inferred by so unpromising a start, the road at a very early date showed its inability to pay ordinary operating expenses. In fact, from first to last there was an annual loss ranging between $8,000 and $10,000. This loss Mr. Joyce continued to pay from his private and personal funds. He also paid for many years the bond interest on the $85,000 of bonds, as it fell due, in addition to the taxes on the property.

At first blush this may seem somewhat of a unique proceeding, but I know of two other lines in Ohio for which men living in other states have acted in like manner. The psychological process is something like this. At first there is a hope that things may change. It is like a gambler playing his stake. He risks his all, and then he borrows. That is just what the men backing some of these roads do. Finally, for a time, they keep on because there seems no way out.

To give an idea of the earnings and expenses on the Brown line from the time the "construction account" was closed, up to the time that the road was sold to be dismantled, a condensed summary is given. It should be borne in mind that the expense column does not include depreciation, taxes nor bond interest.

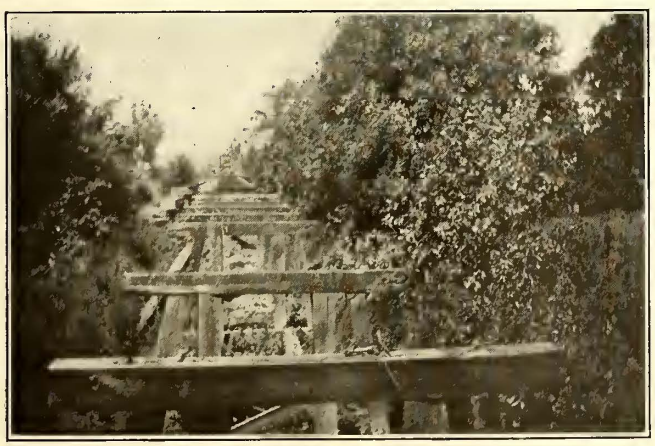
In 1912 and 1913, an amalgamation between two neighboring lines was effected. Both these lines were on the verge of bankruptcy. Burdened by interest charges, hampered by poor construction and handicapped by inefficient, cheap management, the annual showing had become so bad that the owners were discouraged.

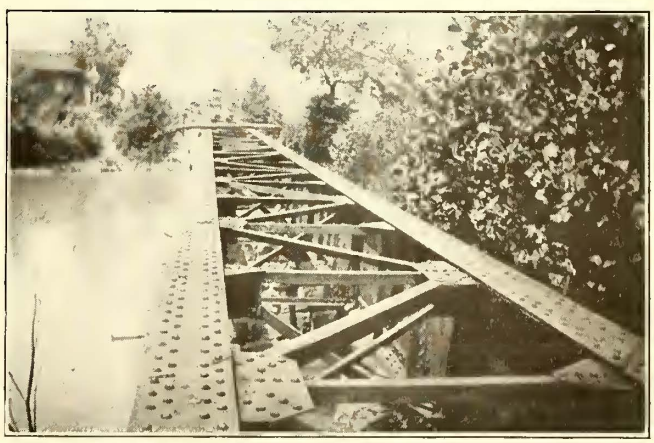
MAKING A BAD MESS WORSE

Clutching at a straw, Mr. Lytle, burdened with his share of responsibility engendered by his Brown line, dreamed of a way out by amalgamating his line with these two bankrupt lines. That three ciphers added together could never make an integer, he failed to see. He persuaded Mr. Joyce, then a very sick man, to his way of thinking and a contract was drawn up between Mr. Lytle and the owners of the electric lines. A more insane agreement was never made. By its terms $20,000 was to be immediately expended upon the roadbed of the electric lines. Two cars were also to be bought. Expensive work was to be done on a big bridge. A steadily increasing rental was to be paid, the amount of which was to be deducted from the purchase price at the end of a few years when Lytle

STATEMENT OF EARNINGS AND OPERATING EXPENSES

Years	Earnings	Expenses	Loss	Profit
1906	$16,538	$28,451	$11,913	.....
1907	18,287	29,418	11,131	.....
1908	16,232	35,818	19,586	.....
1909	16,889	27,587	11,698	.....
1910	18,692	26,659	7,867	.....
1911	18,240	33,547	15,307	.....
1912	23,791	24,516	725	.....
1913	26,856	21,159	.....	$5,697
1914	25,967	23,249	.....	2,718
1915	23,743	22,453	.....	1,290
1916	26,931	25,562	.....	1,369





BRIDGES WERE CUT INTO SCRAP AND TRESTLES WERE SOLD AS THEY STOOD—ALL AT A PROFIT

and his associates, having paid the full indebtedness of the electric lines, were to become the final and sole owners. There was also a private arrangement by means of which a parallel and competing line was to be abandoned and dismantled at an early date.

When, with proper auditing, the full meaning of the contract was understood by Mr. Joyce, he was thunderstruck. He placed the management of his affairs in the hands of a trusted friend, a man of integrity and initiative. For the first time he learned that the Lytle brothers were heavily involved. One of them fled the country. Mr. Joyce with a rare nobility, surrendered of his own accord his entire fortune to reimburse the bank of which he was president for the money loaned the Brown line—a railroad, by the way, which he had never even seen. The mental worry and shock killed him. Mr. Lytle, the original promoter, whose speculations had widened as the circles from a stone cast in a pond, was arrested. He is now serving a term in the penitentiary.

SOME OF THE GATHERED INGREDIENTS OF THE BROWN LINE, AFTER IT WAS UNSCRAMBLED

Climax Finally Came

At the instance of the Joyce estate, the Brown line was thrown into the hands of a receiver. The contract of amalgamation with the electric roads was broken, but not before it cost the Joyce estate some $60,000. Meantime, the holders of the $85,000 of bonds, led by certain lawyers who had obtained bonds "for services," instituted a case in court asking that the bonds held by them be preferred, the road sold and the proceeds divided. One of the most able corporation lawyers in the country, an ex-governor and former cabinet member, watched the case for the Joyce estate. The case was taken through the Common Pleas Court, to the Court of Appeals, and on to the Supreme Court, but the plaintiffs' case was lost.

Meantime the receiver had financed and started a stone quarry, by means of which earnings on the road during the last three years of its existence were very materially increased. The net result, however, was not sufficient to justify continued operation. The growing popularity of the automobile, increased wages and taxes and higher cost of material all worked adversely, and upon the advice of the receiver, application was made to the state commission for permission to suspend operation. It was the first case of its kind, and apparently no law was in effect that could compel owners of a non-paying property to continue to operate a losing proposition.

To clear up the receivership, therefore, the road was sold at a public sale for $30,000, the Joyce estate being the purchaser. The estate in turn sold it to a firm of iron and steel men for $84,000.

Every Cloud Has a Silver Lining

Then came a strange change. Owing to the war requirements, prices began to soar. Rail that had originally cost $28 per ton at the time of construction, were sold after thirteen years of service for $35. The price continued steadily to climb. Within a week or two relayers with angles were selling at $45. They climbed to $50, to $60 and to $70 at last. A locomotive that had been bought second hand for $2,200, used for three years and then condemned, was sold for $5,000. An offer was received from a moving picture concern by which it was to have the right to run an old locomotive over a bridge and into a ditch, for which it was to pay $9,000, leaving the scrap to the owners. Another moving picture concern suggested the setting on fire of a wooden trestle and the running of a car into the flames. Price $5,000. The right-of-way was sold to a land speculator. The wooden trestles were sold as they stood at $30 per thousand. Ties went to coal mines. Steel bridges were cut into scrap.

To-day the community in which the railroad served, is apparently not any worse financially than when the railroad operated. Auto buses link the towns, and trucks haul merchandise. In the case of other railroads that have been dismantled the neighboring farmers have purchased and put into cultivation the old right-of-way. In some cases the counties have bought steel bridges, and, leaving them where they stood, have changed highways and pikes so as to utilize the old railroad structure.

Doubtless within the next few years several roads will suspend operation. The fact that they will do so is no more to be deplored than is the cutting out of the undergrowth in a forest. That the country will never again see such an era of wild investment in railroads as occurred two decades ago is to be doubted. The present general cleaning up of non-paying properties is in effect nothing more than the logical outcome of unwise investment. The roads that survive will be the stronger for the disappearance of the weaker ones.

Operating Economy Viewed from Several Angles

At C. E. R. A. Cleveland Meeting F. R. Phillips' Paper and the Accompanying Discussion Showed that All Departments Must Contribute to Cutting Down Costs

AT THE fall meeting of the Central Electric Railway Association, held in Cleveland, Ohio, on Dec. 4 and 5, one session was devoted to the reading and discussion of a paper by F. R. Phillips on "Economies in Car Operation." This was discussed from the standpoints of the conductor, the motorman, the dispatcher, the master mechanic, the claim adjuster and the superintendent. Abstracts of the paper and the formal contributions to the discussion follow:

Economies in Car Operation

The Giving of Good Service at Reasonable Cost Depends Upon the Closest Attention to Operating Detail

BY F. R. PHILLIPS
Superintendent of Equipment Pittsburgh (Pa.) Railways

A COMPREHENSIVE plan designed to produce maximum economy in car operation falls short of its purpose if the result of its application fails to produce a net over-all saving. The operating costs of one department should not be reduced at the expense of the whole. On the contrary, it might so come about that the costs in one department are actually increased to accomplish an over-all saving.

The history of the industry shows no radical or revolutionary developments in the means for producing transportation since the adoption of the electric motor. Moreover, in my opinion, the near future holds forth no likelihood of radical changes, current rumors of startling developments, soon to be disclosed, involving the use of an internal combustion motor to the contrary notwithstanding.

The sensibility of the riding public with respect to changes in operating methods, or even maintenance or construction work, is remarkable.

We should, therefore, be exceedingly circumspect before instituting radical changes in operating methods, whatever may be the goal, if we would not disturb the very delicately balanced differential between financial salvation and oblivion.

There will, however, be found a wide field in which to search for economies without treading upon dangerous ground. Some of these will tend toward a more favorable impression upon the public.

Merely, as a guide, I have prepared a simple table of percentages showing the relationship that the expense of each of the several branches of the operating department bears to the total. The figures are based on averages taken from the operating expense sheets of a large number of representative companies.

TABLE I—SUBDIVISION OF COST OF ELECTRIC RAILWAY OPERATION

Item of Cost	Percentage of Total
Conducting transportation	45.0
Cost of power	14.7
Maintenance of way	14.1
Maintenance of equipment	11.9
Traffic	0.5
General and miscellaneous	13.8
Total	100

It is at once apparent that the most promising results in our search for economy will come through an investigation into the possibilities afforded in (a) conducting transportation, (b) reduction in energy consumption, and (c) improved methods in maintenance of roadway and equipment.

TRANSPORTATION DEPARTMENT SAVING POSSIBILITIES

The wages paid motormen and conductors constitute practically 80 per cent of the expense chargeable to the transportation account, or more than one-third of the total cost of maintenance and operation. Obviously, a reduction in the number of car-hours without reduction in car-mileage, or an increase in number of car-miles with the same car-hours, is the goal we seek.

Increased speed, within reasonable limits, meets with the approval of the patrons and at the same time, without additional burden or responsibility on the part of trainmen, secures to the company greater economy. The controlling factors in schedule speed are: (1) Rate of acceleration and braking. (2) Number of stops and slow downs. (3) Density and regulation of traffic. (4) Speed with which passengers board and alight. (5) Physical condition of roadway and equipment. (6) Time-saving facilities. (7) Efficiency of car crews. These will be taken up in order.

Rate of Acceleration and Braking. Electric railway literature is filled with elaborate speed-time curves, showing in all imaginable ways the values of the various rates of acceleration of coasting and braking. These are strictly applicable only in special cases. Moreover, the application of theoretical speed-time curves is predicated upon a degree of intelligence on the part of operators that rarely exist.

Adherence to a predetermined economical rate of acceleration under such circumstances is only possible with the aid of devices which will provide automatic acceleration.

Imagine the appearance of a speed-time curve produced by the operation of a car through congested warehouse districts, where it frequently happens that a car must follow slow-moving vehicles for several thousand feet. The situation is becoming more difficult with the advent of rapidly-moving vehicles. An actual curve representing operation of this character would hold little resemblance to the typical speed-time curve. However, all are agreed that the most rapid rate of acceleration and braking within the limits of the comfort and safety of the passengers, of the capacity of the motors and of the spinning and skidding point of the wheels is the most economical one.

Number of Stops and Slow-Downs. The agitation by the Fuel Administration during the war with respect to the efficiency of the skip stop and the excellence of the results following the almost universal adoption of the system throughout the country make elaboration superfluous. A schedule cannot be made economically effective without a thorough analysis of the number and character of slow downs or stops in a given run and the time consumed thereby. As approximately 35 per

cent of the total elapsed time of the average city schedule is consumed in slow downs and stops, and fully as much more is lost incidentally, this feature assumes a degree of considerable importance and offers a large opportunity for a saving of time and fuel.

Density and Regulation of Traffic. Recent observation shows that there are from six to ten times as many vehicles as street cars on the street in the congested areas of some of our large cities during certain periods of the day, and the recklessness and complete abandon with which many of the vehicles are operated intensifies the seriousness of the problem of operating the cars. We are rapidly approaching a condition which may require heroic treatment.

Street railway operators, because of their peculiar training and experience in traffic matters, are eminently fitted to cope with the condition if clothed with suitable authority. The public could do worse than secure the advice and opinion of the local railway operators in the promulgation of plans for relief. Much can be accomplished by co-operation with the traffic police, the establishment and enforcement of auto parking limits and safety zones, the institution of one-way traffic streets, the installation of turnouts and crossovers to make possible the breaking up of a blockade by turning short, looping just within the congested areas to effect a thinning out of the congestion, and many other devices of a similar character.

A notable example of time saving in the operation of surface cars through congested districts is the looping system in the city of Cleveland. There all cars approaching the Public Square district via the same avenue in no way intermingle with cars of any other route using another avenue of approach. Common loading points for adjacent districts are provided and a maximum of non-interference results, the only exception to the rule being the operation of depot cars.

The character of a turn at a street intersection has also a large influence upon the time required to "negotiate" the turn. The inside turn requires 4 per cent and the outside turn 39 per cent more time for a single car to clear to permit taking advantage of the intersection than would be required on a straight crossing. Obviously, the time consumed in congested districts has a very large influence upon economy. No schedule can be maintained with any degree of accuracy or satisfaction in the absence of some measure of regularity and uniformity with which the cars negotiate congested districts.

The Speed of Boarding and Alighting from Cars. The most rapid loading ever observed by the writer was at the rate of 0.3 second per passenger, or sixty-four passengers in 19.2 seconds. Yet this same car on the same trip with a reasonable amount of promptness on the passengers' part consumed four seconds in discharging one passenger. With the modern low-step, easy-access, stepless or low-floor car, the time per passenger varies from approximately four seconds for one passenger to the previous figure for a large number of passengers. The effect of car design upon the time consumed in stops is most marked. A recent check showed that in comparison with the high-floor, end-entrance car, with large wheels, the modern, center-entrance low-floor car consumes 30 per cent less time per passenger. The saving in time is entirely attributable to the design of car. Of course, we could not consistently recommend the abandonment of present equipment to permit taking advantage of the loading feature of more recent designs, since time saved in boarding and alighting is not sufficient of itself to warrant such procedure. However, a study of step heights and entrance ways on present equipment may be productive of surprising results.

Physical Condition of Roadway and Equipment. In the production of good service, the function of the roadway and equipment departments is secondary to the transportation and traffic divisions. The latter are upon the firing line and are helpless without the wholehearted support of the forces whose duty it is to provide the physical means for high-grade economical service. No campaign for economy through the maintenance of high schedule speeds can be successful unless accompanied by a high standard of maintenance of roadway and equipment.

Moreover, since the speed of motors is in direct proportion to the voltage impressed at the brush-holders, overloaded trolley and feeder lines and inadequacy of negative return due to bad rail joints, not only affect schedule speed, but overload the car equipment.

CARS MUST SOMEHOW BE KEPT ON SCHEDULE

Time-Saving Facilities. The maintenance of schedules, especially in the rush-hour period, has been greatly facilitated by the more even spacing of cars and rapid clearing up of incipient as well as serious blockades or other interruptions to traffic. An important thing in this connection is the institution of emergency service. Speedy auto trucks, equipped with apparatus for quick handling of break-downs, in charge of men picked because of their particular fitness for such work, are located at strategic points and dispatched like fire apparatus. They respond to fire alarms in their district and promptly clear the way for traffic. The service is augmented by the installation of street phones to which all employees have access. In addition, the telephones permit the superintendents to keep in close touch with conditions at all parts of the system.

A traffic dispatching system would be helpful in producing even spacing and loading of cars as well as clearing up blockades. The plan involves the installation of telephones at important junctions or close to the usual location of traffic inspectors whereby important information and instructions can be issued by the dispatcher, the instructions being based on the information furnished by inspectors through telephonic reports.

The use of headway recorders with a reasonable amount of accuracy to indicate the spacing of cars has been found of much value. Most large companies handle their power problems through a centralized load-dispatching system, thereby minimizing "outages" as well as equalizing the load on stations, frequently producing economy through their ability to drop off promptly unnecessary apparatus and less economical stations. Another fairly effective method of securing proper spacing and adherence to schedule requirements is the locating of centrally controlled, accurate time clocks at the principal junctions and time points. They prove quite helpful in controlling the practice of some car crews who time their watches by location rather than watch their location by time.

Again, power-operated switches in tracks under frequent headway will be usually found well worth the investment. The employment of special inspectors at the principal loading stations and intersections will also be found helpful in expediting traffic, as will also the

institution of loading areas indicated by signs wherein two or more cars stop within the area at once at an intersection. Under certain circumstances, it has been found advantageous through an arrangement with the traffic police at intersections where diverging lines meet, to stop only at the far side of the corner in order to clear the way for cars behind which take another direction.

Experience in certain large cities with the pay-as-you-leave system of fare collection has shown marked improvement in the time required to "negotiate" the congested districts. Further, the use of fare boxes, aside from their money-getting propinquities, reduces loading time.

Scientific Methods Must Be Used in Car Operation

Efficiency of Car Crews. No plan of economical operation is effective unless it is properly applied and efficiently executed. After car crews have had thorough preliminary training they should follow a well-defined program of education. Most men have a sincere desire to learn and if properly encouraged will apply their knowledge in ways that are helpful, and will appreciate the elemental principles of safety and economy as applied to electric railway work.

A well-balanced, economical car-operating program must be founded upon a thorough knowledge of the value of its controlling factors. Too many assumptions may prove fatal to its successful application. Until a few years ago the traffic engineer was an unknown quantity, today he is coming into his own. Then, traffic data upon which schedules were based were the accumulation of more or less intelligent guesses, now they are scientifically prepared with precision and mathematical exactness. In large congested centers, schedule making is becoming more and more complex.

One-Man Cars. In this day no discussion of street railway problems would be quite complete without some word concerning this very popular subject. It is indisputable that under certain conditions of traffic the one-man car will prove valuable to the community as well as to the operating company. Especially is this true in communities where congestion has not reached the acute condition found in large cities, although to some extent in a number of large cities there will be found a suitable field for their use. Where headways are great their use is distinctly advantageous as compared with the two-man car.

However, we are still to be convinced that the operation of the one-man car will compare favorably with the operation of two-car units with large seating capacity, either from a standpoint of economy or convenience to the public when operated through densely congested districts where large numbers of passengers must be cared for in a minimum possible time. Furthermore, in all fairness, it should be stated that the advantages of safety, light weight, low steps, small wheels, baby motors or shiny varnish are not coincident with the introduction of the one-man car.

Energy Consumption. Our story would be incomplete without reference to power generation. Greater economies here have become absolutely indispensable. Important developments have been made in the instantaneous checking of flue gases; in the use of higher steam pressures, and in the consolidation of community generating stations. Probably one of the most important links in the chain of efficiency in power distribution is the negative return circuit. A careful survey will usually prove that the cost of maintaining good rail circuits is insignificant compared to the resulting saving in energy.

But it is in the consumption of power that the greatest opportunities for economy are to be found, not only on the cars but in street lighting, in the carhouses and shops.

On the cars there is much power loss possible in air-compressor circuits and in the heaters. Good maintenance will reduce the former and careful heat regulation the latter. There are several systems of manual regulation which are efficient, but only when supervisors and car crews are responsive. Automatic regulation is constantly attentive and does not forget.

Light-Weight Cars. In the matter of reduction in weight it is the writer's belief that we have not yet gone far enough. With the use of alloy steel and aluminum, and less elaborate facilities for lighting, heating and ventilation, an electric car can be built to weigh less than 300 lb. per seated passenger.

Power-Consumption Checking Devices. There are three types of devices for checking operation of cars, one measuring directly the energy input, one the coasting time, and the other the number of brake applications and the total braking received. Each has distinctive advantages; certainly none of them are effective without the co-operation and understanding of the car crews. The advantages of increased coasting under suitable circumstances is not to be gainsaid, but the economical car schedule is not predicated upon the degree of coasting. Most high-speed schedules for city surface cars with six or more stops per mile leave little opportunity for coasting.

Maintenance of Roadway and Equipment. It is almost axiomatic that the most economical maintenance of roadway and equipment is that which involves the highest standard obtainable. The most effective single instrument of economy is a complete system of inspection, including overhauling, and a well-defined program of reconstruction. The costs of labor and material used in maintenance have advanced in such an amazing degree that the value of frequent adjustments and thorough inspection, in order to procure from the materials used the last "ounce of usefulness," is more necessary than ever before. Next in importance is the application of the principles of production efficiency, through the use of time-saving tools and machinery, the planning and routing of materials to accomplish a minimum amount of handling, reclamation of heretofore salvaged material through the medium of welding devices, the proper selection and checking of the quality of materials, etc.

A great contributor to reduction in expense may be found in standardization of parts, by the plan promulgated by the American Electric Railway Engineering Association. This effort should receive the support of all manufacturers of materials and supplies, as well as railway men. Adherence to a standardization program will entail some sacrifice on the part of all; individual opinion on the part of railway men and an over-emphasized commercial spirit on the part of the manufacturer. We all know that standardization carried to the extreme will stultify progress. On the other hand, a lack of standardization will affect ultimate economy adversely.

No comprehensive campaign for economy can well be undertaken without thorough consideration of all the

phases entering into its consummation. Hence as specific treatment in detail of any one of the many aspects of the problem has not been possible in the limited time available for the presentation of this paper it has been necessary to deal in generalities. To sum up the whole matter, efficiency and economy are obtainable only through constant application and attention to the minutest detail, coupled with the highest degree of helpfulness, co-operation and intelligent co-ordination on the part of all concerned.

A Conductor's Point-of-View

BY CHARLES CONNELY
Conductor Grand Rapids, Grand Haven & Muskagon Railway, Grand Rapids, Mich.

MR. PHILLIPS' paper is rather over the head of the average conductor, so that many of the points which he makes will not be discussed here. Theoretically, the low-floor, low-step car would materially aid in the speed of loading cars, but these cars would not be suitable for interurban lines, especially those operated from third-rail, and those liable to be troubled with heavy snow drifts. There are also strong arguments in favor of standard height for interurban cars, the height conforming preferably to steam road practice. We will agree that the better the condition in which the equipment and roadway are maintained, the fewer the pull-ins, and this would seem to be economical. The standard would of necessity vary on different properties, but from a conductor's standpoint this standard could not be too high.

Referring to the education of the train crews, and especially of the conductors, the following points bear on that question: The greatest opportunity for the conductor is to see that no fares are lost to the company by failure in collection. Many fares may be lost because patrons refrain from riding except when absolutely necessary. To overcome this tendency it is necessary that a conductor be courteous and attentive to his passengers and also to the public generally, as each person with whom he comes in contact is a potential passenger.

THE CONDUCTOR IS A SAFETY AGENT

In assisting in the prevention of accidents the conductor has another opportunity for increasing the economy of operation. He should be always vigilant for the safety of his passengers. He should see that passengers have safely boarded or alighted from a car before he gives the signal to start, that objects over which passengers might stumble are kept out of the aisles and that infirm persons not yet seated are not thrown down by the starting of the car. He should be vigilant concerning train orders and time-tables, and not depend on the motorman to keep his train clear of other trains. When an accident occurs he should secure the names of all witnesses possible, make a full and intelligent report concerning the accident, and forward it to his superior officer at the earliest possible moment. In fact, he should make intelligent reports concerning anything coming under his observation that might lead to possible injuries or damages.

Again, he should make himself thoroughly familiar with the operating rules and be ready instantly to follow instructions. If a conductor is thoroughly familiar with the rules he knows at once what to do when the emergency arises.

He should also be careful when throwing switches to see that the points are properly set before signaling the motorman to proceed, and he should co-operate with the motorman at loose-tongue city switches to assist in preventing troubles at such points. Furthermore, he should be watchful at switches, curves and other points where the trolley wheel is likely to leave the wire, to prevent damage to the overhead.

The conductor should co-operate with the motorman in the economical use of current by giving notice of a stop in ample time, and in giving the starting signal promptly. He should also watch the heating and lighting of his car so that unnecessary fuel or current is not consumed.

In the handling of freight and express, proper care and attention on the part of the conductor will result in minimizing damage claims and a consequent saving to his employer. It is only with the hearty co-operation of employee and employer that a maximum of efficiency in this work is secured. Take the baggage end of the service, for example. This with few exceptions is given in connection with the passenger service and very little direct revenue results therefrom. However, if an occasional piece is improperly checked and perhaps lost or delayed beyond a reasonable time, considerable expense in the adjustment is involved and indirect injury to other branches of the service is caused. Patrons, becoming dissatisfied with such experiences, are inclined to extend their "grudge" to the entire system and transfer their patronage to competing lines.

AFTER ALL, COMMON SENSE IS THE PRIME REQUISITE

To sum up the ways in which a conductor can assist in the economical operation of his car or train, and through this the entire system, it need only be said that what is required is the right use of ordinary common sense. The trouble is that some people, in fact most of us, do not do our best; but if a conductor will remember that courtesy will make friends for himself and his employer; if he will use the company's property as he would his own; if he will do all possible to avoid accident, and make quick, full reports when they do occur; if he will not be afraid of doing a little more than his share, then he will find that when, to secure greater economy in car operation it is necessary to reduce the number of men, his name will still be upon the payroll.

How a Motorman Can Help

BY JOHN A. SUNDERLAND
Motorman Terre Haute, Indianapolis & Eastern Traction Company, Terre Haute, Ind.

THE economical operation of a car by the motorman is a study in itself. The laws governing such operation cannot be set out explicitly in a rule book, nor can proficiency therein be attested by a diploma issued by any school except the great school of experience. The motorman must be an apt and intelligent pupil, endowed with rare good judgment, enthusiastic in his work and with an honest ambition to excell. He must be patient, slow to anger and considerate of the rights of others. The management, on the other hand, must make the motorman feel that his work is appreciated, and furnish him a comfortable, safe place in which to work. To the uninitiated the work of a motorman seems more or less mechanical, requiring but little skill and less

thought. But we know that such is far from true. We appreciate the vast amount of skill and thoughtfulness that is incorporated in the work of a good motorman. This is especially true in the great field of practical economy.

There are many ways by which a motorman can lower the cost of operation. For example, he can reduce the number of accidents to live stock, by familiarizing himself with all the permanent objects found on the right-of-way. Thus, he can, while yet a long way off, distinguish between a stump and a hog, between a tie pile and a cow; and any unusual object will at once attract his attention, thus frequently enabling him to avert an accident. The same end may be attained if he will watch the fences inclosing the right-of-way, reporting to the proper officials any defects that he notices.

Again, the use of a file at the right time, the application of a screwdriver, or the pouring of a few drops of oil just where and when it is needed will often prevent a serious and costly accident or injury to equipment. As long as cars are run, there will be costly accidents, both to stock and to equipment, with all the care that the motorman may exercise. In this paper attention will be directed to a means of economy which lies entirely within the control of the motorman, the economical use of power.

Motorman Has a Profession, Says Mr. Sunderland

Any motorman can, by exercise of sound judgment and good common sense, by interest in his work as well as in his pay, coupled with an insatiable desire to lead in his profession (and it is a profession) save money for his company on every trip, by cutting down to the irreducible minimum the current necessary to maintain the schedule under the rules. The irreducible minimum is an elusive goal; its pursuit is one of the things that takes the monotony out of motormanship, adds zest to the present run and lends enticement to the future run.

There are two electric circuits on each car, the operating and the light circuits. It is the operating circuit that affords the greatest possibilities of saving.

There are at least two positions marked on each controller, "off" and "on." We can save power in both positions. At the carhouse the controller is in "off" position and that is the logical place in which to commence to save. We shall, however, begin with the "on" position. At most carhouses there are peculiar physical characteristics of track or overhead that necessitate limited speed. Shall we open up the controller and go out of the carhouse with a rush, making the car jump at each point until we reach the bad place in track or wire and then throw off and use the emergency brake to slow us down? Hardly; if it is necessary to beat another motorman to the straight-away, the better plan would be to get up a little earlier than he does, and take our own time in getting out. Instead, we shall open the controller one point, then when the car has attained the limit of speed on that point, give it another and another, until we have momentum enough to carry us over the bad place. Then we shall throw off and drift at the required speed. This, of course, applies not only at the carhouse but at many places on the road. At one point on our line we have a sharp grade to climb, then a short stretch of straight track, then a sharp curve. I have found that by throwing off about 50 ft. before reaching the crest of the hill I can drift around the curve without the use of air—that is, I let the hill do a little of the braking for me.

The rules governing the start from the carhouse, govern every start on the road. Feeding should be done gradually, not too rapidly nor yet too slowly. Whenever we feel the car jumping ahead, we are feeding too fast; that is, if the car is in good working order. Feeding too slowly is a waste of current and accomplishes nothing.

We often have to slow down for a bad stretch of track, a curve, bad wire, crossing another track or "negotiating" a spring switch. In feeding up after such a slow down the controller should be opened up promptly to the point corresponding to the speed of the car—we can tell when the motors begin to work—and from there on the feeding should proceed as from a stop.

If, while the car is standing, a wagon stops on the track 20 ft. ahead of us we must get it off the track before starting. We cannot get by it until it gets out of the way and that 20 ft. of track is expensive to the company if we "inch" over it. Again, starting on a slippery rail is an art. We should feed up very cautiously and slowly, and if spinning takes place we must immediately throw off and feed up again after the wheels stop spinning.

Attempting to start before the brakes are entirely off is expensive, as a rule, but when starting on an up-grade we should feed up just about the time the air is released enough to let the car start forward. We must never let the car start backwards down such a grade. When it is necessary to start after meeting another car it is good practice to feed even more slowly than our own car requires. We must consider the fact that the other motorman is feeding too, with a great pull on the substations. He can only have his share of the current, and there is no necessity for us to try and get the first "bite." Again, the farther the cars are kept apart, the more feed taps there will be between the cars and the less resulting strain there will be on the substations. I understand that substations are an expense in themselves.

In striving to economize with the controller in the "on" position, sparing use should be made of the series running position, which I deem the most expensive point on the controller. It is necessary to use it on long grades, or perhaps to insure a steady running at low speed for a short distance when any other manner of operating the controller would result in a jerky movement of the car, with its resulting discomfort to the passengers. But when we have time to "kill," we should build up to full speed and run, say, a third of the distance, then throw off entirely and finish the remaining two thirds with the controller off.

This Man Had the Right Idea

Years ago I ran with a man who was conductor in the morning. After dinner he was the section boss, fence-gang superintendent, general manager, director and auditor. Of a morning when he had collected the two or three fares, he would come up to me and say "let her float, boy, let her float." And "float" she did. It was up to him to economize and he know how fast his wattmeter was turning when we were "floating." So we floated and saved. The heavier the car is, the more slowly it will start, and the farther it will drift. A car will not stop immediately the current is cut off (sometimes we have wished it would). I

do not know of a run in which no place can be found to drift, and that without detriment, of course, to the schedule.

Finally, every effort brings its own fitting reward. There is a deal of honest pleasure in climbing down out of the front and walking around the car at the end of a splendid run, and finding "her" cool and in good order. It is then that we realize that no mechanical means can ever take the place of a motorman.

A Dispatcher's View of Car Operation Economics

By R. E. Harris
Trainmaster Michigan Railway, Jackson, Mich.

UPON the train dispatchers, with the assistance of operators, conductors and motormen, depends the prompt movement of railway traffic. The getting of trains over the road with the greatest dispatch consistent with safety is increasingly recognized to be of the greatest importance. Shortage of power, constant demand for cars, congestion in terminals, clamor of shippers and passengers for better service, and keen competition among railroads, electric lines, auto trucks and jitneys, press the dispatching question upon the traffic and transportation departments.

My observation of train dispatching has been through years of experience as conductor, motorman, dispatcher and trainmaster. To my mind, to make a good dispatcher a man should have keen observation, good judgment, steady nerves and the best of memory. He should be slow to anger, but have determination; a man who can think for himself and for others, and above all who is loyal to his company.

Dispatchers should be given more consideration by the managements of electric railroads, because they are a part of the official family and should be given their place as such. To be a good dispatcher a man should be fully informed as to the characteristics of the employees of the road and of the equipment, and he should understand the power conditions. He should obey instructions to the letter and should see that all instructions are obeyed by those under his direction. He should be fully acquainted with the book of rules, tariffs and everything pertaining to the operation of trains. A dispatcher on our electric lines is a sort of a bureau of information.

The Dispatcher Has First-Hand Information

Most dispatchers' offices have charge of keeping the time of the trainmen. This time-keeping should be given very close consideration. A dispatcher should check the time sheets against the train sheets and be absolutely sure that they are correct before they are sent to the timekeeper's office. When the transportation department plans to make a new schedule the dispatcher's views should be considered because of his knowledge of traffic conditions.

What I have to say should not be considered as a criticism of the work of others, but only as a series of suggestions which have come to me from time to time. In the first place, I note a great waste of energy in power distribution. When we have 600 volts at substations and power houses and down the line a short distance there are but 200 volts, something is wrong with with distribution. When we allow rotaries to run idle for hours we are wasting energy.

Men build power houses, railroads and interurban equipment which are fine from an artistic as well as a mechanical standpoint; but they sometimes overlook the possibilities and probabilities of breakdowns. Thus the transportation department is unable to maintain its schedules. Show me the company that does not properly maintain its track and tolerates poor distribution of power and I will show you the company that has poor equipment, poor power, discouraged trainmen, unreliable schedules and bad business generally.

Finally, my greatest wonder is why the electric traction companies try to maintain all the conceivable varieties of equipment that they do. Why not cut down the enormous cost of upkeep on the "fifty-seven varieties" of equipment and standardize all of our cars and interurban lines, and run through service from one large city to another?

How the Master Mechanic Looks At It

By Terance Scullin
Master Mechanic Cleveland (Ohio) Railway

SCHEDULE, speed, proper equipment for local conditions, proper maintenance of roadbeds, distribution of power, training of trainmen and a co-operative spirit among employees, all play their part in operating economy. From the mechanical standpoint, the handling of the equipment in service is the most important, and overshadows all others. The best efforts of the mechanical department can be "knocked into a cocked hat" in five minutes by carelessness or recklessness.

Transportation and Mechanical Departments Must Co-operate

There are, to my mind, no departments where co-operation is so vital to the general welfare of the company and to good service to the public as between the men who operate the equipment and those who maintain it. Careful operation results in fewer repairs, and careful repairing makes operation pleasant for public and management. The public mind would not be agitated by interruptions in service, and the feeling between public and company would improve under the conditions that should prevail if co-operation could be maintained in practice.

Car operation at excessive speed over track special-work is very irritating to the mechanical department, which realizes the damage that results from the hammer blows that the equipment receives under such conditions. The handling and application of the air-brake equipment should not be overlooked, also, when economies in operation are desired. In general practice on city service, more air is wasted in making one stop than would be required for two if the brakes were applied properly. The application of brakes with power on causes necessarily a waste of power and excessive wear on brakeshoes and wheels.

The proper handling of the controller is another very important factor in economical operation. The notches or operating points were put on these controllers for a purpose. If they are to be ignored the controllers could be constructed much more cheaply than at present. Engineers have prepared tables showing the power saved by the careful handling of the car compared with reckless handling over a given distance, all conditions being equal. This is worked out to show that with the proper application of the power 250 ft. more could be covered with the same amount of energy per stop.

Finally, I wish to emphasize the point that in securing

economical results, the proper training of employees is the most important factor.

A Claim Adjuster's Views on the Subject

By T. W. Giltner
Assistant Claim Adjuster
Northern Ohio Traction & Light Company, Akron, Ohio

A CLAIM adjuster has neither cost curves, speed schedules, ampere-hour meters nor saturation point of the motor field to guide him in his work. He must depend upon the uncertainties of the unknown quantity and quality of a jury selected from all classes as his reliable barometer. This is influenced more or less by the cunning of ambulance-chasing attorneys and their cohorts, and of unscrupulous physicians who use the not unwilling claimant as a vehicle by means of which to transfer money from the fare boxes to their own pockets.

Too often the item of claims is classed with general and miscellaneous expense, not of sufficient importance to receive special attention; yet no doubt every one can recall a serious collision or derailment involving great loss of life and serious injury to scores of passengers which resulted in a receivership for the unfortunate company. It is doubtful if either the cost of power, the maintenance of way, the maintenance of equipment or traffic has been the direct cause of such misfortune. In the scope of the claims department, as well as in that of each other branch of electric railway work, may lie that delicaately balanced differential which means financial salvation or oblivion. Any plan designed to produce maximum economy in car operation will fall short of its purpose unless accident prevention is continually kept in mind. The cost of a single accident occasioned by an effort to save the interest on the cost of new and needed equipment or by excessive increase in schedule speed may wipe out a year's prospective profit.

Quick Starting Can Be Overdone

Mr. Phillips suggested that the most rapid rate of acceleration and braking within the limits of comfort and safety to passengers, and of capacity of the motors, is most economical. Unless the construction of cars leaves a minimum open floor space, and provides for ample supports and opportunities for maintaining the equilibrium of standing passengers in these sudden starts and stops, a heavy loss in the payment of claims is sure to result. It will also prove economical to limit the motor capacity of cars operating in closely built-up districts so as to produce a speed not far in excess of the limit fixed by statute, for every attorney alleges in his petition "a high, excessive and dangerous rate of speed," an allegation most difficult to combat. It is an accepted fact that the number of accidents will increase or decrease in direct ratio to the increase or decrease of the speed schedule, provided no greater skill in operation accompanies the increase. The cost of accidents will likewise rise and fall with the changing condition of the rolling-stock, roadway, overhead construction, etc. Maximum economy in the claims department will be secured by spending large sums for good cars, for good roadbed, for good overhead construction and for efficient supervision of all.

The number of alighting and boarding accidents will vary in proportion to the number of stops and the skip-stop plan should, therefore, be carefully considered. To eliminate a stop removes one potential danger. Opportunity for time saving at loading points should be provided by the use of wide doors entered by means of a low step. Approximately 75 per cent of the total number of accidents occurring on electric lines traversing thickly populated districts are collisions with vehicles. A plan for economy in car operation should involve a survey of the entire system to determine where the greatest number of accidents are concerned. This should be followed up with remedial measures, which may include slow orders, safety stops and instructions to platform men, together with co-operation of those who regulate the vehicle traffic. A large map of the system on soft wood, with pins having differently colored heads to represent the different types of accidents will prove useful. When a number of pins appear at the same point, showing derailments for instance, this information can be given to the maintenance-of-way department, which would naturally take the necessary remedial measures.

There is no other factor as important in the prevention of accidents as the efficiency of car crews. The most economical route is through training schools conducted by a claims-department man who knows his work, in which talks are given to the platform men at meetings arranged for their convenience and attended by the heads of departments, superintendents, dispatchers and officials who take this opportunity to get closer to their men. These talks on accidents should occur not less frequently than once every six months.

To most of the men an accident is a closed incident when they have signed their accident reports; but it is their nature to want to learn, and if the opportunity is given they will learn and this will show in reduction of accidents.

The old story of locking the stable door after the horse is stolen is covered with moss, it is true, but it is a good introduction to the last point to be considered, namely, frequent and thorough inspection of all equipment and construction. Any plan designed to produce maximum economy in car operation in which a place is not given to careful inspection of roadway, power plants, underground and overhead construction, equipment and traffic conditions; and which does not provide for the selection of platform men with great care and for their careful training, will find that out through the claims department has gone the revenue which should have swung that delicately balanced differential toward financial salvation.

The Superintendent's Viewpoint

By O. G. Snell
Superintendent Union Traction Company of Indiana, Anderson, Ind.

IF THE interurban transportation industry is to be established on a business basis, systematic and efficient operation in every detail is absolutely necessary. It is impossible in this day of rapid industrial growth to handle enormous increases in business with old equipment and ancient methods. It is doubtful whether the close of the war is going to restore normal conditions in transportation, and even if approximately the old conditions should be brought back it will not be easy for us to recover from the severe financial distress of the present time.

The railway business is not what it used to be. Since the advent of myriads of automobiles, a city or community can get along for a few days in a lame sort of way without railway service. Increases in unit fares and freight rates, and shortened fare zones, have a tendency

to stimulate competition to make further inroads upon our traffic. This forecasts a radical change in the nature of the city or interurban railway as a public utility and in the character of service it may render. Drastic remedies, such as the operation of one-man cars with the track layouts required on a more frequent headway on city lines, must be applied; these cars to be equipped with registering fare boxes and modern motor equipment. I refer particularly to service in cities of less than 50,000 population. In the larger cities some districts or lines will not permit of such service, and cars of the pay-as-you-enter or pay-as-you-leave type, with ample vestibule room, will be needed to maintain a frequent and fast service through densely populated sections. Traffic surveys at frequent intervals on interurban lines to determine peak-hour loads, canvasses if necessary to secure public opinion as to what service will accommodate the majority, and other means for improving service must be employed. As conducting transportation involves about 50 per cent of the operating expense of an electric railway this department is important from the standpoint of economy.

The experienced platform man who has made a careful study of his duties can be an important factor in economy of operation, since his experience may at some critical moment cause service to be maintained under conditions that would cause a new man to fail completely. Most men are willing to be taught, and here lies a wide field for economic and efficient teaching of the many phases of the economics of car operation.

Meters Keep Shop Men "On Their Toes"

On the subject of power for operating cars, the writer has had some experience with ampere-hour meters installed on cars to promote energy saving. He found that the men appreciated that careful attention to power saving goes hand-in-hand with greater safety to themselves and their patrons. For example, if a car showed signs that the brakes were too tight or the car dragged for any other reason, the men asked to have the trouble corrected in order to keep the average power saving record high. Such an attitude on the part of paltform men tends to keep the shop men on the alert to see that no car goes into service unless in good operating condition.

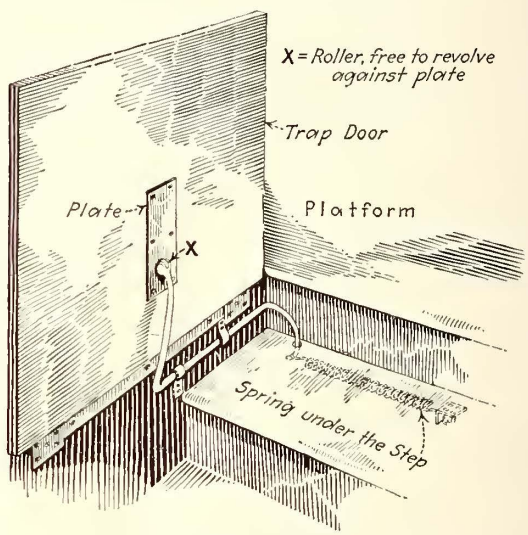
Besides improving the energy-saving record, the meters had a further value in showing that the motormen who made the best energy records were as a rule the ones who were previously considered the best. In other words, the man who was alert and keen in his efforts to save power was found to be always on the lookout to avoid accidents. In promoting better driving of the car, the meters helped in saving the equipment and effected a reduction in accidents.

Another factor in economy is good maintenance, and the operating department has a real task to perform if a dependable service is to be maintained. The system of inspection on many city and interurban railways has not yet reached the steam-road standard of efficiency. On the steam roads, at all terminals and certain stations where trains stop even for a few minutes, one finds the car inspector, with hammer and can of oil, making a close inspection of the condition of journals and trucks. He is in many cases able at once to remedy a condition that would otherwise have caused a bad tie-up of the train.

An effective system of shop inspection, whereby cars are placed in service only after they have been thoroughly inspected for mechanical or electrical defects or repairs and for cleanliness of interior as well as the exterior, will go a long way to satisfy the patrons of the road. In these days of strenuous competition and keyed-up efforts to maintain a dependable service, any failure of equipment to perform the duties intended will cause criticism of the personnel or policy of the company. No passenger will be satisfied with the service if the car has a dusty and unclean interior, the windows a coating of dust or a toilet in condition that could have been eliminated by a system of inspection at the shops.

Spring-Operated Trapdoor Lift

THE accompanying illustration shows a spring-operated trap door lift which has been in satisfactory service on the cars of the Philadelphia & Western Railway for the past few years. It was designed by Rowland Hubbard, master mechanic of that road. The trapdoor, hinged in the usual manner, is operated by means of a bell-crank lever offset to provide for bearings. This lever is made of $\frac{7}{8}$-in. mild steel and the portion which passes through the car step is 5 in. long, the bearing portion 12 in. long and the long outside portion 18 in. long. This longer end has a larger piece of iron forged on, which is upset



APPLICATION OF TRAPDOOR LIFT TO CAR PLATFORM

and slotted to provide for a roller $\frac{3}{4}$ in. long by 1 in. in diameter. The roller is of mild steel, case-hardened, and it operates on a wearing plate fastened to the under side of the trapdoor. The wearing plate is made of iron $\frac{1}{8}$ in. x 2 in. x 12 in. A long tension spring made from an old brake-release spring is attached to the short end of the bell-crank lever and provides the necessary tension for raising the door when it is released. This short end of the bell-crank lever passes through the upper car step and the spring is hooked over the end of this. The other end of the spring is hooked to a right-angle bracket fastened to the under side of this step. Two flat-iron straps, $\frac{1}{2}$ in. x 1 in., form the bearings for the bell-crank lever. These are bent around a piece of $\frac{3}{4}$-in. stock, drilled to $\frac{7}{8}$ in. and then split in two parts to provide for covenient attachment. In ordinary operation the trapdoor is latched down. Unlatching is all that is necessary in raising it, as the spring action through the bell-crank lever raises the door to its proper position. This type of lift can be made up at very small expense and will operate both steel and wooden trapdoors.

Economies in Steam Generating Stations*

The Author Shows Particularly How Labor Saving Can Be Accomplished Between the Coal Car and the Ash Dump — He Does Not Favor the Bonus System

BY S. M. FINN
American Engineering Company, Boston, Mass.

AT NO TIME and in no other industry has there been such an awakened interest in the subject of economic operation as there is at present among power-plant engineers. This is a natural aftermath of the war. It is made necessary among other things by the scarcity, high price and general inefficiency of labor.

Economies in the power-plant field fall into three well-defined classes, namely, (1) labor, (2) maintenance of equipment and (3) conservation of natural and generated energy and lubricants. Labor saving is effected by the geographical location of the plant, the design of the plant and the selection of equipment made with a view to eliminating labor and extensive repairs. Saving in maintenance depends on proper selection of equipment from the standpoint of maintenance and proper selection of operators. Saving in the third class mentioned depends, first, on the proper selection of equipment, second, on the selection of the operators and, third, on the checking up of performance.

From the above it is evident that proper selection of equipment occurs in all three classes of savings to be effected, and this in general is the most important source of economy available. This paper is devoted mostly to the equipment end of the subject. Before taking up this topic, however, a few words on the others will be in order.

In these abnormal financial times, common labor is being paid out of all proportion to ability as compared with operating engineers and experienced technicians. In such an emergency as that through which this country is passing, muscle predominates for the time being at the expense of brains, but in the past in every case muscle has gone back somewhere near its previous level, while brains have permanently remained uppermost. The great body of workers who constitute the middle class between labor and capital should, therefore, remain the conservative, constant class, counteracting any radical tendency on the part of either labor or capital.

As to the human element in labor, results along this line can only be secured through the personality of the foreman, through his willingness to put aside his personal ideas in order to adopt an attitude which his analysis of the situation says is correct. Bonus systems have been worked out in some plants for increasing efficiency of firemen. In most of these it is possible to manipulate the results, breeding dishonesty in those who are clever enough to do so and dissatisfaction among the others. The only fair bonus system is one based on punctuality and attendance, but even this has the effect of under-rating the common rules of success in the minds of the men.

As to the effect of geographical location as a source of economy, the plant of the Northern Ohio Traction & Light Company at Cuyahoga Falls may be cited as an example. This is built on an alluvial deposit between the base of a high cliff and a small river. The face of the cliff forms the back of the power plant, the waters of the creek washing the foundation in the front. Elements of economy here are found in the short distance through which it is necessary to handle the condensing and circulating water; in building construction due to the use of the cliff for one wall, but most of all in the use made of the location in connection with coal handling. A railroad track runs parallel to the creek, and it is possible for coal cars to be run off from the cliff on a level grade on top of the power plant. The coal is dumped into track hoppers, from which it passes down to the coal bunkers, then through the stokers, which have continuous rotary dumps, and into the ash hopper. Coal is not handled by man or machinery until it has been reduced to ashes. There are few such ideal locations to be had in this country, but on the other hand the advantage of locating the power plant at tidewater is utilized in many plants, such as, for example, the "Waterside Station" of the New York Edison Company. The real benefit derived from waterfront power station location must, however, be credited to the ingenuity of the conveyor engineer rather than to the location of the plant.

SOME PRINCIPLES OF ECONOMICAL COAL HANDLING

Coming now to the subject of equipment, it seems best to consider this with all three possible sources of economy simultaneously in mind.

Power generation starts at the unloading of the fuel container, whether it be a coal car or a tank for fuel oil, and at this point economy must start. Unloading of cars by hand requires much labor, and involves appreciable loss of fuel. There is probably not a plant in the country which could not build an elevated siding up which the cars could be run and dumped into a track hopper. If coal is stored on a plot of ground, there is the problem of getting the coal into the boiler room. Although still used, the wheelbarrow is an antiquated device for moving this, although there are old plants in which it would not be practicable to install overhead conveying systems. For these the electric tractor offers an ideal solution. In some plants very elaborate coal-handling equipment is feasible. Locomotive cranes are frequently used for unloading and piling coal in storage cars and are very economical for this purpose.

In the boiler room there are excellent opportunities for coal-handling equipment. One method which is particularly useful, when stokers with hoppers of ample size are installed, is the use of a traveling lorry, either on telfer rail or on a double track. The great advantage of the monorail or telfer system is the ease with which a track can be run out into the storage yards,

*Abstract of paper read before the New England Street Railway Club, Boston, Dec. 4, 1919.

as there is but one rail or track. This can twist and turn around on existing building structure, and the monorail lends itself particularly well to plants which are being rehabilitated. The use of the double-track traveling lorry is restricted to straight-line operation or to curve of long radius. It usually has the advantage of including a weighing scale and can be installed and built much lighter than the monorail crane, particularly when the operator walks on the ground. It is always necessary to have coal overhead in using this type of lorry, whereas the monorail system can be equipped with a grab bucket, either of the clamshell or orange-peel type, and can have the operator in the cage. The latter plan, therefore, is efficient for handling coal from the yard directly to the boilers.

Cost of Maintenance Not a Factor

The installation of an efficient coal-handling system is surely one of labor saving; and as far as maintenance is concerned, there is very little choice among the several systems outlined. I make this statement because in the case of the bucket conveyor, where the maintenance would naturally be higher than that of an electric tractor, the size of the plant which would warrant the installation of a bucket conveyor would not warrant the installation of a tractor. Therefore, the upkeep per ton of coal handled would be about the same in both cases, provided of course that the best design and construction of mechanism in each case were selected.

In connection with the coal-handling equipment a very important auxiliary is a coal-measuring device. An automatic recording coal scale has a psychological effect upon the average fireman. The non-automatic recording coal scale has the effect of making the fireman dishonest in his endeavor to show low fuel consumption. The scales are usually located at the top of the downcomers to the boilers.

A large item of conservation of coal is in the selection of stoker and boiler. Although for short periods, under special conditions, results equal to those possible with mechanical stokers can be secured by hand firing; this method does not belong to the modern power plant. A consideration of the construction of a modern underfeed stoker will show why this is so. For example, in the later type of Taylor stoker the power dump feature has been incorporated, and the cleaning of the bridge wall is accomplished by mechanical means. This is done, the plates are dumped and the plates are returned to their normal condition in about twenty seconds. This feature eliminates smoke due to cold air coming up through the side door while the clinker is being broken from the bridge wall; it eliminates the necessity for an air-tight ash pit and also saves labor. An even later improvement is the rotary ash-discharge type of stoker, in which the crusher rolls revolve continuously with a speed proportionate to the speed of the coal feed.

Modern devices of this sort not only produce labor saving, but increase efficiency. For example, in one plant which has a varying load factor of from 15 to 85 per cent an average monthly over-all efficiency of boiler and stoker of from 72½ to 74 per cent is maintained. This includes all standby losses, and at times these efficiencies have been obtained with coal running as high as 20 per cent in ash. The plant uses Taylor power dumps and Edge Moor watertube boilers.

The boiler question is largely a matter of personal opinion of the engineers. The writer has found very little difference in efficiency as obtained with the various types of boiler. The design of the setting is very important, however, and a large combustion space with the stoker set flush with the front of the boiler is important. Vertical and inclined baffles are considered superior to horizontal baffles hanging from or laid on the tubes. The building of superheaters in the gas passes of the boiler setting proper is preferred by engineers to location in a separate compartment. Soot cleaners are necessary, and one permanently built in place is preferable to the old steam lance.

Ash disposal, and with this may be included soot disposal, is a very important item in the power plant, but until recently it has not had proper consideration. The bucket conveyor should not be used in handling ashes, not because it is not a good conveyor but because rolling contacts wear excessively in the presence of abrasive material. One of the best methods of handling ashes is the old-fashioned wheelbarrow method, condemned for every other modern use. Of course, in this the actual wheelbarrows are not used, but the same principle is applied, namely, the ashes are dumped or raked into cars. As an example of good ash-handling practice, that used in the Long Island City power plant of the Pennsylvania Railroad may be mentioned. Here the ashes from thirty-two 600-hp. boilers are handled by dumping into iron tanks which are carried on flat trucks pushed by hand to a hoist. This lifts the tanks without the truck up to a runway, where they are carried on other cars out to the ash tower. The use of electric tractors or endless cable has also been adopted successfully for handling ash cars. The storage battery drive should, of course, not be put directly on the ash car. Bell conveyors are not successful in handling ashes.

A modern type of conveyor that lends itself particularly well to the handling of ashes is the so-called vacuum conveyor. The system that sucks the ashes is preferable to the one that drives them, because suction tends to draw the particles of ash to the center of the pipe, producing the minimum wear on the pipe itself. A combination of the two methods is probably the best, namely, suction on the horizontal line and forcing on the vertical line. Much ingenuity has been exercised in designing the elbows of these conveyor pipes, so that the pipes that are subject to excessive wear are easily replaced.

The low cost of operating one of these conveyors is surprising. By actual test made by a company not selling ash conveyors, it was found that the steam consumption was but a very small fraction of 1 per cent of the steam generated.

Another Broad Field for Saving Is Suggested

The proper selection of auxiliary equipment, both for the generators and for the boiler of the power plant is very important. The rotary circulating pump driven by an electric motor is far more economical than a reciprocating pump. The modern high-speed fan driven through reducing gears by a high-speed turbine gives forced or induced draft at a much lower cost both for operation and maintenance than the old paddle-wheel fan. The steam consumption for stoker auxiliaries should never exceed 2½ per cent of the steam generated when exhausted into the atmosphere, and actual tests show the figure to be as low as three-fourths of 1 per cent, when the steam is returned to a heater. Modern bucket conveyors are operated by motors ranging from 5 to 20 hp.

Experiences with Thermit Insert Welding at Southampton

BY W. TUKE ROBSON
General Manager and Engineer, Southampton Corporation Tramways, 1915-1919

SOUTHAMPTON was one of the first English towns to adopt Thermit welding, and as long ago as 1906 this process was used in relaying the track on the fine thoroughfare known as Southampton Avenue, one of the finest roadways in any British town and of which the inhabitants are justly proud. The present process

SOUTHAMPTON AVENUE WHERE THE JOINTS WERE INSTALLED

followed in America of insert or wedge welding was then quite unknown, and the joints were welded in the usual British way by drawing the ends of the rails together by means of a large clamp, this clamp not being released until the weld had cooled off.

Owing, however, to the existence of fishplate holes, fractures afterward occurred, and the writer upon taking up his duties was met by the serious position of finding the main thoroughfare of the town spoiled by a series of badly knocking joints. The Thermit Company at that time was experimenting with the pressure weld now so universally known in America, and after much consideration, it was decided to make a clean sweep of the trouble, and the defective joints were cut out, an insert piece 18-in. long of equally worn rail being substituted.

The double joints thus made were then forced apart by wedges, and the outer rails held by a specially designed clamp, which in addition to maintaining the expansion was also provided with a heavy square threaded thrust screw.

The wedges were then replaced by copper-covered inserts, known as "shims," $\frac{3}{16}$ in. thick, which were thrust into position by this screw. The clamp was then removed and two Thermit welds were made in the usual manner.

This departure from existing standard practice was fully justified by the results, as not one of the joints welded in this way in 1915 has since failed and Southampton's fine avenue now enjoys a quiet, perfectly-welded track.

This success naturally led to further experiments, and other portions of the system were dealt with. It was soon found that ordinary fishplate joints could be successfully treated by pressure welding, as the presence of fishplate holes in rail ends did not lead to fracture when the rails were forced apart, although fatal when the opposite practice of drawing together was used, and a considerable length of track marked down for renewal just before the war was saved for a further indefinite period by similar treatment.

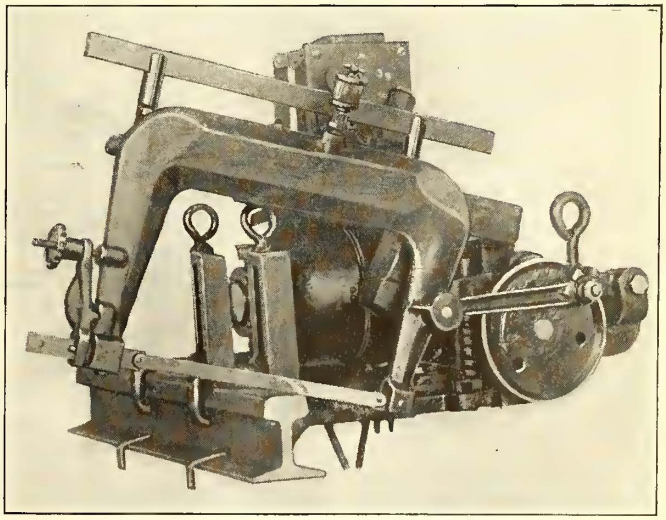
The impossibility of obtaining either new rails or labor during the period of the war actually made such a process very welcome, and although the adoption of electric welding of dished or cupped joints proved to be much cheaper than the Thermit process for minor repairs, the latter has its own particular uses, especially in cases of fracture of the rail itself, when the insertion of a short length of rail provides the only satisfactory solution.

Cutting Rails with a Power Sawing Machine

A NEW TYPE of portable rail sawing machines has recently been placed on the market by the Racine Tool & Machine Company, Racine, Wis. The machine is furnished complete with motor and starting box, and the frame and body are of steel castings to insure against breaking.

An interpole, ball-bearing, fully-inclosed type of motor is supplied for driving the machine, which will operate on direct current of from 260 to 600 volts. When used by electric railways, current may be taken directly from the trolley wire or the third-rail. The motor is mounted on the frame of the machine and the drive is through worm gearing. The weight of the machine complete with motor and starting box is 225 lb.

Quick-acting clamping devices allow the machine to be easily placed at work, and the clamps may be readily



POWER SAWING MACHINE FOR CUTTING RAILS

adjusted to fit any size of rail within range of the machine. The length of stroke is 6 in., and the number of strokes per minute is sixty. It is claimed that this machine will cut a 9-in. girder rail in from fifteen to eighteen minutes, and that one blade will cut from eight to ten rails. The saw clears the work automatically on the return stroke.

Association News

Special Car New York to Cleveland

FOR the benefit of New York members who are going to the mid-year meeting to be held in Cleveland on Jan. 8, there will be a special car attached to the 6.45 p. m. train leaving Grand Central Terminal on Jan. 7. The railroad fare is $20.16, lower berths are $3.24 each, uppers are $2.59, and the one drawing room holding two or three is $10.80. Applications should be made to association headquarters at once.

Activities of Information Bureau

THE information bureau, through Special Engineer J. W. Welsh, announces the completion of ten bulletins on timely subjects.

Two bulletins relate to trainmen. No. 122 contains information from 288 companies covering rates of wages paid for each year of employment, together with the dates on which the present scale became effective. No. 123 covers working conditions of trainmen employed by 237 companies, and gives the information regarding the number of hours constituting a day's work, the limitations as to the spread of runs, the proportion of straight and swing runs, the rates paid for overtime and the basis on which overtime is calculated, together with any guarantees covering minimum wages for men employed. As this is a confidential compilation, the companies are referred to only by key numbers.

An up-to-date tabulation has also been prepared covering cities that have increased the rates of fare. This gives both the new and former fares, cash and reduced-rate tickets and the effective dates. A comparison of valuation and capitalization of twenty-three typical electric railways shows an excess of capitalization or valuation for the group of approximately 11 per cent. This bulletin contains a brief summary of the valuations, the authorities making the studies and the sources of information.

A study has also been made of the cost of money for public utilities in a compilation of securities issued since Jan. 1, 1919. This shows the kinds of securities, the actual yields to the investors and the nature of collateral back of the securities. A study has also been made of the rate of return allowed in numerous decisions of public utility commissions, as well as by other public authorities. It deals solely with electric railway properties, and includes a summary of the rates of return fixed in service-at-cost franchises.

Another bulletin covers the cost of motor-bus operation. This includes summaries of financial statements of a number of prominent motor-bus companies, together with descriptions of the operating equipment, and a general statement of the operating conditions in the territory served by the buses. The tabulation also includes a summary showing the cost of operation of the Post-Office Department's motor-wagon service, as well as information covering the cost of operating a number of different types and sizes of motor buses.

The remaining bulletins relate to jitney regulations, metal tickets and fares. The first is a summary of public service commission decisions in several states and a compilation of statements in the technical press from

Program for the Mid-Year Meeting

CLEVELAND, OHIO, JAN. 8, 1920

MORNING SESSION

I. Report of Committee on Changes in Constitution and By-Laws providing for increase in dues of members, to be presented by L. S. Storrs, chairman.

II. Presentation of the following resolution regarding depreciation:

Resolved, that the American Electric Railway Association recommend to its member companies that they provide in their accounting practice for the creation of adequate reserves to insure the replacement or abandonment of major items of property in advance of their actual replacement or abandonment; that such reserve shall, if possible, be provided for in cost of service franchises; and further that this subject be referred to an appropriate joint committee of the American Electric Railway Accountants' Association and American Electric Railway Engineering Association, to formulate report on the preferable means of creating such replacement reserve and the variations in the amount thereof that will occur in railway properties of different characteristics; and further

Resolved, that a summary of such report be presented to the American Electric Railway Association at its annual convention in 1920.

The foregoing resolution will be discussed by Williston Fish, vice-president West Penn Railways, Pittsburgh, Pa., who will present a paper supporting it, after which there will be general discussion of the resolution.

AFTERNOON SESSION

III. Paper: What a Labor Contract Should Contain
EDWIN GRUHL—Assistant to President, North American Company, New York.

General Discussion.

IV. Discussion of the Desirability of the Association Holding More Frequent Conferences.

THE BANQUET

Richard McCulloch, first vice-president of the association, will preside at the banquet to be held in the Hollenden ballroom at 7 p.m.

The speakers will be:

Hon. Warren H. Harding, United States Senator from Ohio;

E. A. Guest, of the Detroit (Mich.) *Free Press,* and Andrew Squire, General Counsel Cleveland Railway.

April, 1918, to Dec. 3, 1919. The second is a partial list of companies using metal tickets, together with references from the ELECTRIC RAILWAY JOURNAL and *Aera*, to Dec. 9, 1919. The fare bulletin relates to rates in Canadian cities, showing authority granting rate, name of company operating, former rate of fare, date on which increase became effective, and population served.

Electric railway companies which are members of the association, can obtain copies of these bulletins by application to the information bureau.

Manila Section Temporarily Suspends

OWING to labor conditions on the property of the Manila Electric Railroad & Light Company, it has been found expedient not to hold meetings of the company section for the present. The men who have been active in conducting the work of this highly successful section hope that it may be possible to resume the work at an early date.

Toledo Section Still On the Map

OWING to the recent disturbances in the electric railway situation in Toledo, Ohio, the local company section was quiet for a time, but activities have been resumed. Its Christmas party was held on Dec. 23, with music by the section orchestra and the section glee club, as well as a motion picture entertainment. An old-fashioned Christmas tree with distribution of presents for the children rounded out the program. The last section dance was held on Nov. 5, just before the cars of the Toledo Railways & Light Company went "on vacation," but the dances will be resumed on Jan. 7. There will also be a "stag party" and smoker on Jan. 30.

Fare Boxes Settle the Arguments

THE Galveston (Tex.) Electric Company recently installed Johnson fare boxes on the local street cars, and at the time of this writing had had two weeks experience with them. The result is that the public, company and employees seem to be well satisfied. The company is pleased not only because of the usual results from fare box installations, but because the new practice of pay-as-you-enter collection has eliminated one source of many arguments between the conductors and strangers in the city. The pay-enter system is so generally prevalent that most strangers boarding the cars tender the conductor their nickel as they enter. The conductors have had a habit of refusing to take the coin at that time, apparently because of some mental process of keeping track of who has and who has not paid by his position in the car, or for some reason. Arguments have followed. But the fare box solves this situation and the people like the freedom from the frequent trips of the conductor through the car.

All of the closed cars operated by the company are single truck with small vestibules. The fare boxes were mounted on the far door post of the bulkhead without any change in the vestibule. The adoption of fare boxes was somewhat complicated by the use in summer of a large number of cross-seat open cars on which the boxes of course cannot be used. These cars are very popular with the riders, so that it is desirable to continue their use. So the practice in summer will be mixed, pay-enter on the closed type cars and pay-within on the summer cars.

Letters to the Editors

Zone Fares for Small Cities

BROOKLYN, N. Y., Dec. 21, 1919.

To the Editors:

In these parlous days when American experiments with the zone fare are in their early stages, and therefore with few friends and far between, it is good to have so enthusiastic an article as that which J. A. Emery contributed to your issue of Oct. 4 on "The Future Fare System for Small Cities." While others question the value of the zone-fare principle for urban communities of any size, Mr. Emery goes as far as is at all practicable by suggesting a zone fare for cities of less than 100,000 population.

In general, I am fully in accord with him that where the differential fare is introduced in such cities in combination with the modern one-man car—and the latter can be made more important than the fare system—there should be no practical difficulty in the collection of fares "by the use of colored tickets with prepayment inbound, and postpayment outbound."

For all that, I believe it would be unwise to make any sweeping generalizations on this question of zone fares for cities under 100,000. In the examination of particular communities, we are likely to find that some other scheme is demanded by the necessities of the case. For example: There is a city of 50,000 with the business and shopping district located along a body of water with the car routes extending south, north and west from this area for distances of 2 to 2¼ miles. Owing to the present long intervals between cars, at least half the population are not prospective customers for the street railway except in bad weather, and a large portion of the other half could easily walk pretty deeply into the inner or first zone before a car comes along, assuming that the prospective passenger had just missed the preceding car.

Under circumstances like these people in the inner zone will not be tempted by a short-ride fare, for the obvious reason that the cars do not come along often enough to save their time. Very close headways are required to build up riding in such areas. In practice, we generally find that two or more lines converge in the downtown section so that it is possible to offer a car in this section every two or three minutes if the converging lines themselves have something better than fifteen and twenty-minute intervals. Granted this condition, we may be assured that we have the first requisite for maximum riding, namely, frequent service.

It must also be clear that so long as people in the outer zone depend upon long-interval cars they will almost always walk to and from the boundary of the first zone. Give them a five-minute service, and such practice would be reduced to negligible proportions.

From the studies in small cities that I have been privileged to make here recently, it seems to me that the first essential for reducing expense and gaining more revenue is to operate more economical cars and a greater number of them. This means the automatic or safety car. After the resources of such frequent-service cars

have been exhausted, it is in order to see what can be done with differential fares, particularly in building pick-up traffic.

In passing, I would also like to point out that we cannot form wholly satisfactory deductions as to what a zone fare would do for large cities if we base those deductions on the traffic characteristics developed under a flat-fare system. The tendency of a zone fare in combination with frequent service is to develop off-peak, short-haul riding, which in turn leads to the growth of more neighborhood centers. For the public welfare this consequence is desirable, because it is largely through neighborhood centers that we can foster that civic pride so lacking in big American cities to-day.

WALTER JACKSON.

Police Power Reserved to Cities

Supreme Court Will Interfere Only Where Power Is Exercised in a Clearly Arbitrary and Oppressive Manner

THE United States Supreme Court handed down on Dec. 15 a decision in the Shreveport (La.) "one-man car" case, upholding the right of the city, under its police power, to insist on the use of two men. While the court did not deny its right, under certain circumstances, to interfere with the "exercise of the power reposed by law in municipal corporations for the protection of local rights and the health and welfare of the people in the community," such interference, it declares, should take place only "in cases in which the power has been exercised in a manner clearly arbitrary and oppressive." The decision, delivered by Justice Clark, follows:

THE DECISION IN FULL

In 1907 the City of Shreveport, La., passed an ordinance requiring that each street car used in its streets should be operated during designated hours by two persons, a conductor and a motorman, and providing penalties for its violation. The company with street railway lines in the city complied with the requirements until in June, 1917, when it procured some cars equipped for operation by one man, and attempted to use them on its "Allendale Line," with only a motorman in charge. Thereupon the plaintiff in error, hereinafter designated the defendant, who was superintendent of the railway company, was arrested for violation of the ordinance.

He defended by filing a motion to quash the affidavit for arrest, on the ground that the ordinance was unreasonable and arbitrary and that the enforcement of it would deprive the company of its property without due process of law and without compensation, in violation of the Fourteenth Amendment to the Constitution of the United States. The motion to quash was "referred to the merits," a full trial was had, the motion was overruled and the defendant, found guilty, was sentenced to pay a fine. The judgment of the Supreme Court of Louisiana affirming this judgment is before us for review on writ of error.

The defense introduced evidence tending to show that the new type of car used was so equipped that it could be operated by one motorman with safety to the public as great as was secured by cars theretofore used when operated by two men. The car, designated in the record as "a one-man car," is described as so arranged that passengers enter and leave it only at the front end, where the motorman is placed. It is so equipped electrically that the motorman must remain in an assigned position necessary for the discharge of his duties and must perform "some conscious act" at all times when the car is in motion. If he fails in this "conscious act" the current is automatically cut off, the brakes are applied in emergency, the rail is sanded and the door of the car is unlocked and is so adjusted that opening it lowers the step for use. There is testimony tending to show economy in the use of such cars, not only in the saving of the wages of one man but also in immunity from accident.

It is apparent from this description derived from the record that it presents for decision the question: Whether the ordinance of 1907, confessedly a valid exercise of the police power when it was passed, was rendered arbitrary and invalid by the development of a car which it is claimed can be operated by one man with as much safety to the traveling public as, and with less cost than, was secured by the two-man car, in use at the time the ordinance was passed and which was contemplated by it.

It is not necessary to decide in this case whether a valid regulating ordinance can be rendered invalid by a change of conditions which render it arbitrary and confiscatory (Lincoln Gas & Electric Light Co. v. Lincoln, 250 U. S. 256, 269; Minnesota Rate Cases, 230 U. S. 352, 473; Johnson v. Gearlds, 234 U. S. 422, 426; Perrin v. United States, 232 U. S. 478, 481; Municipal Gas Co. v. Public Service Commission, 225 N. Y. 89, 95, 97, and Castle v. Mason, 91 Ohio St. 296, 303), for the claim that such a change of condition had arisen in the case is stoutly disputed by the city authorities.

While on the record before us it might be plausibly contended that when all the appliances on the "one-man car" work as it was intended they should, it could be operated with a high degree of safety in streets where the traffic is not heavy, yet there is evidence that in the short period of the operation of such cars in Shreveport, the brakes on one of them failed to operate on a descending grade, resulting in the car getting out of control under conditions, which, except for good fortune, might have resulted in serious accident. A passenger testified to receiving slight injuries when entering a car due to the premature closing of the door, and he attributed the accident to the presence of other persons between him and the motorman whose duty it was to close the door. It was in evidence that the line on which these cars were placed, while in general one of light travel, extended into the principal business section of a city of 40,000 inhabitants; that it had at least one steep grade in it, and that at times the travel was heavy and the cars crowded.

It is obvious, and not disputed, that such cars are better adapted to light than to heavy travel, for all passengers must enter and leave at one door, and one man must take fares, make change, issue transfers, answer questions and also remain in position to start the car promptly. So occupied and placed, plainly this one man could not render such assistance as is often necessary to infirm or crippled, or very young passengers, or to those encumbered with baggage or bundles, and it would not be difficult to suggest emergencies of storm or accident in which a second man might be of first importance to the safety and comfort of passengers.

These "one-man cars" at the time of trial were, as yet, experimental, and enough has been said to show that in each community the operation of street cars presents such special problems—due to the extent and character of the travel, to grades and other conditions—that with peculiar appropriateness they have been committed by the law primarily to the disposition of the local authorities, whose determination will not be disturbed by the courts, except in cases in which the power has been exercised in a manner clearly arbitrary and oppressive. The rule is, "that every intendment is to be made in favor of the lawfulness of the exercise of municipal power, making regulations to promote the public health and safety, and that it is not the province of the courts, except in clear cases, to interfere with the exercise of the power reposed by law in municipal corporations for the protection of local rights and the health and welfare of the people in the community." Dobbins v. Los Angeles, 195 U. S. 223, 235. Since the record, as we have thus discussed it, fails to show a clear case of arbitrary conduct on the part of the local authorities, the judgment of the Supreme Court of Louisiana is affirmed.

Safety Code Conference in Washington

A CONFERENCE of representatives of interested organizations was held in Washington recently with a view to formulating uniform safety standards. The conference voted unanimously to approve the plan formulating such standards under the general auspices of the American Engineering Standards Committee. To expedite early action a general advisory committee will be formed to survey the whole field of safety standards and recommend what standards should be undertaken first and what organization should sponsor them. A meeting of the committee will probably be held during January, 1920.

Bulletin News Page

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

PRINTED DECEMBER 26, 1919

The City & Suburban Railroad, Brunswick, Ga., has gone into the hands of a receiver.

The committee representing the holders of the collateral trust gold 4 per cent bonds of the International Traction Company, interest on which was in default, has purchased at foreclosure sale collateral which had been deposited with the Guaranty Trust Company as trustee.

For the year ended June 30, 1919, the Interborough Rapid Transit Company, New York, N. Y., went behind $8,473,098. Officers of the company see no hope of escape from receivership unless an increase in fare is permitted.

Twenty-six million forty-six thousand seven hundred and sixty-four dollars is the reproduction cost new as of Dec. 31, 1919, found by the Railroad Commission of California for the Los Angeles Railway Corporation. The commission has suggested $720,000 a year as a depreciation allowance.

President Kealy of the Kansas City (Mo.) Railways believes the company has passed over most of the roughest spots. A letter from him to the holders of the company's funded obligations reviews the recent operations of the company.

Arthur Gaboury has been elected president of the Canadian Electric Railway Association.

The Kansas City (Mo.) Railways is now charging 8-cent cash fares.

The City Council of Salem, Mass., has voted to revoke permits for the operation of jitneys within the city limits.

The Nashville Railway & Light Company, Nashville, Tenn., has applied to the State Public Utilities Commission for an increase in fare to 7 cents.

The United Railways & Electric Company, Baltimore, Md., will reroute its lines with a view to the ultimate establishment of a rapid-transit system.

Judge George W. Kelly of the District Court has dismissed the case of the town of Whitman (Mass.) against four jitney operators.

A zone system with a 5-cent fare in each zone has gone into effect on the lines of the Worcester (Mass.) Consolidated Street Railway.

The Supreme Court of Illinois has handed down a decision sustaining the action of the State Public Utilities Commission in raising fares of the Quincy Railway to 7 cents.

John A. Beeler, traffic engineer, has made the first of his recommendations with regard to traffic conditions in Kansas City, Mo. Mr. Beeler's suggestions will be tried out on Twelfth Street, Kansas City.

The Birmingham Railway, Light & Power Company, Birmingham, Ala., has purchased twenty-five one-man cars with which it will experiment with a view to working out the best plan for the segregation of the races.

Claims so far presented growing out of the wreck on the Brooklyn Rapid Transit System about a year ago aggregate $1,200,000.

A system of buses is proposed for Philadelphia.

Mayor Thompson of Chicago has named the board to prepare a transportation plan for Chicago.

The City of Seattle, Wash., proposes to take over more electric lines which are now being operated privately.

Trainmen in the employ of the Aurora, Elgin & Chicago Railroad, Wheaton, Ill., have received an increase in pay averaging about 20 per cent.

Employees of the United Railways, St. Louis, Mo., have requested a reopening of the wage agreement.

Further changes in New York's Public Service Commissions are recommended in the report of the reconstruction commission in that State. It is expected that the matter of increased fares will again come before the Legislature.

Employees of the Interborough Rapid Transit Company, New York, N. Y., have asked for an increase in pay of 25 per cent. Further conferences will be held. Last July wages were increased 25 per cent.

A bill has been introduced in the Legislature of Ohio providing for municipal ownership of railways in cities. The measure is in the interest of the settlement of the controversy at Toledo.

The superintendent of Seattle's municipal railway has recommended an issue of bonds to provide funds for the extension and betterment of the property.

Council of Detroit, Mich., has before it for action the proposal of Mayor Couzens to authorize an issue of bonds to the amount of $15,000,000 for railway construction by the city.

S. M. Gallaher, manager of railways of the Monongahela Valley Traction Company, Fairmont, W. Va., has resigned to become head of the engineering and construction departments of the Cleveland (Ohio) Electric Illuminating Company.

Harry Clark, treasurer and assistant general manager of the Empire State Railroad, Syracuse, N. Y., has resigned.

The Public Service Commission of Missouri has authorized the city Light & Traction Company, Sedalia, to charge 6-cent fares on its lines.

The cars of the local and interurban lines of the Detroit (Mich.) United Railway were involved in more than 10,000 collisions with motor vehicles during the first ten months of 1919.

The Richland Public Service Company, Mansfield, Ohio, plans to charge 8-cent fares beginning Jan. 1, 1920.

The Eastern Massachusetts Street Railway plans to establish a freight system throughout its system in Essex County, Mass.

The Illinois Public Utilities Commission on Dec. 23 issued an order reducing the fares on the Chicago Surface Lines to a straight 6-cent basis. The order became effective at midnight on Dec. 26.

Rolla Wells, receiver for the United Railways, St. Louis, Mo., has announced that he will shortly apply to the State Public Service Commission for authority to make a charge for transfers on the company's lines.

The statement is printed in full this week which was issued by the Public Service Corporation of New Jersey indicating that the experiments of the Public Service Railway with the zone fare cost that company $1,500,000.

Both sections of the commission appointed to deal with the railway situation at Toledo, Ohio, are conducting hearings. Material progress is reported, with the prospect that the respective reports will be ready well within the time allowed to put the matter before the voters for decisive action.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

Urges Bond Issue

Detroit Council Soon to Take Up Measure Appropriating $15,000,000 for Railway Construction

The ordinance and resolution introduced in the City Council of Detroit, Mich., for Mayor Couzens more than a month ago, proposing that a bond issue of $15,000,000 for the construction of needed extensions, be submitted to the voters, but making no provision for operation of the lines, will be taken up by the Council committee of the whole for action in the near future.

MAYOR OPPOSED TO TAYLER PLAN

Among other objections voiced by Mayor Couzens in opposition to the Tayler service-at-cost plan as submitted by the Detroit Street Railway Commission before its members resigned as a body, was the claim that the present city charter gave city officials no power to enter into an agreement with private parties for the operation of railway lines. It is believed that an amendment to the city charter, to permit the city to enter into an agreement with the Detroit United Railway, providing for joint use of the existing lines and proposed municipally constructed extensions, may be one of the points of the railway ordinance as submitted to the Council for final action.

Three methods for working out an operating policy have been suggested. One provides for favorable action by the Legislature of Michigan authorizing the city of Detroit to operate cars over the Detroit United Railway's lines on which franchises have expired and on such non-franchised lines as are now being operated by the Detroit United Railway under the so-called day-to-day agreement.

The plan which the Mayor is believed to be seriously considering is that of forming a complete independent system by linking up the new extensions, the new system to be operated in competition with the Detroit United Railway.

EMPLOYEES FAVOR TAYLER PLAN

The third plan is to submit a charter amendment revising the section of the city charter relating to electric railways, empowering the city to negotiate an agreement providing for the interchange of traffic between the Detroit United Railway and the city-owned lines.

Representatives of the railway union who were influential in the settlement of the recent strike in Detroit and at one time advocates of municipal ownership, favor the adoption of the proposed Tayler plan. It is claimed that the railway employees have achieved better working conditions and more satisfactory relations when dealing with practical traction executives than with officials appointed by the municipalities.

Seattle Planning Improvements

The utilities committee of the city of Seattle, Wash., has asked Thomas F. Murphine, superintendent of the city's municipal railway system, to submit a statement covering proposed extensions, terminal facilities, construction work and other betterments and improvements planned by the railway department in 1920. The statement will pave the way for consideration by the City Council at an early date of the proposal to construct a terminal station in connection with the city's transportation system.

The bond issue of $790,000 for needed extensions authorized by the city shortly after the electric railways were taken over has been exhausted by the department in construction of important extensions. Additional construction work will probably be necessary in 1920. In order that all the projects contemplated may be grouped together and financed as the construction program of the department for the entire year with an issue of utility bonds, Councilman Drake, chairman of the finance committee, is desirous of obtaining a complete statement.

The question of a terminal station is under consideration by city officials, Mr. Murphine having submitted tentative plans for a subway, elevated and terminal system. Chairman Drake has expressed the opinion that a common terminal station is absolutely necessary. He believes that it would be wise to start action toward securing a site and undertaking construction.

Mr. Murphine states that the railway system is losing $1,000 a day by duplication of service on the downtown streets that could be eliminated with a terminal station.

Municipal Ownership Bill Introduced

The right of municipalities to issue bonds for the purchase, construction and operation of city railway systems is provided in the bill introduced in the House at Columbus, Ohio, by Representative Brach of Lucas County. The bill is in the cities committee.

The bill permits a municipal corporation to bond itself to a total indebtedness of not to exceed 2 per cent of the total valuation of all property in the municipal corporation. The revenue from the lines is to be used to retire the bonds and pay the interest.

Toledo Commission Busy

Both Branches of Body Charged With Drawing Settlement Plans Rushing Work

The commission is at work that was appointed to consider the settlement of the electric railway controversy in Toledo. Two proposals will be submitted, one by part of the commission on the question of municipal ownership and the other by members of the commission on a service-at-cost arrangement.

It will be recalled that the resumption of service by the Toledo Railways & Light Company, after a suspension of almost a month, followed the amendment of the ouster ordinance of the City Council upon the appeal of the Mayor, who originated the ouster measure, and the issuance of a mandatory order by Judge Killits in the federal court.

The settlement commission is working in accordance with the orders of the court. Both sections of the commission are perfecting their plans. Already the municipal ownership section has initiated a bill which would give the city the right to issue general-credit bonds to acquire the transportation system. The municipal ownership section further has appealed to the citizens who are in favor of taking over the lines to support the bill by urging their representatives in the Legislature to enact the measure.

Under the service-at-cost plan as proposed the city and not the company will own the railway at the expiration of the franchise period. This amortization feature is considered advantageous alike to the company and the city.

H. L. Doherty, as operating head of the company, has been asked for terms under which he would sell so that the municipal ownership section may proceed more intelligently. It was said unofficially that Mr. Doherty would be willing to accept 20 per cent of the purchase price in cash and the remainder in 7 per cent debenture bonds.

Interest in the work of the commission outside of Toledo is not so much in the matter of how the two sections carry on their work and the details of their deliberations as it is in result of the deliberations. The final reports of the commission are therefore awaited expectantly, for on them will be based the ordinances to go before the voters, who it is hoped will then decide beyond a question of a doubt whether Toledo shall take over the lines or whether the present company will be permitted to continue operation under terms affording proper service to the public and sufficiently broad adequately to protect the company.

Transit Legislation Likely in New York

Fare and Commission Regulation Measures to Be Presented at Coming Legislative Session

The Legislature of New York is not yet in session, but there is apparent an unwillingness to accept as final a recent statement by Senator Thompson that the Legislature is without power to permit an increase in electric railway fares. One of those who openly takes issue with Mr. Thompson is Godfrey Goldmark, former counsel of the Public Service Commission for the First District of New York.

A Lawyer Sees It Differently

Mr. Goldmark said that he had no special interest in the controversy, except as a citizen and as a lawyer, and while he thought the courts would support his contention, so far as it related to fares on the rapid transit lines, his opinion was based on other authorities than the one quoted by Mr. Thompson, who cited a recent decision by the United States Supreme Court in litigation at Columbus, Ohio. Mr. Goldmark said that in the ordinary case where a city grants a franchise to an electric railway and fixes the rate of fare, the courts of other states have held that the rate may be increased by the Legislature over the city's objection, because the city, in fixing the rate, acted as an agent of the State, and, therefore, the State as the principal, might modify the contract.

So much for the legal side of the matter. As to the legislative side, an unnamed critic of Mr. Thompson points ut that it is well to bear in mind that important legislation is seldom successfully introduced and passed in the newspapers and that the Legislature is itself the final judge of what it will do. It is reasonable to suppose, so this source of information says, that if the Legislature is satisfied some sort of relief is necessary for the protection of property interests, the Legislators will not allow one or two members to block it. Some drastic measure may be proposed designed to obstruct the present avenues through which relief may eventually be secured, but the likelihood is remote of such measure being passed.

Reconstruction Commission Reports

As a matter of fact it is expected that the various measures to be proposed by the reconstruction commission will occupy the chief spot in the limelight. Even these measures will probably only advance far enough to make material for the coming political campaign. A loud noise is expected from the adherents of some of the more radical members, but with the presidential primaries in April and the necessity for an early adjournment it is doubtful if any legislation from this source will get very far.

As stated before, the various measures to be proposed by the reconstruction commission will be the absorbing topic. The complete report of that commission has just been published. So far as the electric railways are concerned the only part of the report of interest to them is that which contains the suggestions of the commission regarding the proposed reorganization of the Public Service Commissions.

The recommendations made therein are considerably at variance with the recommendations of the so-called Thompson committee, headed by Senator Thompson, that inquired into the work of the commissions. A particularly distasteful aspect of this report to some will be that it makes no particular provision for the political advancement of any particular person.

The reconstruction commission sees clearly that with two commissions such as there are in New York the benefit is lost of having a single authority deal with similar or identical problems such as street railway rates, but it still is of the opinion that for the present the two district commissions should be maintained. At present there are two Public Service Commissioners in New York City, both appointed by the Governor, one in charge of regulation and one in charge of transit construction. The reconstruction commission points out that the transit construction commissioner exercises in no sense a state function and that that office should be transferred to the city and the commissioner appointed by the Mayor.

Two Commissions Suggested

The reconstruction commission, therefore, has recommended that the powers and duties of regulation of public utilities be vested as at present in two public service commissions to be known as the first and the second district commissions each under a single commissioner appointed by the Governor with the approval of the Senate and serving at his pleasure. These commissioners will have two deputies each. This will involve a complete reorganization of the second district commission. The commissioners and their deputies will have power to act in a quasi-legislative or quasi-judicial capacity either singly or as a commission, but the commissioner is to be responsible for all decisions. The present First District Commission will be grouped under four bureaus. This will involve a logical consolidation of several existing bureaus. The legal work would be transferred to the office of the Attorney General. Only statutory changes will be necessary, in order to bring about these modifications.

Receiver Wants Buses Regulated

Declaring that jitney and motor bus competition is ruinous to the traction systems of the country, Zenas W. Bliss, a receiver of the Rhode Island Company and chairman of the Rhode Island Board of Tax Commissioners, said that such competition must be suppressed and the electric railways given a virtual monopoly if they are to exist, in an address before the eighth annual conference of the members of the New England Tax Officials Association during the week ended Dec. 13 at the State House in Boston, Mass.

Based upon his experiences as a receiver of the Rhode Island property, Mr. Bliss said that jitney competition means the destruction of vast legitimate values, the disruption of transportation, inconvenience and great unnecessary expense and financial loss.

Increased cost of operation, competition, public regulation, public opinion, taxation and inadequate gross revenue, are the principal difficulties, Receiver Bliss said, that are affecting the traction companies throughout the country. His subject was "Cost Problems of Traction Systems and Their Solution."

Mr. Bliss told the conference that he was decidedly in favor of regulation of traction properties by constituted authority with guarantees, as against public ownership. He laid stress upon the antagonistic attitude of the public toward the traction concerns and said that the people refuse to ride at the increased cost, although they pay more for everything else.

Receiver Bliss indicated a strong tendency to favor subsidizing the Rhode Island Company by the State without removing the real estate taxes against the utility, but eliminating all street paving and franchise obligations.

Interborough Men Want 25 Per Cent More

Fifty-four members of the general committee of the Brotherhood of Interborough Rapid Transit Employees called on Frank Hedley, president of the Interborough Rapid Transit Company, New York, N. Y., on Dec. 22 to discuss the making of a new wage agreement in place of the existing two-year agreement which expires on Dec. 31. They asked that the pay of the men be increased so that wages received would equal the amount the men would be receiving if their demands of last August for a 50 per cent increase had been granted.

Failure to yield instant compliance with the demands of the men last Summer for the 50 per cent advance in wages resulted in a complete tie-up of the lines from 4 o'clock on the morning of Aug. 17 until midnight on Aug. 18, when the men returned to work on a compromise arrangement of a 25 per cent increase and the understanding that the demand for enough more to make up the other 25 per cent might be renewed later on.

In discussing the matter Mr. Hedley said:

> Any changes to be made must be inserted in the new agreement. I am glad to say that the meeting has disclosed that there is the most cordial co-operation between the company and the men, a real spirit of co-operation. We have the requests of the men and they will receive consideration. There will be another meeting about the middle of January, when, I hope, a satisfactory agreement will be reached.

Lawrence Service Under Local Control

The jitneys in Lawrence, Mass., prevented by the city from operating after the Eastern Massachusetts Street Railway had withdrawn service as noted in the ELECTRIC RAILWAY JOURNAL for Nov. 15, page 948, did not give up the fight without a struggle. The jitney owners, numbering about 250, determined to take the issue to the public and though a fine of $10 was provided for the penalty for operation within the city limits, jitney service was continued for a time.

Restoration of electric railway service was accomplished through an agreement reached whereby the trustees of the Eastern Massachusetts Street Railway turned over control of the service to a committee of citizens of which James H. McBride is chairman and on which manufacturing interests, retail store owners, the Central Labor Union and newspapers are represented. Furthermore, the chief of police served notice that jitney operators within the city limits would be arrested on sight.

The sympathy and co-operation of the public, together with a genuine desire on the part of the railway officials to render satisfactory accommodation at the lowest possible rate give encouragement for the future of railway service.

The statement of the Eastern Massachusetts Street Railway says in part:

> The public trustees of the Eastern Massachusetts Street Railway are gratified that the people of Lawrence will enjoy the low fare which was impossible while the unfair jitney competition existed. The trustees have turned over complete control of service to the citizens' committee. A much more frequent schedule than has hitherto prevailed will become affective.
>
> With the continued co-operation of the City Council and the citizens' committee, the trustees are confident they will give Lawrence an electric railway service which will be generally satisfactory in point of service and fares.

It is proposed to institute strip tickets, giving sixteen fares for $1.

Aurora-Elgin Wages Increased

The wage increase awarded employees of the Aurora, Elgin & Chicago Railroad, Wheaton, Ill., by Judge Evans of the United States District Court will be accepted. The men are not satisfied with the offer, but say that they will work under the new scale until the expiration of their present contract next June.

All increases awarded by Judge Evans are retroactive to Aug. 21. The contract of May 31, 1918, provided for a wage scale of 46 cents an hour for city motormen and conductors. In the general increase of 20 per cent allowed by the court the trainmen will secure an advance of 9.2 cents, to 55.2 cents an hour. The city motormen and conductors will receive an increase of 7.3 cents to 43.8 cents an hour. The raise, exclusive of the service bonus, amounts to 2.3 to 4.2 cents an hour more than the men now receive, they having been granted an increase of 5 cents an hour on Aug. 21, with the understanding that they were to receive a further increase if an investigation of their demands by Judge Evans warranted it.

The increase in wages granted on the length of service schedule of 1 cent an hour for each five years will almost equal the general 20 per cent increase on an average for all employees. There are only thirteen motormen and twenty-three conductors who will not receive at least a 1-cent increase under the length of employment clause. They have entered the service of the company since 1914. Almost one-third of the employees have been with the company long enough to draw a 3-cent increase and fifty more are entitled to a 4-cent an hour increase. There are, several men who will receive the 5-cent increase for twenty-five years of employment.

St. Louis Labor Restive

Employees of the United Railways, St. Louis, Mo., who are members of labor unions have begun a new movement for a general increase in wages. The request of the unions is for a reopening of their wage contracts.

The unions are the electrical workers, the metal workers, and the blacksmiths. While a new wage schedule has not been prepared it is said the request will be for increases of varying amounts.

In addition to a higher wage movement by these four unions, which are outside of the union of trainmen, members of the latter organization who comprise the great bulk of the United Railway employees, also are said to have virtually agreed to ask for a reopening of their wage contract between now and April 1 next, and to ask for higher pay.

The United Railways has not yet completed the payment of back wages under the last wage award and some dissatisfaction has been shown by the men because of the delay.

When the last wage award was made to employees, officials of the United Railways told the State Public Service Commission the company could not pay the advance without getting higher fares. The company, according to its officials, is not benefiting to any great extent from the 8-cent cash fare. Cash fares are now only 4½ per cent of the total, thus indicating that any further wage increases would have to be met by increasing the fare to 8 cents whether paid in cash or by token.

New Texas Interurban Line Likely

The preliminaries to plans for financing a new electric railway from Dallas to Wichita Falls, Tex., have progressed sufficiently to warrant the statement that it is fairly probable that ground will be broken by spring. The distance between the two cities is 130 miles and there is at present no direct rail connection between them.

The great activities in the oil industry and the very high price of cotton together with the great increase in other agricultural pursuits in Texas, have created business conditions in the north of Texas so good that even present enormous construction costs may not defer work on the proposed line. If the line is built, it will be made a high grade property in every respect, and assuming a present-day average cost of $60,000 a mile for such a road, it will cost in the neighborhood of $8,000,000. It is expected that the near future will bring forth definite information in regard to this project.

Chicago Transportation Board Appointed

Four members of the board who will prepare a transportation plan for Chicago were appointed by Mayor Thompson recently. They are Samuel A. Ettelson, Corporation Counsel; Charles R. Francis, Commissioner of Public Works; John P. Garner, an Alderman; and P. H. Moynihan, ex-Alderman. These four are to agree upon an engineer as fifth member of the commission. They will have $250,000 to spend in the nine months before their report is due. Meanwhile weekly meetings will be held.

Mayor Thompson's plan has been referred to several times in these columns. It contemplates the taking over the existing surface lines for public operation by an elected board of trustees, and the assurance has been given that a 5-cent fare will be sufficient to meet all expenses.

Seattle Would Take Over More Lines

The Puget Sound Traction, Light & Power Company, Seattle, Wash., has renewed its offer to sell to the city of Seattle its North Ballard or Greenwood railway operated by the Western Washington Power Company. A previous offer from the traction company naming $81,000 as the purchase price was rejected by the City Council. The new tender provides that the property will be transferred to the city "for an amount to be decided upon as the result of an appraisal made by representatives of the city and the company, or by the City Council and representatives of the company." All the property of the company, south of Eighty-fifth Street, including approximately 4½ miles of track on Fifteenth Avenue, N.W., is embraced in the company's offer, with the exception of two safety cars now operated over the line.

The company agrees to accept in payment of the property transferred utility bonds of the same description as those issued by the city to negotiate the $15,000,000 purchase of its railway properties by the city last spring.

The city has started negotiations with the Seattle & Rainier Valley Railway for the purchase of its lines. It has asked the company to state in writing within sixty days its position in the matter, if a resolution passed by the utilities committee is adopted by the Council.

News Notes

National Safety News Letter.—The Weekly News Letter of the National Safety Council is now being published under the title "National Safety News." Louis Resnick is editor.

Morris County Employees Organize.—Ninety employees of the Morris County Traction Company, Morristown, N. J., are said to have formed a local branch of the Amalgamated Association on that property.

Objects to Withdrawal of Claims.—The Federation of Civic Bodies of the Northside, Pittsburgh, Pa., has filed with the City Council of Pittsburgh an objection to the request of the receivers of the Pittsburgh Railways that all municipal claims against the company be withdrawn. The civic bodies insisted that such a course would be "unbusiness-like."

Writes on Electric Railways.—The *Saturday Evening Post* for Nov. 15 contained an article by Edward Hungerford entitled "The Plight of the Tractions" in which the author discussed the electric railway situation in the country at large. The article reviewed the history of electric railway development in the United States and urged the general establishment of the zone-fare system.

Parallel Suits Will Be Pushed.—Mason B. Starring, president of the United Railways Investment Company, controlling the United Railroads, San Francisco, Cal., is quoted to the effect that suits against the city of San Francisco over the paralleling of the company's tracks on Market Street would be pushed, as the legal department of the company had advised him that the company had a good case.

Suggests Municipal Operation for Bridge Cars.—The Board of Estimate of New York has submitted to the committee on franchises a suggestion from Commissioner of Plant and Structures Grover A. Whalen to have the city operate the local railroad line now operated by the Bridge Operating Company over the Williamsburg Bridge. The permit issued to the company expires May 31, 1920. Mr. Whalen would have the city take over the lines as of that date.

Railway Robbed.—Six robbers, one of whom remained in an automobile outside, held up the office of the United Railways at 3820 Easton Avenue, St. Louis, on the night of Dec. 11 and stole $2,500 with which they escaped. The men drove up to the office entrance shortly before 10:30 p. m., after most of the conductors had made their returns for the day and while cashiers were counting the money in the office. After the robbery the men backed out of the office, after warning the employees not to follow them.

Gas Decision Attracts Attention.—The Appellate Division of the Supreme Court on Dec. 19, handed down a decision declaring the courts had the power to decide whether the statutory rate for gas was unconstitutional because it was confiscatory, and, having so decided, the rate to be charged could be fixed by the Public Service Commission. The decision was in the suit of the Bronx Gas & Electric Company, which applied to the courts to permit it to charge more than the statutory charge of $1 per 1000 cu.ft.

Buses for Philadelphia. — Russell Thayer, president of the Platinum Metal Company, has applied to the Pennsylvania Public Service Commission for a certificate of convenience to permit of the operation of 100 motor buses on Broad Street, Philadelphia. In lieu of taxes and franchise fees the city is to receive one-half of the profits for a period of twenty years, at the end of which the property is to revert to the city. The city is to have at least three representatives on the board of directors.

Wreck Jury Disagrees.—The jury failed to return a verdict on Dec. 18 in the trial of John J. Dempsey, former vice-president of the New York Consolidated Railroad (Brooklyn Transit System) charged with manslaughter as a result of the Malbone Street tunnel disaster of a year ago. More than ninety persons were killed and several hundred injured in the accident on the line, which the prosecution attempted to prove resulted from neglect on Mr. Dempsey's part in permitting an inexperienced motorman to handle the train.

The Chamber of Commerce, U. S. A.—In response to a resolution supported by a brief presented by Engineering Council, the Board of Directors of the Chamber of Commerce, U. S. A., has authorized the appointment of a special committee of the Chamber to investigate and report on our project for a department of public works. It is our hope that the logic and merit of the plan will so commend itself to the committee that the Chamber will be persuaded to present the matter for referendum to the member bodies throughout the United States.

Sarnia Talking Municipal Ownership.—As a result of a special meeting of the City Council of Sarnia, Ont., on Dec. 13 the Provincial Hydro officials will be requested to visit Sarnia and make a report on the present electric railway system. Sarnia is think of taking over the lines. J. J. Jeffrey of the Provincial Commission outlined the method of procedure adopted in the border cities for the acquisition of the Sandwich, Windsor & Amherstburg Railway, and suggested that the resolution inviting the hydro commission be adopted by the Council.

$1,200,000 B. R. T. Wreck Claims.—Federal Judge Mayer has approved the preliminary report of Philip J. McCook, special master, in deciding the last claims against the Brooklyn (N. Y.) Rapid Transit Company. The claims so far allowed for injuries and deaths resulting from the Malbone Street disaster, in which more than ninety persons were killed, amount to $300,000. It has been estimated that the total damages which the sufferers from the accident will collect, will approximate $1,200,000. The company has no funds available for the payment of the claims.

Will Arbitrate One-Man Car Wage.—Following a conference between the public trustees of the Eastern Massachusetts Street Railway, Boston, Mass., and the joint conference committee of the unions at which no satisfactory agreement could be reached for wages for men operating one-man cars, the two parties decided to submit the matter to arbitration. The company offered the joint conference an increase of 5 cents an hour to 56½ cents an hour, but the committee refused to accept it. The present wage is 51½ cents an hour for three-year men. The company is planning to put one-man cars in operation within a short time and began negotiations for satisfactory remuneration so a decision would be forthcoming when the new type of cars is started.

Wage Award Announced.—The report of the arbitrators who inquired into the matter of wages and terms of service for the trainmen of the Grand Rapids (Mich.) Railway had not been formally presented on Dec. 13, but on that date announcement was made as to their findings with respect to wages. The arbitration board consisted of three members. The neutral arbitrator and the representative of the company recommend that men in the service more than a year receive 51 cents an hour and those in the service more than three months and less than a year 48 cents and new men 45 cents. A. A. Ellis, representative of the employees' union, believes that the lowest possible figures should give one-year men 56 cents an hour, those having served three months and less than a year 51 cents, and beginners 45 cents.

Program of Meeting

A Public Works Convention in Washington

A call has been issued for a convention to be held in Washington on Jan. 13 and 14, for the purpose of broadening the scope of the campaign of the National Public Works Department Association for a National Department of Public Works and to discuss and adopt plans and policies for the subsequent legislative campaign, and finally to focus the situation by intensive work in Congress. The invitation includes: (a) the organizations that were represented at the Chicago Conference last April; (b) the State campaign committees from the entire country; (c) the technical organizations not represented; and (d) the industrial interests of the country.

Financial and Corporate

Prospects Greatly Improved

President P. J. Kealy of Kansas City Railways Believes Company Will Return to a Paying Basis

A protective committee has been formed in the interest of the security holders of the Kansas City (Mo.) Railways. The company is in default in the payment of interest on some of its obligations. The committee has asked a prompt deposit of the securities in question with one of the depositaries named for the purpose of mutual protection. Interest due on Nov. 15 on certain of the company's obligations remains unpaid, and further defaults are said to be impending.

Mr. Kealy's Statement

The committee has addressed to the holders of all the company's funded obligations, both bonds and notes, a letter from Philip J. Kealy, president of the railway, dated Nov. 5. In his letter Mr. Kealy points out that the funded debt of the company aggregates $29,606,700. He says that the valuation of the property of the company as recognized by the Public Service Commissions of Missouri and Kansas is approximately $35,500,000. There is also about $1,000,000 additional value that probably would be allowed when presented. In addition to its funded debt, the company also owes about $2,500,000 on demand notes and accrued accounts and vouchers for labor, labor supplies, etc.

Mr. Kealy says that the equity is represented by nominal stock of $100,000 held by trustees against which are issued preferred and common participating certificates, the owners of which are for practical purposes stockholders. Until the extraordinary conditions which he describes at length began seriously to impair the earnings, the company made money. For the fiscal years ended June 30, 1915, 1916, and 1917, it made $301,000, $590,000 and $519,000, respectively, above fixed charges including taxes. For a number of years prior the company had earned on a comparable basis.

Details of Increased Costs

While in June, 1918, the first increase of fare was obtained and a favorable forecast seemed justified, labor troubles, the influenza epidemic, and other unavoidable conditions prevented this being realized. In 1919 the company failed by $505,000 to make operating expenses without taking into consideration its fixed charges. As an instance of its burden, Mr. Kealy cites that in comparing 1919 with 1915, and using approximate figures, labor increased in cost 90 per cent, fuel 100 per cent, and supplies 100 per cent.

The deficit piled up by the company was made good out of equity and by some of the stockholders personally guaranteeing in part the loan. Mr. Kealy says that the July interest and the large number of deferred vouchers, the existence of which threatened receivership, were paid by the holder of a part of the equity personally guaranteeing the demand notes of the company for $1,000,000. The borrowing power upon the equity is exhausted.

After careful investigation there was no reason to believe that the company could from any source pay the interest due on Nov. 15 or Jan. 1 next, or the principal of or interest on $1,000,000 which fell due on Dec. 1.

In the year ended June 30, 1919, certain conditions existed which are not likely to recur. These materially impaired the company's earnings. Mr. Kealy feels that if the company is permitted to continue operation uninterrupted and unimpaired by receivership for a minimum of one and a maximum of two years, it can return to a paying basis. Among the factors that lead to this conclusion are the following:

(a) The Public Service Commission of Missouri holding it could increase the franchise fare with the Supreme Court affirming its action granted a 6-cent fare and later increased this to an 8-cent and 7-cent basis. Similar action resulted in a 6-cent fare in Kansas with good prospects of obtaining there the rate now in effect in Missouri.

(b) Public co-operation steadily improving. The Chamber of Commerce has recently appointed 100 business men to aid in bettering the situation.

(c) Effective business regulations have just been made and this, with natural causes, will greatly lessen if not remove such competition as has affected the company adversely in the past.

(d) The labor situation from being very bad has become very good.

(e) Negotiations pending with fair prospect of success for obtaining a release from present franchise burdens, having no relation to service.

(f) Increased revenue being realized, the gross being the largest in the history of the company.

(g) The public seemed to begin to realize that it could not let the operation of the property become seriously impaired without itself losing thereby.

"What It Is Costing to Operate Your Street Railway"

Under the caption quoted above the Kansas City (Mo.) Railways recently published in the Kansas City *Railwayan* a tabulated statement of the cost of operation for May "for the consideration of every street car patron." The figures show what the company actually spent in May, 1919, and the cost per passenger as compared with May, 1918. Comment on the cost of service is published in a column at the side of the tabulated statement. This comment is concluded with the statement that "the startling fact remains that exclusive of all interest, all debt, all fixed charges, the actual day to day wages and fuel, is 6.6 cents per fare passenger carried."

Valuation and Depreciation

Commission's Engineers State Valuation for Los Angeles and Make Recommendations on Depreciation

In the recent report of the engineering department of the California Railroad Commission in the fare case of the Los Angeles Railway Corporation, mentioned on page 959 of the issue of this paper for Nov. 15-Dec. 13, the reproduction cost new, as of Dec. 31, 1919, was found to be $26,046,764, and the reproduction cost less depreciation $22,900,000, making the condition of the property 89 per cent.

The valuation of the railway property was based on the appraisal of Dec. 31, 1913, the two valuation figures for the operative property found at that time being: (a) Reproduction cost, $22,322,430; (b) reproduction cost less depreciation, $19,217,269. These figures were brought to date by the addition of the company's new capital expenditures and betterments and deduction for retirements. In the estimate of reproduction cost new less depreciation, these additions (amounting to $3,724,677) have not been depreciated, because their average age was not more than two years.

Proposed Franchise

The proposed new "indeterminate resettlement franchise," to quote from the opinion of the commission's engineers, should contain definite provisions concerning the following matters:

(a) The conditions under which the city can acquire the property should be definitely set forth and the methods of determining the value of the property should be specified.

(b) The disposition of all revenues should be dealt with in the franchise and recognition should be had of the essential necessity of making revenue available in the following order: 1, operating expenses; 2, depreciation; 3, taxes; 4, fair return.

(c) Burdens not necessary or essential to street railway service should not be placed on the patrons of the street railway and in this connection particular attention should be paid to the elimination of unnecessary and unjustifiable paving requirements.

(d) The franchise should recognize the absolute necessity of an adequate depreciation reserve and should safeguard this reserve in every possible way so that it can be used only for the purposes for which it is intended.

(e) The franchise should contain provision for the best possible service and for additional service as required.

(f) The conditions under which extensions should be built and the methods of financing such extensions should be dealt with in the franchise.

(g) The disposition of surplus earnings over and above the requirements as set forth under (b) should be dealt with in the franchise.

(h) Check and regulation of all expenditures, including contracts, by the city authorities, jointly with, or separately from, the functions of this commission, should be provided for in the franchise.

(i) Provision should be made for the revocation by the city of the franchise upon proper notice and upon obligation to purchase by the city.

Economies Possible

The franchise question, in the opinion of the commission, should be settled before any number of franchises expire and in order to put the company in a position where it can make proper provision and allowance for the financing of such reconstruction as will become necessary.

The details of a rerouting plan were worked out by the engineers of the commission, by which it was expected there would be a saving of $4,000,000 per annum, equal to 13 per cent of the company's entire car mileage, with a saving of 17½ per cent in car hours. There was a strong plea for the purchase of safety cars and for a reduction of paving charges, as mentioned in the article last week.

CARE OF DEPRECIATION

Commenting on the proposed clauses (b) and (d) in the proposed franchise, the report declares that payments to a depreciation reserve are a portion of operating expenses and should therefore come ahead of fixed charges. On this point the commission's chief engineer says, in part:

Payments into a depreciation reserve are a portion of operating expenses, and the proper sums to be set aside should, therefore, come ahead of fixed charges and other requirements. This company is following the practice of varying its depreciation allowance according to gross earnings and available net earnings regardless of the actual requirements for a depreciation reserve. Since 1911, the depreciation accruals have varied from a minimum of 4 per cent to a maximum of 8.4 per cent of gross income. A policy is not a good one under which a reserve for depreciation is treated as a secondary and theoretical proposition only and under which the payments into the fund vary with the earnings. In addition, this company, in common with other utilities in this State, handles its depreciation reserve as a bookkeeping matter only. There is no actual and separate depreciation fund and there are no definite rules and regulations governing the use of such a fund. . . .

The purpose of the reserve must be to make provision for the replacement of the depreciable property at the end of the reasonable expected life. It is not possible to estimate beforehand exactly what the annual allowance should be, but it is possible closely to approximate the actual requirements. The fund should be neither too large nor too small, and to accomplish this object it will be necessary from time to time to compare the actual depreciation of the property with the allowances and their accumulations and to either increase or decrease the periodical allowance as the actual conditions may demand.

Under no circumstances should depreciation funds be used for purposes other than those for which they were set aside, and the accounting, investing and disbursing of the funds should be under the detailed and strict control of the commission. The fund should be invested with a view to safety only, and security of principal should never be sacrificed to earning power. The reserve should be held in the form of a sinking fund, analogous to a trust fund, and all earnings of the reserve should be added to the fund. It is not desirable, in my opinion, to demand a certain definite interest return from the depreciation reserve and I believe it is better merely to require that all earnings, whether large or small, and as they may fluctuate from year to year, should become part of the fund.

Later, the sum of $720,000 a year was suggested as a depreciation allowance.

Hopeful of Reorganization

Mason B. Starring, president of the United Railways Investment Company, controlling the United Railroads, San Francisco, Cal., has been in that city lately. The Chronicle quotes him as expressing the hope that the reorganization committee of the United Railroads will have completed its plans early in 1920, and that shortly thereafter the affairs of the company will be on a more satisfactory basis. The committee, he said, had been making good progress.

I. R. T. Goes $8,473,098 Behind 1918

With All Its Available Cash Surplus Used Up, Company Operating New York Rapid Transit Lines Faces Receivership

The résumé of the report of the Interborough Rapid Transit Company, New York, N. Y., for the year ended June 30, 1919, prepared by the company itself was made available to the press in two installments. The first installment of the statement dealt with developments during the twelve months of new lines and other additions and improvements to the service rendered to the public. The second installment dealt with the company's condition and its financial operations for the year. The second installment is undoubtedly of greater interest than the first to operating officials and others readers of the ELECTRIC RAILWAY JOURNAL so reference will be made to that first.

It is pointed out that owing to increased costs of materials and supplies, increased wages and other expenses of operation the company has now used up all its available cash surplus, and unless the rate of fare is permitted to be increased, the company cannot much longer avoid a receivership.

COMPARATIVE STATEMENT OF INCOME OF INTERBOROUGH RAPID TRANSIT COMPANY

Year ended June 30	1919	1918
Gross operating revenue	$43,207,209	$40,497,728
Operating expenses	26,233,326	19,113,336
Net operating revenue	$16,973,883	$21,384,391
Taxes	3,134,156	3,758,583
Income from operation	$13,839,726	$17,625,808
Non-operating income	607,302	593,599
Gross income	$14,447,028	$18,219,408
Income deductions	18,257,368	13,556,649
Net corporate income for the year	*$3,810,339	$ 4,662,758
Add:		
†Surplus, June 30, 1918 and June 30, 1917	$15,705,569	$17,199,878
Other credits	25,110	137,296
Totals	$11,920,339	$21,999,933
Appropriated for:		
Amortization, capital retirements and other charges	$ 18,247	$ 169,364
Dividends	1,750,000	6,125,000
Total appropriations	$ 1,768,247	$ 6,294,364
†Profit and loss—Surplus.	$10,152,092	$15,705,569

†Stated exclusive accruals under Contract 3 and Related Certificates payable from future earnings and aggregating as of June 30, 1918, $2,957,407 and as of June 30, 1919, $10,457,478. *Deficit.

The net corporate income for the year shows a deficit of $3,810,339. As the same item for last year was a favorable balance of $4,662,758, the decrease in net corporate income for the year is $8,473,098. The net operating revenue of $16,973,883 is a decrease from last year of $4,410,508; for while the gross operating revenue ($43,207,209) increased $2,709,481, the operating expenses ($26,233,326) increased $7,119,990.

The subway division showed an increase in operating revenue of 12.78 per cent and the elevated division a decrease of 0.44 per cent. The operating expenses increased 37.25 per cent.

The profit and loss surplus (stated exclusive of accruals due the company under Contract 3 and Related Certificates, payable from future earnings, and aggregating as of June 30, 1919, $10,457,478) stands at $10,152,092, a decrease of $5,553,476. This, however, the report points out, represents no cash or other quick assets available for current use, the quick assets being more than offset by amounts due for supplies, taxes, etc.

During the year the company's available quick assets have been exhausted in meeting the increased costs of operation and maintenance. These costs will be still further increased in the current fiscal year by the recent 25 per cent increase in wages amounting to approximately $5,000,000 a year.

During the year Stone & Webster, engineers, made an exhaustive investigation and analysis of the Interborough properties for bondholders' protective committees. The preliminary report, just issued, sets out the following table of their estimates of probable deficits for the fiscal years 1920 to 1924 inclusive as a result of continued operation on a 5-cent fare and the present prices of materials and supplies together with the present wage scale which was recently increased 25 per cent in rates.

The Stone & Webster report adds:

We estimate, therefore, that the company will require before July 1, 1924, under the new wage scale now in force, in addition to about $7,400,000 needed to cover additional expenditures for capital purposes, $35,390,000 for deficits, making a total cash requirement for that period, in addition to earnings, of $42,790,000. This amount may be reduced, possibly to the extent of $3,000,000 by savings from the construction fund.

It is clear that if the present fares, wages, cost of materials and supplies and other operating expenditures continue in force the company will not be able to earn its fixed charges for many years after 1924.

Item	1920	1921	1922	1923	1924
Estimated deficit on prior wage scale as shown by Stone & Webster report of Aug. 11	$2,978,000	$3,628,000	$1,905,000	$543,000	$864,000 (Surplus)
Estimated additional expenses resulting from 25 per cent increase in wages	4,800,000	5,050,000	5,250,000	5,450,000	5,650,000
Total estimated deficit by years on new wage scale	8,778,000	8,678,000	7,155,000	5,993,000	4,785,000

The Stone & Webster report also says:

We find the management of the Interborough Rapid Transit company is capable and efficient.

The condition of the properties is excellent. We shall point out, however, that while expenditures for current maintenance seems to be adequate the reserves for depreciation and obsolescence, heretofore accumulated, have been exhausted and no

new reserves for that account are being made.

In order to enable it adequately to serve its territory and attain the estimated earnings, we believe it will be necessary for the company to make additional expenditures for capital purposes, chiefly equipment, amounting to approximately $7,400,000 during the next five years, the carrying charges on which are included in our estimates. This amount may be reduced, possibly to the extent of about $3,000,000 by savings from the construction fund.

It is manifest that a 5-cent fare falls far short of providing the cost of furnishing a ride.

The report closes by calling attention to the fact that without an increased fare the city's investment in subways cannot be self-sustaining and must be met by increased taxation, and adds:

The cost of service during the past year, including interest and sinking fund on the money invested in the property actually under operation, exceeded the net revenue by more than $7,000,000, the loss being about equally divided between your company and the city.

With respect to the development of new lines and other additions and improvements to the service rendered to the public the year just passed was the most important in the company's history. The passenger carrying record of the system (subway and elevated) is approaching the mark of 1,000,000,000 a year, the total for the twelve months just passed being 809,335,658. The growth is shown in the accompanying table.

INCREASE IN PASSENGERS CARRIED BY INTERBOROUGH RAPID TRANSIT COMPANY

Year	Elevated (In round millions)	Subway (In round millions)	Total (Exact figures)
1905	266	72	339,104,820
1906	257	137	395,716,386
1907	282	166	449,287,884
1908	282	200	483,285,640
1909	276	238	514,680,342
1910	293	268	562,788,395
1911	301	276	578,154,088
1912	304	302	607,244,697
1913	306	327	634,316,516
1914	311	340	651,886,671
1915	301	345	647,378,266
1916	312	371	683,752,114
1917	349	414	763,574,085
1918	352	418	770,998,335

For the year just ended the subway carried 42,809,392 passengers more than last year, an increase of 10.23 per cent.

The elevated carried 4,472,069 fewer passengers or 1.27 per cent less than last year. This shift in traffic was due in part to the opening of the new East and West Side subway lines. The new subway lines also took traffic from the old subway, the opening of the "H" System resulting in a decrease of 68,127,085 in ticket sales in the old subway stations.

More new lines both subway and elevated were opened this year than in any other year since the Interborough Company began operation. The most important were the new Lexington Avenue extension on the East Side, the new Seventh Avenue extension on the West Side and the new Clark Street tunnel line to Atlantic Avenue, Brooklyn. There was a total increase of 15.15 miles operated at the close of the year. Of the 147.49 miles of new track covered by Contract No. 3 (executed in 1913 with the city for the development of new rapid transit lines) 110.71 miles have been put into operation. While the city has been much in arrears in its part of the construction program practically the entire new system is expected to be in operation by the summer of 1920. The total miles of single track in use is 330.42.

The service rendered to the community shows an increase of 17,465,733 car miles, of which 14,800,651 were on the subway and 2,665,084 on the elevated. The total car mileage was 169,473,392. As part of the work of maintaining the systems in condition to give safe, dependable service 31.64 miles of new steel rails were laid and 53,368 new ties. The elevated structure was re-enforced and strengthened and much work was done in rebuilding stairways and platforms. The subway has carried more than 1,000,000,000 since it opened on Oct. 27, 1904, with a loss ratio by train accident of less than one passenger to 1,000,000,000 carried. For additions and betterments the record of the year contains a vast number of items. One of the most important was the installation of the new 60,000 kw. turbo-generator at the Seventy-fourth Street power station, and a 30,000 kw. generator in the Fifty-ninth Street power house, the last of a set of three.

Rehabilitation Planned

Rehabilitation of the Abilene (Tex.) Street Railway is proposed and plans for bringing this about are now being perfected by business men of Abilene and present owners of the traction property. The rails, franchise, rolling stock and other assets of the company were sold at public auction several months ago to George L. Paxton and G. W. Swenson, Abilene. Since that time cars have not been operated. It is now proposed that the business men of Abilene raise a fund of $10,000 to purchase the property from the present owners, and that the property be turned over conditionally to the Abilene Gas & Electric Company. This company has indicated its willingness to spend between $30,000 and $40,000 in purchasing new rolling stock and putting the line in condition for operation. Conferences have been held between Abilene business men and A. Hardgrave, Dallas, vice-president and general manager of the American Public Service Company, which owns the Abilene Gas & Electric Company, looking to the carrying out of the proposed agreement.

Receiver for Suburban Line

The City & Surburban Railway, Brunswick, Ga., has been placed in the hands of temporary receivers by order of Judge Beverly Evans of the United States District Court, under a petition of the Columbia Trust Company, New York, joined by the Mutual Light & Water Company, Brunswick, the owner of the stocks and bonds of the railway company.

Samuel C. Steinhardt, New Rochelle, N. Y., and Oliver L. Mann, New York city, are the temporary receivers. The company has been ordered to show cause on Dec. 22 why the receivership should not be made permanent.

The receivership action was instituted under a mortgage totaling $194,000 because the company failed, the petition alleges, to make proper and required deposits to the account of the sinking fund. The sum of $3,000 is involved in this item, the petition recites.

Municipalization Authorized

Under authority of the Massachusetts Public Service Commission in an order of Dec. 11 the cities of Taunton and Attleboro and the towns of Norton and Mansfield have been empowered to purchase the Norton, Taunton & Attleboro Street Railway providing that there shall be subscribed for and purchased by these municipalities in the aggregate at least 75 per cent of all the outstanding shares of stock and bonds and that at the time of purchase, there are no notes of the company outstanding.

The valuation of the railway as determined two years ago by the Public Service Commission is about $240,000. The Commonwealth Trust Company, Boston, is acting as agent in connection with the transference of the stock and bonds, amounting in valuation to $120,000. Frank Babcock, city treasurer of the city of Attleboro, Mass., is acting as the representative of the municipalities.

The four municipalities served by this company have agreed to hold one quarter each of the total purchase and through their respective City and Town Councils to appoint three men each who are to serve as a board of management. The railway will be operated under the original name and until the organization of the new board has been completed continue to be under the supervision of the present management.

Committee Purchases International Collateral

The committee representing the holders of the collateral trust gold 4 per cent bonds of the International Traction Company, Buffalo, N. Y., due July 1, 1949, interest on which was defaulted Jan. and July 1, 1919, on Nov. 28 purchased at foreclosure sale collateral which had been deposited with the Guaranty Trust Company as trustee. The purchase price was $2,000,000. The bonds authorized and outstanding to the amout of $18,335,000, of which $1,940,000 were pledged as collateral to the company's 6 per cent notes, were dated Nov. 1, 1912, and were a direct obligation of the company, secured by pledge of $4,344,000 International Railway refunding and improvement mortgage 5 per cent bonds, due on Nov. 1, 1962, by the entire $16,320,500 issued capital stock of the company and in addition $122,000 of subsidiary company bonds.

Financial News Notes

Massachusetts Roads Extend Bonds.—The $300,000 of 5 cent cent bonds of the Milford, Attleboro & Woonsocket Street Railway, Milford, Mass., due on Oct. 1, 1919, will be extended until Oct. 1, 1924, at 6 per cent.

Brunswick Officials Resign.—As a result of the placing of the City & Suburban Railroad, Brunswick, Ga., in receivership, F. D. Aiken, president of the company, and George H. Smith, one of the directors, have resigned.

New Directors for Philadelphia & Western Railway.—Albert L. Smith and C. J. Ingersoll have been elected directors of the Philadelphia & Western Railway, Upper Darby, Pa., to succeed Henry Wood and Gerald Holsman, resigned.

Towns to Defray Railway Deficit.—The citizens of the town of North Reading, Mass., at a special meeting, voted to defray the deficit incurred during the current year in operating the North Reading line of the Eastern Massachusetts Street Railway.

Abandonment Threatened in Fort Dodge.—The Fort Dodge, Des Moines & Southern Railroad, primarily an interurban road, but operating local service in Fort Dodge, has notified the Commercial Club of that city that it proposes to discontinue its service there. Service in Fort Dodge is now being given with two one-man cars.

Shore Line Lease Annulled.—The court has annulled the lease which the Shore Line Electric Railway, Norwich, Conn., had of the lines of the Connecticut Company in Eastern Connecticut, so that in the near future the Connecticut Company will have to take back these properties and operate them. The Connecticut Company has not made any plans for this as yet.

Change in Name at Rochester.—The stockholders of the Rochester Railway & Light Company, Rochester, N. Y., have voted to change the corporate name of the company to the Rochester Gas & Electric Corporation. An increase in capitalization of $1,000,000 has also been voted, making the authorized capital of the company $18,250,000.

Suggests City Lease Lines. — The Pacific Power & Light Company has asked permission of the Public Service Commission of Washington to abandon its railway service in Walla Walla, Wash. The commission, it is understood, has suggested that the lines be leased by the city from the company for one year at 3 per cent of the value of the property.

Railroad Foreclosure Judgment Affirmed.—The Third District Court of Appeals has affirmed the judgment in favor of the plaintiff in the suit of The Mercantile Trust Company, San Francisco, Cal., against the Stockton Terminal & Eastern Railroad, Stockton, and J. A. Nesbitt to foreclose a mortgage executed by the trust company to the defendants to secure an issue of bonds.

Would Issue Receiver's Certificates.—The receiver of the Springfield Terminal Railway & Power Company, Springfield, Ohio, has applied to the U. S. District Court for authority to issue $25,000 of receiver's certificates to be used for improvements to the property. The receiver states that if the issue is approved the certificates will be taken up by the bondholders' committee.

Wants Boston Elevated Appraisal.—The City Council of Boston, Mass., has passed a resolution calling for an appraisal of the Boston Elevated Railway. The resolution calls upon the corporation counsel to make a report as to whether the city of Boston has a right to secure a statement of the actual physical valuation of the elevated at the time it was placed under the control of the public trustees.

$1,500,000 of Notes Offered.—Bonbright & Company, Inc., New York, N. Y., are offering for subscription a new issue of $1,500,000 of one-year 7 per cent bond-secured gold notes, series B, of the United Light & Railways Company, Grand Rapids, Mich. The notes are dated Dec. 1, 1919, and are due Dec. 1, 1920. They are being offered by the bankers at 99¾ and accrued interest to yield more than 7.25 per cent.

Extra Dividend at Ottawa.—An extra dividend of 1 per cent is stated to have been declared on the stock of the Ottawa (Ont.) Traction Company along with the usual quarterly dividend of 1 per cent. The Ottawa Car Manufacturing Company, a subsidiary, has declared an extra dividend of 2 per cent, in addition to the usual quarterly dividend of 1 per cent, all dividends being payable on Jan. 1 to holders of record of Dec. 15.

12.8 Per Cent Decrease in Passenger Traffic.—Higher fares, an increase from 5 cents to 7 cents, for the Illinois cities in which the Tri-City Railway operates have resulted in a decrease in the passenger traffic of 12.8 per cent. Excellent weather conditions, making possible the use of bicycles and automobiles, have prevailed since the new rates went into effect and this factor is believed to be an important one.

W. P. P. Increases Dividend.—The Washington Water Power Company, Spokane, Wash., has declared a dividend of 1¼ per cent payable on Jan. 15, 1920, to stockholders of record as of Dec. 24. This is an increase over the 1 per cent quarterly rate which prevailed for the last few years. The directors of the company feel that the advance is justified because of the substantial increase in earnings and the favorable prospects for additional new business.

Payment of Bond Interest Authorized.—Special Master Lamm in the United States District Court has authorized the payment of interest on three bond issues of the United Railways, St. Louis, Mo. Payment on St. Louis Transit bonds, amounting to $224,750, on the St. Louis Railways bonds, amounting to $42,750, and on the St. Louis Suburban Railways bonds, amounting to $112,500, was due on Oct. 1 for the first two and Nov. 1 for the last named.

Halts Security Exchange.—Lindley M. Garrison, receiver of the Brooklyn (N. Y.) Rapid Transit Company, has been instructed by order of Federal Judge Mayer not to enter into a contemplated exchange of securities whereby the Brooklyn Rapid Transit Company would surrender to the Equitable Trust Company first refunding bonds of the company in exchange for an equal amount of certificates of indebtedness of the Brooklyn Heights Railroad.

Abandonment Again Threatened.—The owners of the Ocean City (N. J.) Electric Railroad are still determined to "junk" the line if the city or a company does not buy the line. That determination on the part of the owners a year ago caused the city and the company to get together and effect a compromise, with the result that the electric railway was operated last summer by a trustee, the city assuming the cost of operation. The road was successfully run under these conditions.

Right to Intervene.—Federal Judge Dyer has dismissed the application of Charles H. Cole and William B. Thompson for leave to file an intervening petition in the John W. Seaman suit against the United Railways, St. Louis, Mo., referred to in the Electric Railway Journal for Nov. 15, page 953. Special Master Henry Lamm recently recommended to Judge Dyer that the petition be denied. The Seaman suit has been argued before Judge Lamm and submitted, but a decision has not been announced.

Slight Improvement by Third Avenue Company.—The Third Avenue Railway System, New York, N. Y., reports for October total operating revenue of $1,030,115, compared with $797,504 in October, 1918, and a deficit after total deductions of $41,354, contrasted with $99,243 in the same month a year ago. From July 1 to Oct. 31 the total operating revenue was $4,085,083, compared with $3,409,708 in the corresponding period in 1918, and a deficit after total deductions of $134,197, against $213,717 in the same period a year ago.

Offer Cities Service Bonds.—Henry L. Doherty & Company, New York, N. Y., and others are offering, at 100 and interest, $10,000,000 Cities Service Company, Series "D," 7 per cent convertible gold debentures, dated Dec. 1, 1919, and maturing Jan. 1, 1966. Each $1,000 of the new issue is convertible

on and after Jan. 1, 1922, into $925 par value Cities Service Company preference stock and $75 par value of the company's common stock, with all accumulated cash and stock dividends on the common from December, 1919, to the date of conversion.

Power Plants Leased.—The Pacific Gas & Electric Company has leased the plants and facilities of Sierra & San Francisco Power Company for a term of fifteen years. The Sierra & San Francisco Power Company is controlled by the California Railway & Power Company, which is in turn a subsidiary of United Railways Investment Company. It has two hydroelectric power stations in Tuolumne County and three small steam plants in other parts of the State. It now supplies power for United Railroads, San Francisco, also a subsidiary of United Railways Investment Company.

Seeks Authority for $440,000 of New Securities.—The Nova Scotia Tramways & Power Company, Ltd., Halifax, N. S., has petitioned the Board of Public Utilities for authority to issue new securities to the amount of $440,000. The proceeds from the sale are to be used as follows:— (a) to pay for the property of the Dartmouth Gas, Electric Light & Power Company, $104,586; (b) to defray engineering expenses when the present company came into existence after having taken over the Halifax Electric Company, $280,147; (c) the legal expenses connected with the formation of the company, $56,217.

Small Property Does Well. — At a meeting of the directors of the Charlottesville & Albemarle Railway, Charlottesville, Va., on Dec. 11, a semi-annual dividend of 3½ per cent on the preferred stock was declared, also a dividend of 2½ per cent on the common stock, making a total of 7 per cent on the preferred stock and 5 per cent on the common stock for the year. In addition to this a considerable sum was added to surplus. The fare of the company is still 5 cents. All the cars have been painted during the year and considerable track work and overhead work done.

London & Port Stanley Issues Attractive Report.—The London & Port Stanley Railway, which was electrified and is operated by the London Railway Commission, has issued its annual report for 1916-1919, in the form of an attractively illustrated printed pamphlet of fifty-four pages. An account is given of the last four years of operation under public ownership and with hydro-electric power. An account is also included of the electrification of the line under the Beck administration. The report contains many illustrations of the property and views along the line.

Municipal Street Railway Bonds Quickly Sold.—R. M. Grant & Company, New York, N. Y., specialists in municipal bonds, have sold at 100 and interest $2,040,000 of 5 per cent gold bonds of the city of Seattle, Wash., the principal and interest being payable from the gross revenues of the entire municipal light and power plant and street railway systems. The bonds are issued to provide funds for the purpose of making additions, betterments and extensions to the railway and light system. The bonds are dated Sept. 1 and Oct. 1, 1919, and are due serially, the last of the issue maturing in 1939.

Banker on Pittsburgh's Problems.—Alexander C. Robinson, president of the People's Savings & Trust Company, speaking before the forum of the American Institute of Banking at Pittsburgh on Nov. 24, voiced the opinion that the Philadelphia Company, long-time parent company of the Pittsburgh Railways, is the logical interest to handle successfully the financial difficulties of the traction line, which is now in a receivership. The speaker looked with evident disfavor upon all proposals of municipal ownership of the railway. He advocated the building of a subway as a solution of the traffic congestion in the downtown section.

State Purchase of Boston Elevated Proposed.—A bill for the purchase of the Boston (Mass.) Elevated Railway has been filed with the Massachusetts Legislature by Representative William H. McDonnell of Boston. The bill provides for the purchase of the railway system through the State Trustees, who would acquire the whole or a part of the capital stock of the company, provided that 75 per cent of the stock could be obtained at a price not to exceed $80 per share. The cost of the purchase would be met by the State and would be ultimately levied upon the cities and towns served by the system.

Wants Bridgeport Lines Segregated.—The city attorney of Bridgeport, Conn., has been instructed by the Council to ascertain the exact amount of money owing the city by the Connecticut Company as its share in the expense of constructing the Stratford Avenue bridge. He was further instructed to take the proper legal procedure for collecting the amount due. Besides, a resolution was introduced by Alderman Edward A. Drew instructing the city attorney to ascertain the action necessary to segregate the Bridgeport lines of the company from the rest of the Connecticut Company system.

$6,277,000 Bond Issue Authorized.—The Public Utilities Commission of Ohio has granted the request of the Cincinnati Traction Company for authority to issue $6,277,000 of twenty-five year bonds. Of this amount $4,317,000 will bear interest at 6½ per cent while the balance will bear 6 per cent interest. The proceeds of new issue will be used in part to reimburse Ohio Traction Company for money advanced, $250,000 to be used as a stablizing fund for the "service-at-cost" plan provided for in the new ordinance. The city will also be paid moneys now due it from the traction company and other indebtedness will be liquidated.

Utilities Doing Better.—In their review of the earnings statement of the Cities' Service Company, New York, N. Y., for November, the officers of the company refer as follows to the utilities: "Reports from public utility subsidiaries of Cities Service Company indicate steady progress being made in net earnings, taking the properties as a group, and while the coal strike and orders of the Fuel Administration affecting consumption of current for light may have had some slight effect, yet this was but temporary and continued progress in utility net earnings, especially those of the central station electric companies, may be expected."

Bonds Extended.—The first mortgage 5 per cent bonds of Toledo, Fremont & Norwalk Railroad, included in the Lake Shore Electric Railway, Cleveland, Ohio, which are due Jan. 1, 1920, are being extended to Jan. 1, 1925, with interest at 6½ per cent. Under the extension arrangement the $303,000 of bonds in the sinking fund are to be canceled so there will remain in the hands of the public to be extended $1,197,000. The Guardian Savings & Trust Company, Cleveland, is depositary and the holders of a large majority of the bonds have responded by sending in their bonds for deposit under the agreement. The extension of the bonds has been authorized by the Ohio Public Utilities Commission.

Economy Urged in Cincinnati.—In a letter to officials of the Cincinnati (Ohio) Traction Company, W. C. Culkins, Street Railway Director, urged the practice of the strictest economy and care in handling the funds at the company's disposal in order to keep within the budget approved prior to the first of the year, and to avoid the necessity of a further increase in the rates of fares. It was pointed out that, while the company's total operating expenses during the first eight months of the year were $10,910 less than the budget allowance, yet in three specific operating accounts the appropriations were exceeded to a considerable extent. The company was requested to show reasons for these increases and, if necessary, to submit a supplementary budget.

Receiver for Northampton Traction.—Chester Snyder, president of the First National Bank of Eaton, Pa., has been appointed receiver for the Northampton Traction Company, Easton, Pa., on the application of the Northampton Trust Company, trustee for holders of first mortgage bonds of 1903. The company owns and operates the electric railways between Easton and Nazareth and Easton and Bangor. According to unofficial reports it is said that the company has outstanding $349,000 of first mortgage 5 per cent bonds, and $437,000 of refunding and consolidated mortgage 5 per cent bonds. The property is controlled by the same interests that control the Northampton, Easton & Washington Traction Company operating in very much the same territory.

Suit Brought to Foreclose.—Bristol & White, New Haven, Conn., as at-

torneys for the holders of the second mortgage bonds of the Danbury & Bethel Street Railway, Danbury, Conn., recently filed a petition in the Superior Court in Bridgeport, Conn., asking permission to institute proceedings to foreclose the property. The foreclosure action was directed against J. Moss Ives, the receiver. It is actually a formality in connection with the proposed reorganization of the road by the holders of the second mortgage bonds, as a measure of self protection. The representatives of the holders of the second morgtage bonds set up in their application to the court the fact that they have not received interest upon their bonds in two years. Interest is being paid on the issue of first mortgage bonds.

Wants to Fund Its Deficits.—Legislation has been introduced in the City Council of Cincinnati, Ohio, granting permission to the Cincinnati Traction Company or the Cincinnati Street Railway to fund the deficits of the former corporation aggregating $1,500,000 over a period of twenty-five years. Under the terms of the new franchise the company is not permitted to create any obligation that cannot be repaid within twelve months. The ordinance introduced recites that the company could not comply with this provision of the franchise without increasing the rate of fare. Accordingly an amendment was sought granting permission to extend the proposed obligation over a period of twenty-five years, a sinking fund to be created which will insure the repayments of the notes or bonds by Dec. 31, 1945. The ordinance has been referred to the committee on finance.

Threaten Staten Island Suspension.—Representatives of the estate of Henry H. Rogers, which owns the Staten Island Midland Railway and the Richmond Light & Railroad Company, called on Public Service Commissioner Lewis Nixon on Dec. 20, to inform him they were ready to discontinue operation of the roads. They told the commissioner that for years they had been putting up the money to run the roads and that last month their operation cost the estate $17,000. They said there had been an annual deficit of $100,000 for many years. Commissioner Nion has requested the representatives to continue operation of the roads until after a mass meeting. The companies mentioned, operate, with one exception, all the rail facilities on Staten Island, which is included in the borough of Richmond, Greater New York.

Another Discontinuance Asked.—The Boston & Maine Railroad has petitioned the Public Service Commission of New Hampshire for permission to discontinue permanently and abandon the operation of that portion of the Portsmouth Electric Railway, extending over the "Y" so called at Little Boar's Head in the town of North Hampton and known as the North Hampton branch. This line runs from Little Boar's Head to the Hampton Depot and is little used in the winter. The railroad is also seeking authority to discontinue during the months of January, February, and March the branch line running between North Hampton and North Beach, known as the North Beach line. The railroad says that it costs more money to keep these lines clear in the winter than is taken in in fares. It was arranged to hold a hearing on the petition at Portsmouth on Dec. 16.

Ohio Company Defaults Its Interest.—Default was made in the payment of the interest due on Nov. 1 on the general mortgage bonds of the Columbus, Newark & Zanesville Electric Railway, Springfield, Ohio, which mature in 1926. A committee of the holders of the bonds in a circular issued recently says that as the railway since 1906 has been operated by another company under lease, it is of vital importance that a protective committee represent the interest of the bondholders alone, even though interest due on Nov. 1 be paid at a later date. It therefore urges holders of the bonds to forward them at once to the Land Title & Trust Company, Philadelphia, as depositary. The protective committee consists of R. N. Stimson, chairman, Alba E. Johnson and Claude A. Simpler, all of Philadelphia, as counsel. The property of the Columbus, Newark & Zanesville Electric Railway was leased in 1906 to the Indiana, Columbus & Eastern Traction Company, which in turn was leased in 1907 to the Ohio Electric Railway.

Service Resumed in Morgantown.—Operation of cars on the line of the South Morgantown Traction Company, Morgantown, W. Va., was resumed during the first week of December under the direction of Aaron J. Garlow, the receiver. The line has not been in operation since the middle of October. Some time after the road was shut down the Public Service Commission granted an increase in fare. Tickets are now sold to school children sixteen for $1 and to all others at 14 for $1. By consent of the creditors of the company, and all others interested in the litigation in the Circuit Court for the settlement of the affairs of the corporation, a decree has been prepared and agreed to under which the receiver is to pay to the West Virginia Traction & Electric Company $1,433 for rent of cars, rent of tracks, and electric current, used between June 1 and Oct. 15. Payment is to be made within three months out of the earnings of the road, and in case the revenues should not be sufficient, the receiver will issue his certificates to liquidate the old debt. The order has been endorsed to be entered by Judge Sturgiss when the special term of court opens.

Minnesota Line Doing Well.—According to Twin City papers the Minneapolis, Northfield & Southern Railway, formerly the Dan Patch line, has recently been doing well. This road, it will be recalled, fell upon evil days, went into the hands of a receiver, was sold, some of its lines discontinued and the remainder put in operation under direction of the bondholders. One of the Minneapolis papers said recently: "There is a turning of the tide in the affairs of the Dan Patch line. For six months the line has been making some money. For three months it has been making good money. In order to bring the road up to requirements that are already developed, the capital stock of the road has been increased from $500,000 to $1,500,000. Amended articles of incorporation to permit the increase have already been filed. Not all of this new stock—half common and half preferred—will be sold at once. In order to keep up the road, some $150,000 of borrowed money has been put in. The new stock will care for this indebtedness and enough more will be sold to provide from $200,000 to $250,000 in betterments, particularly more equipment. More business is now offered than the present equipment can handle. There has already been a good subscription to the new issue from directors and present stockholders. All common stock is sold at par with the preferred at practically the same figure." The property as now operated consists of 52 miles of line with thirty-two cars, most of which are in freight service.

Receivers Asked to Refund $1,217,602.—Arthur W. Thompson, president of the Philadelphia Company, has filed a petition in the name of that company, asking that the United States District Court direct the receivers of the Pittsburgh (Pa.) Railways to refund to the Philadelphia Company $1,217,602 and interest. The rail company, under the receivership, is in the custody of the court. The Philadelphia Company claims that the $1,217,602 was paid by it to various of the subsidiaries of the traction company for fixed charges which the Philadelphia Company had guaranteed. The petitioner is the parent company of the Pittsburgh Railways and formed the merger which is the Pittsburgh Railways. The petition recites that during the period of consolidation, it became necessary for the Philadelphia Company to assume responsibility for the payment of some of the fixed charges agreed to in the consolidation, and, inasmuch as the receivers have refrained from the payment of fixed charges for a long time, the Philadelphia Company paid the charges it had guaranteed. The petition is a formal move to get before the court the claims of the Philadelphia Company. All the other creditors have filed their petitions covering the sums the railways owes them, and the Philadelphia Company wished to put itself in a position where its claims can legally be taken into account by the court. In view of the plea the receivers addressed to the City Council of Pittsburgh, asking a favorable attitude toward a plan for the payment by the traction company of the fixed charges, there is some disposition to feel that the railway may soon resume normal payments to creditors.

Traffic and Transportation

Birmingham's Race Problem

Company Will Try Out Twenty-Five One-Man Cars, Using New Equipment for Segregation

The receiver for the Birmingham Railway, Light & Power Company Birmingham, Ala., has twenty-five one-man safety cars on order from the Cincinnati Car Company and it is expected that they will be in operation before Jan. 1. The first sixteen of the new cars will replace eight double-truck cars now giving a thirteen-minute service on a light traffic line passing through one of the very finest residence sections of the city. This particular line has been picked for the initial installation on account of the light travel and the small percentage of negro riders.

The problem of handling the negro passengers in Birmingham is somewhat complicated by the rather loose "Jim Crow" law in Alabama. This requires that the two races shall be separated, but it does not specify whether the negroes shall occupy the front or rear of a car, as do the laws of Georgia and the Carolinas and Virginia. It so happens that the prevailing practice in Birmingham is opposite to that in the cities of the States just named. On most of the Birmingham cars, the negroes take the front of the car, entering and leaving at the front platform.

Means for Segregation

In the off-center entrance cars built for the Birmingham-Tidewater Railway, now operated by the Birmingham Railway, Light & Power Company, the doors divide the cars in about the proportion of one-third at the rear and two-thirds in front, and the rear portion is assigned to the negroes. Then again, where the company runs trailers, the motor car in front is for whites and the trailer for blacks. So one has to know the ropes, so to speak.

Now the safety car with the single front exit and entrance for both races presents a new problem. The officials have decided that, contrary to the majority practice, it will be better to put the negroes in the rear. The cars will be divided in halves by omitting the two middle seats. The white people will occupy the seats in front of this open space, and the negroes those to the rear.

With all of the seats occupied, the whites will use the open space at the center of the car for standing room while the rear platform will furnish standing room for the negroes. The front platform will also provide some limited standing room for the whites. The standing space at the center of the car will be set off from the aisle by a pipe stanchion having three vertical members. The outer two will rise to the seat height and bend horizontally to connect with the middle member, which will extend to the headlining to provide something to hang on to. It is thought that the lower wings of the stanchion will induce passengers to step around in behind it and out of the aisle, or that it will tend to set this space off so the white people will feel that this is a place reserved for them out of the way of the negroes.

Traffic Changes Suggested for Kansas City

John A. Beeler has made the first of his recommendations to the board of control of Kansas City, Mo., with respect to traffic conditions in that city. Mr. Beeler's study has extended over the entire congested district, but it has been decided to test his recommendations on a single street. The city administration, the police department and the management of the Kansas City Railways have agreed to co-operate in putting into operation Mr. Beeler's suggestions with respect to Twelfth Street. Summarized broadly the Beeler measures for Twelfth Street traffic relief fall into these eleven points:

Stopping places in the congested zone must be relocated and combined.

Double berthing must be resorted to at all stops on this street in the business district.

Vehicles must keep off the car tracks, and must move in the path between the right side of the car and the curb.

Street cars must be given precedence by traffic patrolmen. They must be passed across the intersections in pairs and simultaneously, east and west, whenever possible.

Motor car parking must be limited during the day and prohibited in the rush hours.

Additional street car collectors must be employed so as to load a double stream of passengers at the rear ends of cars.

Street car collectors must see that car doors are closed promptly when proper loads are on the cars.

Cars must stop only once at each passenger stopping place. After the doors are once closed and the car ready to proceed the doors must not be opened again.

Car patrons must assist by using street car tickets or having exact change ready, and by presenting transfers right side up and unfolded.

So far as possible cars should be operated on regular headway. Railroad crossing delays must be avoided or their effects minimized as far as possible.

The front doors of street cars must be remodeled to permit of two streams of passengers entering or leaving simultaneously.

The extreme narrowness of Twelfth Street, in Mr. Beeler's opinion, precludes the use of safety zones. He suggests, instead, that the exact spot where cars stop be marked plainly. All except one of Mr. Beeler's recommendations, that of widening the front doors of street cars, can be put into effect immediately.

It was planned to put the recommendations into effect on Dec. 20.

Illinois Commission Upheld

State Supreme Court Rules That Utilities Body Was Within Its Rights in Raising Quincy Fares

The Public Utilities Commission of Illinois has the authority to raise rates for electric railway service above the limit fixed by franchise provisions, according to an opinion of the State Supreme Court handed down on Dec. 17. The decision had specific reference to the case of the city of Quincy vs. the Quincy Railway. It sustained the action of the commission in allowing the company to install 7-cent fares on its Quincy city lines.

The Quincy Railway early in 1919 applied to the commission for permission to raise fares from 5 cents to 7 cents on the ground of increased operating expenses. The application was made in spite of the fact that the company's franchise contained a clause limiting the fare to 5 cents. After a hearing, the commission allowed the company to install the higher rate over the protest of the city of Quincy. The city carried the case to the Circuit Court of Sangamon County on the ground that the fare increase was in violation of the franchise. The Circuit Court upheld the commission. The city then appealed to the Supreme Court of Illinois.

Commission's Police Powers

In sustaining the commission the court held that the latter derived its rate-making authority from the police powers vested in the State government. The decision stated the court's view in definite terms. In its opening sentence it said:

> We think it has been clearly settled by the decisions of this court that the Public Utilities Commission of this State, under the public utilities act, has had conferred upon it the power of changing the rates to be charged by the public utility corporations.

After citing from previous decisions, the opinion continued:

> Under these and other decisions of this court already cited there can be no escape from the conclusion that the Public Utilities Commission has the right and authority under the police powers of this State to make the change in these rates as provided in its order and as found in this record. The great weight of authority in other jurisdictions is in accordance with this conclusion.

The decision upholds the contention of Attorney General Brundage that the commission is not deterred by franchise provisions from granting a fare increase. It is therefore of wide interest in view of its possible application to the fare situation in Chicago. The city of Chicago is at present carrying on a court action against the recent 7-cent cash fare granted by the commission to the Chicago Surface Lines. The city takes the view that the decision in the Quincy case does not affect the Chicago issue, since, it is claimed, the peculiar features of the contract between the city and the Chicago Surface Lines puts the latter outside of the commission's jurisdiction. The commission takes the opposite view from that held by the city.

Back To Six Cents

Commission Again Reduces Fare on Chicago Surface Lines Pending Valuation Findings

The Illinois Public Utilities Commission on Dec. 23 issued an order, effective at midnight on Dec. 26, reducing fares on the Chicago Surface Lines to a straight 6-cent basis. Children's fares are reduced from 4 cents to 3 cents. The existing transfer privileges are continued.

The commission's ruling, which became effective on Dec. 1, leaving the cash fare at 7 cents but making possible either a 6-cent or 6.5-cent fare by the purchase of tickets, was expected to result in an average revenue of 6.25 cents per passenger. Figures submitted by the companies for the first eighteen days of December revealed that this arrangement or fares had yielded 6.85 cents per passenger.

Means $22,163 Daily Loss

Consequently, the commission ruled that, since the company had had the benefit of the 7-cent fare during August, September, October and November, and practically a 7-cent fare during the first eighteen days of December, the 6-cent fare should be placed in effect until the final valuation of the property was completed. It is reported that the ruling of the commission will reduce the revenue of the Chicago Surface Lines $22,163 a day or $664,892 for the average month.

In issuing the ruling the commission said:

> Experience has shown that if a ticket plan is to be really effective, the ticket must be handled by the conductors and sold to the passengers on the cars, and the time has come when the petitioners must realize that if it is necessary to fix a fare which involves a fraction of a cent they must arrange, if they are to have the benefit of this fraction, to have the tickets, which will be necessary to produce such a result, sold to the passengers on the cars.

Cash Fares Predominate

The figures submitted by the company show that during the first eighteen days of December 312,315 passengers used the 6.5-cent tickets sold in strips of ten, and 4,305,979 used the 6-cent tickets which they bought in books of fifty for $3. The number who paid the full 7-cent fare was 31,799,289.

In commenting on the commission's ruling, Chairman James H. Wilkerson said:

> The order carries into effect a ruling by the commission made in April. At that time the commission defined as a policy that the companies were entitled to earn at least $8,600,000 a year as a return on their investment. To that policy the commission has adhered, notwithstanding criticism directed against it for ulterior motives, and to that policy it will continue to adhere.
>
> Following the strike in July, wages were increased largely and, judged by the experience in other cities, 7 cents was necessary. But in Chicago traffic increased in the face of increased fares, so that it became necessary to put in force an average tariff of 6.25 cents. The case is still on hearing and it has been thought best in order to equalize matters to install a straight 6-cent fare.

A straight 6-cent fare leaves the companies about $500,000 a year short of necessary revenues.

The petition of the city of Chicago for an injunction against the 7-cent fare on the Surface Lines had previously been taken under advisement by Judge McGoorty. Arguments have also been presented in the Supreme Court in another suit attacking the order of the Public Utilities Commission.

Newark to Regulate Buses

As a first step toward municipal control of jitney traffic on its streets the city of Newark, N. J., has entered into a contract with the General Omnibus Company of New Jersey for the operation of buses over half a dozen routes. The validity of the contract, which was attacked by the Public Service Railway, has been approved by the courts and within a short time operation under the agreement will begin. The company plans to put into service buses of the double-deck type.

The contract fixes the fare at 5 cents for a continuous ride within the city limits, but provides that the fare may be raised to 10 cents at the discretion of the city authorities. Under the agreement each bus will be covered by a separate insurance policy of $5,000. Besides the insurance policies victims of accidents will also have the assets of the corporation to fall back on to satisfy judgments. The company will be required to pay 5 per cent of its gross receipts to the city, the minimum tax being set at $8,000 for the first year, $10,000 annually during the next four years, $12,500 for the next five years, and $15,000 for the last five years of the contract.

Five-Cent Zones on Worcester Lines

A zone system based on a 5-cent fare for a ride in each zone, became effective on the lines of the Worcester (Mass). Consolidated Street Railway on Dec. 1. Under the new arrangement, which is to be given a thirty-days' trial, the Worcester City Hall becomes a pivot point from which rates are computed. From the city limits or natural terminals to the City Hall, the fare is 5 cents, while for a passenger continuing beyond the latter point it is 10 cents. The company's suburban lines are also zoned.

The terms of the new system were recently agreed upon at hearings before the State Public Service Commission. The plan was endorsed by twenty of the outlying towns served by the company, only two towns, Shrewsbury and West Bolyston, raising objections. Transfers are discontinued. The fare was formerly 7 cents with free transfers.

A representative of the company declared at the hearings before the commission that an increased revenue of $840,000 on the system was needed. Of this amount he stated that $277,000 was needed to meet the deficit occasioned by the rates which have been in effect since April 1 last, and the remainder to take care of the extra sum needed for increased wages.

Whitman Jitneurs Upheld

The action of the town of Whitman, Mass., in barring jitneys from its streets was overruled on Dec. 3 when Judge George W. Kelly of the District Court ordered dismissed the case against Jason E. Cushing and three other jitney drivers charged with operating their vehicles in Whitman without licenses. The court held that the regulation recently adopted by the Whitman board of selectmen forbidding licenses to jitneys to compete against the Eastern Massachusetts Street Railway could not be sustained because it discriminated against the jitneys.

The case was an outcome of the recent move on the part of the Whitman selectmen to keep jitney buses from the town to save the electric car service. Judge Kelly in his decision said that no town could pass a by-law which discriminated against competition between persons engaged in the same line of business. Under the by-law, the court decided that no one could drive through the town of Whitman with a vehicle for hire without first securing a license in the town of Whitman, so that under this section, the court ruled, the requirements of the license could not be sustained.

Zone Fare Loss $1,500,000

The experiments which it made with the zone fares cost the Public Service Railway, Newark, N. J., $1,500,000. This is the loss stated by President McCarter to have been sustained in the announcement making public news of the passing of the dividend on its common stock by the Public Service Corporation for the last quarter of 1919, referred to briefly in the ELECTRIC RAILWAY JOURNAL for Dec. 20, page 1017. Mr. McCarter's statement follows:

> In view of the difficulties which the gas company and the railway company, two of the corporation's three principal subsidiaries, have encountered during the current year, in endeavoring to meet the vastly increased costs of labor and material under insufficient rates, and especially in view of the loss sustained by the railway in the zone system experiment, amounting approximately to $1,500,000, now happily concluded, the board of directors of the corporation, after a full consideration of all the facts, has thought it prudent to omit the declaration of what would have been, under normal conditions, the last quarterly dividend upon its common stock for the current year. This is thought wise as well from the standpoint of the conservation of cash resources as from a consideration of the earnings statement.
>
> The corporation looks forward to the new year and to the future with confidence. The electric company and the gas company, with their existing rates, are functioning under fair conditions, and the railway, under present costs, with the 7-cent fare, should be self supporting; that is to say, able to pay its operating expenses, including depreciation and fixed charges.
>
> The valuation of the railway property devoted to the public use is nearing completion by the Board of Public Utility Commissioners and early in the coming year a permanent rate should be established, based on the law and the evidence in the case; the result of which should be to enable the corporation to earn a fair measure of return upon its large investment represented by the stock of the railway.

Transportation News Notes

Suggests Compulsory Accident Prevention Education.—Legislation making instruction against accidents one of the compulsory features of public school education was recommended strongly by Cecil G. Rice, of the associated bureaus of the Pittsburgh (Pa.) Railways in an address on Dec. 6 before the Western Pennsylvania division of the National Safety Council.

Children in Arms Free.—New rules which went into effect on the Seattle (Wash.) Municipal Railway on Dec. 15, provide that only "children in arms" shall be carried free. The rule is provided for in an ordinance passed by the City Council on Nov. 4. It supplanted a previous rule that children five years or under should have free transportation.

Will Reroute Baltimore Lines.—A general organization of the transit system of Baltimore, Md., is called for in plans being worked out by the United Railways & Electric Company. The company will reroute every car line in the city, with the view to the eventual installation of a complete rapid transit system. The city will co-operate in carrying out the scheme.

Would Raise Interurban Rates.—The Maumee Valley Railways & Light Company, Toledo, Ohio, has filed with the State Public Utilities Commission a proposed schedule increasing rates between Toledo and Perrysburg, Maumee and intermediate points. Single fares are increased 5 cents. The advance in the price of commutation books amounts to 50 per cent.

Free St. Louis Transfers May Go.—Rolla Wells, receiver for the United Railways, St. Louis, Mo., recently announced that he would shortly ask the State Public Service Commission for authority to make a separate charge for transfers on the company's lines. Mr. Wells stated that, in his opinion, the solution of the transit problem of St. Louis depended largely upon the abolition of free transfers.

Glen Cove Company Needs More.—C. L. Addison, vice-president of the Glen Cove (N. Y.) Railroad, on Dec. 17 notified the Glen Cove City Council and the Nassau County Board of Supervisors that, unless the company were granted an increase in fare it would suspend operation. Last September the company asked for a modification of its franchise to permit it to ask the Public Service Commission for higher rates.

Eight Cents in Mansfield.—The Richland Public Service Company, Mansfield, Ohio, has notified the Mansfield municipal authorities that beginning Jan. 1, 1920, it will charge 8-cent cash fares. The company proposes to issue seven tickets for 50 cents. The rates are to continue in effect for six months and, under the terms of the company's franchise, will then be subject to revision.

Miners' Ticket Rate Lowered.—The Public Service Commission of Pennsylvania has issued an order directing the Eastern Pennsylvania Railways, Pottsville, to reduce the cost of ticket books for miners from $3.50 to $3. The order further directs that a traffic check be kept on the zones affecting Coaldale, Summit Hill and Brockton, and that a report be submitted to the commission next February.

Newspaper Rates Raised.—The Public Service Commission of Ohio has authorized the Cleveland & Eastern Traction Company and the Cleveland & Chagrin Falls Railway to install a rate of 0.75-cent a pound for the transportation of newspapers. The commission had previously suspended a rate of 1 cent a pound, the present rate being 0.5-cent. The new rate becomes effective on Jan. 1, 1920.

Ten Thousand Collisions in Detroit. Cars of the local and interurban lines of the Detroit (Mich.) United Railway were involved in more than 10,000 collisions with motor-driven vehicles during the first ten months of 1919, according to figures recently made public by the company. The financial loss resulting from these collisions, which averaged thirty-three a day, amounted to approximately $250,000.

Baltimore Fare Order Modified.—The Public Service Commission of Maryland has set Oct. 1, 1920, as the date on which the present 7-cent cash fare shall cease to be effective. The commission has ruled in a supplementary order that, subject to modification, the former 6-cent fare shall be restored on Oct. 1, unless the company before that date has applied for a continuation of the present rate or for a higher one.

Six Cents in Sedalia.—The Public Service Commission of Missouri has made an order increasing the railway rates of the City Light & Traction Company, Sedalia, Mo., from 5 cents to 6 cents for adult passengers and from 2.5 cents to 3 cents for children. The new rates will remain in force for thirteen months. Meanwhile, the company is directed to file a valuation of its property holdings with the commission.

Pennsylvania Bus Line Halted. The Public Service Commission of Pennsylvania has ordered the discontinuation of a motor bus line operating between Easton, in Northampton County, and Riegelsville and Kentnersville, in Bucks County. The bus company had failed to obtain a certificate of public convenience. The commission took action on the complaint of the Philadelphia & Eastern Electric Railway, Doylestown, with which the bus line competed.

Express Service on Bay State Lines.—The Eastern Massachusetts Street Railway, Boston, Mass., will institute a freight service shortly throughout its system in Essex County, Mass. The plans provide for the maintenance of both day and night lines which will link up with the lines now operating south of Boston and thus establish connections with the Providence and Fall River boats for through freight to New York.

Seven Cents Asked in Nashville.—The Nashville Railway & Light Company, Nashville, Tenn., has petitioned the State Public Utilities Commission for an increase in fare to 7 cents. The increase is asked pending an investigation of the company's financial condition by a board of three members, representing respectively the company, the commission and the city of Nashville. Upon the findings of this board a permanent rate would be based.

Interstate Zone Fares Raised.—The Interstate Commerce Commission recently granted the Washington Railway & Electric Company, Washington, D. C., and its subsidiaries, the Washington & Rockville Railway, the City & Suburban Railway and the Washington-Interurban Railroad, a flat increase of 1 cent in cash fare per zone on their lines in Maryland. The application for an increase was filed with the commission some time ago. The new fares became effective on Dec. 1. They will expire on May 1, 1920.

Jitneys Barred in Salem.—Following the cutting-off of electric railway service in Salem, Peabody and Beverly, Mass., by the Eastern Massachusetts Street Railway, the Councils of these municipalities have voted to revoke licenses for the operation of jitneys within the city limits. The company resumed service on Dec. 19 after an interruption lasting one day, in which the inability of the jitneys to handle the traffic was made clear. The action of the company was in accordance with the policy of refusing to operate in competition with the jitneys. The elimination of the latter from the Salem division leaves the Bay State system without jitney competition in the eastern district of Massachusetts, with the exception of Quincy.

Eight Cents Now Charged in Kansas City.—The Kansas City Railways on Dec. 14 began collecting 8-cent cash fares on its lines in Kansas City, Mo., under authority of the State Public Service Commission. The ticket-rate, when five or more tickets are purchased at once, remains at 7 cents. Metal tokens are sold on the cars at the rate of two for 15 cents. The cash and ticket rates were formerly 7 cents. P. J. Kealy, president of the company, recently stated that a sixty-day trial of the 7-cent cash fare had demonstrated that the public would not buy tickets when the cash and ticket rates were the same. The fare in Kansas City, Kan., remains at 6 cents. Two cents additional are collected from passengers crossing the line from Kansas into Missouri.

Personal Mention

L. O. Lieber, electrical engineer of the Los Angeles (Cal.) Railway, has resigned. Mr. Lieber plans to enter other business. He has been connected with the company for the last eleven years.

Thomas A. Cole has resigned as claim agent of the Los Angeles (Cal.) Railway. Mr. Cole had been identified with the company for more than twenty-five years. He will devote his time to private business.

C. M. McRoberts has been appointed claim agent for the Los Angeles (Cal.) Railway, succeeding Thomas A. Cole, retired. Mr. McRoberts has been assistant claim agent of the company for the last eight years.

J. H. Suttlee has been appointed master mechanic of the Johnstown (Pa.) Traction Company. Mr. Suttlee was formerly master mechanic of the Trenton, Bristol & Philadelphia Street Railway, Philadelphia, Pa.

I. C. Shellenberger has been appointed auditor of disbursements of the Chicago (Ill.) Surface Lines to succeed A. L. Dewey, who died recently. Mr. Shellenberger was formerly chief clerk of disbursements, and has been succeeded in that position by C. W. Meyer.

Alexander McDonald has been appointed traffic superintendent of the Winnipeg (Man.) Electric Railway. Mr. McDonald succeeds R. R. Knox, whose promotion to be assistant to the general manager of the company is noted elsewhere in these columns. He has been connected with the Montreal (Que.) Tramways since 1887.

R. G. Staplin, claim agent for the Shore Line Electric Railway, Norwich, Conn., has resigned to accept a similar position with the Hartford Accident & Indemnity Company, Hartford, Conn. Mr. Staplin joined the company on Oct. 1, 1913. Mr. Staplin is a member of the New England Street Railway Club and the National Safety Council.

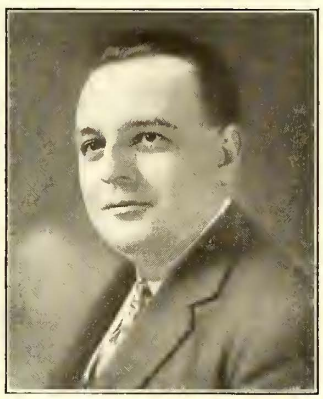
Harry Clark, who has been engaged for the last twenty-five years in electric railway management in New York State, has resigned as treasurer and assistant general manager of the Empire State Railroad, Syracuse, N. Y., to become associated with the Watson Products Corporation, manufacturers of automobile trucks and accessories.

S. M. Gallaher, who has been manager of railways of the Monongahela Valley Traction Company, Fairmont, W. Va., since 1917, has severed his connection with the company to join the Cleveland (Ohio) Electric Illuminating Company as head of the engineering and construction departments. Mr. Gallaher was formerly general manager of the Charleston (W. Va.) Interurban Railroad.

Mr. Gaboury Elected

Official of Montreal Tramways Chosen to Head Canadian Electric Railways Association

Arthur Gaboury, superintendent of the Montreal (Que.) Tramways, was elected president of the Canadian Electric Railways Association at the Association's recent meeting. At the Atlantic City convention of the American Electric Railway Transportation & Traffic Association he was elected to its executive committee. Mr. Gaboury, who is in his forty-sixth year, has always lived in Montreal and has from his boyhood been connected with the local electric railway systems. After completing his college course at St. Laurent College, he went to work in 1894 first as conductor and then as motorman with the Montreal Street Railway to gain a full knowledge of the practical end of the transportation business.



ARTHUR GABOURY

In 1901, on the occasion of the visit of the Duke of York to Montreal, he was appointed assistant inspector to aid in the handling of the extra traffic occasioned by this visit, and soon thereafter became depot clerk at the central carhouse. A few months later he was transferred to important new carhouses at St. Denis Street as chief clerk, having charge of the suburban line to Sault au Recollet.

In 1903 the claims department of the railway was separately organized and Mr. Gaboury was put in charge as claim agent, which position he retained until 1906 when he was made assistant superintendent. A year later he became superintendent.

In his position as superintendent Mr. Gaboury has had an active part in all movements looking toward the improvement of electric railway service, such as the proper training of employees, the safety campaign, the regulation of street traffic, etc. He has been a member of the Canadian Electric Railways Association, which he now heads, since 1903, and has filled positions of greater and greater importance in the association since that year. He is equally interested in the American Association.

R. R. Knox, traffic superintendent of the Winnipeg (Man.) Electric Railway, has been promoted to be assistant to the general manager of the company. In his new capacity Mr. Knox will be attached to the office of A. W. McLimont, vice-president and general manager, for special assignments. He has been connected with the transportation business in Winnipeg since 1895, and for the last twenty-one years has held the position of traffic superintendent. His new appointment has met with the whole-hearted approval of the Winnipeg public, since Mr. Knox has taken a leading part in municipal affairs for many years. He has been a member of the Winnipeg School Board since 1908.

J. F. Trazzare has been appointed to the position with the Georgia Railway & Power Company, Atlanta, Ga., formerly held by W. T. Waters, publicity agent. Mr. Trazzare's appointment contemplates the organization of a new department of the company to be known as the employment and public relations department, of which he will have charge. Previous to the war, Mr. Trazzare was with The Aluminum Company of America, where he had to do with the broad phases of labor. Before that he was a newspaper man for a number of years. During the war he served the War Department in connection with the industrial plant protection work of the Southeastern Department. While he has spent much time in publicity work, this is his first engagement as a publicity agent and his first connection with the electric railway field.

D. H. Blanks, who has been chief engineer of the Monongahela Valley Traction Company, Fairmont, W. Va., for the last three years, has been appointed manager of railways of the company. Mr. Blanks was graduated from the University of Missouri in 1906 with the degree of civil engineer. He spent several years in construction work for various steam roads, first with the Pennsylvania Railroad, later with the New York Central & Hudson River Railroad and still later with the Long Island Railroad. He then went to Mexico, where he was employed by the Southern Pacific Railroad on engineering work. He subsequently became connected with the Carter Construction Company, for which he was engaged in building the line between Cumberland and Connelsville for the Western Maryland Railroad. In 1916 he joined the Monongahela Valley Traction Company as chief engineer.

Manufactures and the Markets

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

ROLLING STOCK PURCHASES BUSINESS ANNOUNCEMENTS

Stocks of Wood Tie Preservatives Are Low

Production Cut Down by Labor Scarcity —Usual Fourth Quarter Slackness Apparent—Decline in Sales

Recent sales of wood tie preservatives show a decided falling off. Although the fourth quarter is usually a period of dullness, it is particularly so this year because of the scarcity and unproductiveness of labor.

Present stocks of materials are very short and although it is replenished continually, producers are finding it difficult to quote on large quantities for spring delivery. Production is behind and has been hampered somewhat from strikes.

Buying is of an irregular nature and although prices have not advanced for some time there is rather an inclination more towards an advance than toward a reduction of prices for first quarter.

Market conditions are firm on creosote oil which is the base of most preservatives. Business has been fairly active and some contracts for first and second quarter have been signed by large producers although the price was not given. There is very little creosote available in the market at present. Prices are unchanged at 40 cents per gallon for the 25 per cent grade and 20 cents per gallon for the 15 per cent grade.

Deliveries to railways on medium-sized quantities of wood tie preservatives can be made in from one to two weeks.

Metal Market Situation

Copper Selling at 18.25 to 18.50 Cents a Pound from Producers, With Outside Market Higher

Since the last metal market report numerous changes have occurred in the price of metals. Electrolytic copper, under date of Dec. 23, is being sold by producers at 18.25 to 18.50 cents a pound for delivery at buyers' works. The unusual feature of this market is the higher price which the outside market places on its copper. These dealers have established premiums of 1 cent or more per pound for deliveries over the first and second quarters of next year. Their first quarter quotations are 19.25 to 19.75 cents and second quarter 19.75 to 20.75 cents a pound. Producers are refusing to sell to the outside market of dealers, preferring to deal directly with the consumer.

The prices three weeks ago were as low as 18 cents a pound, the lowest at which the metal could be bought since its rise of several months ago. During this recent downward turn of the market from the 23½-cent level, some large sales of the red metal have been made, and consumers in many cases have covered their requirements to a considerable extent. Of course, production in some mines has decreased in the last month, and a continued coal shortage will force further reduction, it is said.

In some cases consumption during the past few months has been about on the level of production, even where this production has been normal. Prices, of course, have been sacrificed in this buying. Present domestic consumption of copper is estimated about 30 per cent greater than that before the war, the wire drawers and electrical industry being the greatest consumers. The foreign orders are, of course, very low because of the unfavorable exchange situation.

The market for copper scrap is 1½ cents lower, commensurate with the new metal prices, and heavy wire and copper scrap is quoted at 16.50 to 17 cents.

Lead prices were advanced on Dec. 6 $3 a ton, bringing the New York price up to 6.90 cents a pound. The market is strong and producers are well booked up. The outside market holds quotations up to 10 points above that of the American Smelting & Refining Company.

Active Interest Shown in Steel Ties

Inquiries Good With Average of Sales Light—Good Delivery Quotations Now Although Future Uncertain

Reconstructed and extended track mileage is expected to be less this year than ever before. This has been partly responsible for the falling off of sales in mechanical ties. Most of the work which has been done during the past year has been forced reconstruction on pavement improvements or on account of franchises.

Present market conditions for mechanical ties show an improvement over the earlier part of the season. One manufacturer is accepting orders for mechanical ties based on the present price of steel, the shipments to be made at any time during the spring construction season. Prompt deliveries are the rule at present, although orders now pending are expected to cut quite deeply into present stocks.

Raw material contracts have been fairly well taken care of by the steel manufacturers although deliveries are gradually becoming lengthened. Only one mill is making delivery at present in less than a month, the majority of others being from six weeks to three months.

Although prices are about the same as last spring and manufacturing conditions are good, it is impossible to predict for the future on account of the condition of the steel industry. For the time being, however, present prices will be maintained although there may be revisions during the first quarter of 1920. A spurt in business is looked for beginning about the first of February and continuing throughout the year.

A considerable number of railways expect to commence using mechanical ties for the first time this year, while a number of others, who have completed several miles of concrete construction, will build extensions. Labor for track work has been scarce and can be obtained only at a prohibitive figure. There has been no difficulty in getting rails except that this year the railways have not been able to finance rail purchases and relaying rails have been rather hard to obtain.

Good Deliveries Being Made On Trolley Wire

Prices Are Holding Firm on the Finished Product—The Demand Is Only Fair

Small sales of copper wire for trolleys and transmission are the rule nowadays. The buying has been reduced to a maintenance basis and very little new construction that requires either trolley or transmission copper is being undertaken. An order placed last week for ten miles of copper trolley is the best reported for several weeks although in former times, orders for this or larger amounts were regular and rather commonplace. Copper has dropped off considerably from the war time prices of 23⅜ cents, and at present is holding around the 18½-cent level but this has not been sufficient to cause a drop in the finished product, the price of which remains unchanged according to latest reports. Labor is a big item and therefore has an important bearing on the cost of the finished wire.

Stocks of copper have been permitted to dwindle but at no time has there been a shortage or failure on the part of the manufacturers to make prompt delivery. This no doubt has been due to the small amount that is being purchased.

Sales of composition copper and brass trolley wire have been good and are reported to be 25 per cent ahead of last year's sales. Business is fairly regular all throughout the year, and as a matter of fact, the sales during August, September, and October on this wire have increased considerable over the corresponding months of last year and the prospects are that sales for this winter will be even better. Stocks are unlimited and any demands can be met that are placed upon the manufacturers.

Prices are dependent upon the cost of ingot copper, although labor is largely a controlling factor. The present tendency of the price, however, is to follow that of ingot copper. Large individual orders have been placed and deliveries at no time have been held up by manufacturing conditions. At present deliveries are four to eight weeks on large orders, although where customers have emergency requirements, they are taken care of immediately.

Rolling Stock

Ashtabula (Ohio), Rapid Transit Company is expected to be in the market for new cars. M. H. Turner, City Manager, is in charge of the property.

Omaha, Lincoln & Beatrice Railway, Lincoln, Neb., has placed an order with the American Car Company for two double truck cars for delivery about March 1. The cars will be equipped with Westinghouse 508 motors, General Electric C P 27 compressors, Brill 71-1 trucks and with 26 in. Carnegie steel wheels. The cars are to be used on an extension between Lincoln and Havelock, Nebraska, which will be completed by the time the cars arrive.

Franchises

Atlanta & Anderson Electric Railway, Atlanta, Ga.—The charter of the Atlanta & Anderson Electric Railway, which proposes to build an electric railway from Atlanta to Anderson, S. C., has been extended for a period of three years.

Los Angeles (Cal.) Railway Corporation.—The Los Angeles Railway Corporation has applied to the City Council, for a franchise to maintain and operate a double track on the newly opened portion of Broadway, from Tenth to Rico Streets.

East St. Louis & Suburban Railway, East St. Louis, Ill.—The East St. Louis & Suburban Railway has been authorized to use the streets of Belleville, Ill., east of 23rd Street during the month of December for the sum of $200. The permit was given in lieu of a franchise.

Northern Texas Traction Company, Fort Worth, Tex.—The Northern Texas Traction Company, a Stone & Webster property, has been granted a franchise by the city commission of Fort Worth, for double tracking its line on East Terrell Avenue from Forest Avenue to Evans Street, Fort Worth.

Track and Roadway

Sacramento Northern Railroad, Sacramento, Cal.—The right-of-way of the Sacramento Northern Railroad from Telama to Red Bluff has been purchased by the Sears & Horning Company. The right-of-way from the Sacramento River to St. John, in Glenn County, has been sold to the same company. The Northern Realty Company, holding company for the Sacramento Northern Railroad has also sold a site, at the corner of Oak and Ninth Streets, Chico, Cal.

Capital Traction Company, Washington, D. C.—J. H. Hanna, general manager of the Capital Traction Company, has announced a comprehensive improvement program for the company. It is planned to spend $1,100,000 on new equipment and track construction. The company will purchase forty new cars at a cost of $500,000, will repair and relay tracks at a cost of $300,000 and will install additional power house equipment at a cost of $300,000.

Rock Island Southern Railway, Rock Island, Ill.—The Rock Island Southern Railway has been directed by the Public Utilities Commission of Illinois to repair all dangerous bridges; to secure sufficient power to operate its cars on schedule time; to re-surface the tracks of the Aledo and Alexis branches; to repair and maintain its passenger cars in safe and sanitary condition; to repair all of its pole lines and to maintain suitable terminal facilities at Rock Island.

Tri-City Railway, Davenport, Ia.—The Tri-City Railway will build 1800 ft. of trackage on Twenty-seventh Street, south of Fifth Avenue, Moline, Ill.

United Railways of St. Louis, St. Louis, Mo.—Petitions signed by 6000 residents of Lindenwood and Gratiot, in the southwest section of St. Louis, have been presented to Rolla Wells, receiver for United Railways of St. Louis, asking for the extension of the company's system to those districts. The petition suggests that the Tower Grove line be extended for one mile west of its present turning point at Woods and Arsenal Streets to either Ivanhoe or McCausland Avenue and south on either one of these thoroughfares to Lindenwood Place. The length of the proposed extension would be two and a half miles.

Ocean City (N. J.) Electric Railroad.—The State Board of Public Utility Commissioners has granted permission to the Ocean City Electric Railroad to surrender its franchise and abandon certain of its tracks in Ocean City.

Public Service Railway, Newark, N. J.—The New Jersey Board of Public Utility Commissioners has approved the ordinance passed by the Board of Public Works of Paterson on Sept. 23 last providing for the removal of certain tracks of the Public Service Railway on Sumner Street, between Clay and Essex Streets; Essex Street, between Sumner and Beach Streets; Beach Streets, between Essex and Market Streets, and Market Street, between Beach and Straight Streets.

Cincinnati, Lawrenceburg & Aurora Electric Street Railroad, Cincinnati, Ohio.—The Cincinnati, Lawrenceburg & Aurora Electric Street Railroad is seeking a direct entrance to Cincinnati. The plan contemplates construction of a line from Anderson's Ferry to the Dixie Terminal in Cincinnati. The cost of a direct entrance is estimated at $750,000.

Dallas (Tex.) Railway.—The Dallas Railway which, under the terms of the franchise granted two years ago, is under bond to construct within a specified time two interurban lines each 30 miles or more in length, has been granted an extension of time in which to begin work to Jan. 8, 1920.

Dallas (Tex.) Railway. — Richard Meriwether, general manager of the Dallas Railway, has announced that all improvements, extensions and betterments now under way in Dallas will be completed by Jan. 1, 1920. These include the rebuilding of the Jefferson Avenue line from Lancaster to Polk, a distance of nearly 2 miles; rebuilding part of the line on McKinney Avenue, and the extension of a line to Oakland Cemetery out Myrtle Street.

Virginia Railway & Power Company, Richmond, Va.—The Virginia Railway & Power Company will expend approximately $85,000 on improvements to its lines in Portsmouth, Va. The improvement program was recommended by Burton Marye, engineer of the State Corporation Commission.

Power Houses, Shops and Buildings

Pacific Electric Railway, Los Angeles, Cal.—The Pacific Electric Railway has opened large car shops in Torrance, Cal. The buildings at Seventh and Almeda Streets, Los Angeles, formerly used as car shops, will be used as a freight depot.

Boston (Mass.) Elevated Railway.—The Boston Elevated Railway has placed in service its new Back Bay loop terminal. Surface cars from the Harvard Square, Dudley Street and Chestnut Hill sections will pass through the loop, which has entrances on Boylston and Newbury Streets.

Northern Massachusetts Street Railway, Athol, Mass.—Damage estimated at $100,000 was caused to the car house and contents of the Northern Massachusetts Street Railway at Orange, Mass., on Nov. 23 by a fire believed to have been caused by spontaneous combustion in a coal pile.

Texas Electric Railway, Dallas, Tex.—The Texas Electric Railway has purchased the Union Telephone Building at McKinney, Tex., from the Southwestern Telephone Company and will

shortly begin the erection of an additional building to be used as a terminal. Separate waiting rooms for whites and negroes will be provided, as well as comfortable quarters for trainmen. It is expected that the new station will be ready for occupancy about Jan. 1, 1920.

Trade Notes

J. Benton Porter, ship-propulsion specialist, has been transferred from the Philadelphia office to the New York office of the General Electric Company.

Edward Wray, assistant general manager of the Sangamo Electric Company during the past two years, has resigned, effective Sept. 1, on account of ill health.

William L. Swormsted has been appointed manager of the Washington office of the Westinghouse Lamp Company, succeeding C. R. Whitney, resigned.

Westinghouse Electric & Manufacturing Company announces the appointment of Vernon R. Buxton to the Boston sales office as switchboard specialist in the supply department.

George F. Simons, who recently was district manager for the Detroit and Cleveland offices of the Edison Storage Battery, has resigned to enter the industrial truck field.

Lakewood Engineering Company, Cleveland Ohio, is offering three awards, totalling $1,750, for the three best analyses of the application of its new Tier-list truck.

Jensen & Garlock, Chicago, Ill., have formed a partnership and will make financial investigations, installations of systems, and will specialize on federal income, capital stock and state taxes.

Gibb Instrument Company, Detroit, Mich., announces the discontinuance of its line of electric pyrometers in order to confine its efforts entirely to the manufacture of welding apparatus.

Ingersoll-Rand Company, New York, N. Y., has established a branch office in Dallas, Tex., in charge of R. H. Brown, Jr., who has been connected with the St. Louis office for several years.

Chicago Pneumatic Tool Company on Oct. 1 removed its Birmingham office from the Brown Marx Building to 1925 Fifth Avenue, North, where a service station and complete stock will be maintained.

H. M. Byllesby & Company, Chicago, Ill., announce that General George H. Harries, who recently returned to this country after twenty-seven months active service in the U. S. Army, has resumed his duties as vice-president of the company.

Thomas S. G. Menezes, 12 Depot Lines, Karach, India, desires catalogs from engineering firms wishing a representative in Mesopotamia. On demobilization of the Mesopotamian Expeditionary Force he intends to do business in Basrah and Bagdad.

Russell Stoll & Company, New York, N. Y., have opened a Chicago office with Roy E. Shawlin as Western manager. The Chicago office will establish distribution in the Middle West on fittings, fixtures and electrical specialties.

General Electric Company, Schenectady, N. Y., recently distributed a semi-annual bonus amounting to approximately $75,000 among 2000 employees of its Pittsfield, Mass., works. All of the 2000 employees have been with the company for a period of five years or longer.

Yarnall-Waring Company, Chestnut Hill, Philadelphia, manufacturer of power-plant devices, announces that L. G. Chase, formerly efficiency engineer, Rosemary Manufacturing Company, Rosemary, N. C., has been appointed mechanical engineer of this company.

Jeffrey De Witt Insulator Company, Huntington, W. Va., announces that W. D. A. Peaslee, formerly professor of electrical engineering of the Oregon Agricultural College, has joined the staff of the company. Mr. Peaslee was a captain in the engineers during the war and saw service in France.

Richardson-Phenix Company, Milwaukee, Wis., announces the appointment of L. E. Strothman as vice-president and general manager of the company. For the past several years he has been manager of the steam turbine and pumping department of the Allis-Chalmers Manufacturing Company.

The Parsons-Moorehead Machinery Company, Hostetter Building, 237 Fourth Avenue, Pittsburgh, has been organized to do a general machinery business. William L. Moorehead of this company was formerly vice-president of the Duquesne Electric & Manufacturing Company, while Mr. Parsons has been doing a general machinery business for several years.

The Chattanooga Armature Works, Chattanooga, Tenn., has just completed a portion of its plant, making an addition of 3000 sq.ft. to its floor space. The old frame building was removed and brick construction substituted. It has now complete repair shops to take care of electrical machinery and special coils. The company manufactures armatures and field coils for the different makes of motors and generators and represents the Van Dorn Electric Tool Company and the Lincoln Bonding Company, both of Cleveland, Ohio.

Hyatt Roller Bearing Company, New York City, announces the appointment of Earl E. Eby, sales manager of the industrial bearings division, to the board of directors of Hyatt, Ltd., a new company formed to market the Hyatt bearing in Europe. Mr Eby will devote his entire time to this work, with headquarters in New York. G. O. Helmstaedter, formerly Chicago district manager, has been promoted to the position of sales manager to fill the vacancy.

Canadian Westinghouse Company, Ltd., announces that H. U. Hart, chief engineer of the company, has been appointed general manager, succeeding Mr. Merrick, resigned. Mr. Merrick, however, remains vice-president and a member of the board of directors of the company. C. H. Mitchell, formerly assistant superintendent of electrical department, has been appointed assistant manager of the Canadian company's works. R. E. Cullings has been appointed general foreman in charge of the electrical department at the Essington works. H. C. Thomas has been appointed assistant to the manager of the St. Louis office.

Janette Manufacturing Company, Chicago, Ill., manufacturer of alternating-current and direct-current motors and motor-generators, is moving into its new factory building at 556 West Monroe Street. This is a seven-story and basement building, comprising 60,000 sq.ft. of floor space, or about six times the amount of floor space occupied in the old West Jackson Boulevard Building. In addition to increased space, the company is adding considerable new equipment for a much larger production. In order to satisfy the present demand, the output will be increased at least 500 per cent, according to advices from the Janette company.

New Advertising Literature

Vitreous Enameling Company, Cleveland, Ohio: An illustrated leaflet describing its R. L. M. standard industrial lighting reflectors.

Inter-State Machine Products Company, Inc., Rochester, N. Y.: Bulletin No. 500 describing its Sterling electric siren fire alarm.

Tubular Woven Fabric Company, Pawtucket, R. I.: A booklet "Proof of the Pudding," or on giving the advantages of Duraduct portable cable.

Roller-Smith Company, New York, N. Y.: Revised bulletin sheet No. 96, which covers its Columbia switchboard-type induction watt-hour meters.

The Cutler-Hammer Manufacturing Company of Milwaukee, Wis.: A leaflet telling about its line of alternating-current and direct-current drum controllers.

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

Allis-Chalmers Manufacturing Company, Milwaukee, Wis.: Bulletin on the Diesel oil engine, with an explanation of the principles of this type engine, and with details of the engine alone and as installed in power plants.

Nachod Signal Company, Inc., Louisville, Ky.: Illustrated bulletin on type-CD signals, intended for electric railways of nominal 600-volt line potential, equipped with wheel or sliding shoe trolley. The signals are adapted for two-way movements on single tracks. The bulletin carries catalog number 719.

Bind this
Number, viii 15
in this position
leaving enough
to distinguish it
from what precedes.

INSTRUCTIONS TO BINDER

(Indicate by checking carefully in squares.)

☐	Bind as per sample.	☑	Bind as per dummy.
☐	Bind covers and "ads" as they are.	☐	Bind all parts as arranged.
☐	Remove covers and "ads."	☐	Mount plates on guards.

STYLE OF BINDING.	STYLE OF BINDING.	COLOR.
☐ Half Morocco.	☐ Marble edge.	☐ Brown.
☐ Half Cowhide.	☐ Cloth ——— Sides.	☐ Dark ——— Green.
☐ Cloth.	☐ Paper	☐ Light
☐ Buckram.	COLOR.	☐ Tan.
☐ Duck.	☑ Red.	☐ Blue.
☐ Half ——— Sheep.	☐ Black.	Other Color than above ----------
☐ Full	☐ Yellow.	☐ Trim all edges lightly.

SPECIAL INSTRUCTIONS: ----------
