

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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Eight to Twenty Years for Meditation

DISORDER in the strike in Brooklyn last summer was sporadic. No general reign of terror existed, such as at Denver and other places where railway men have gone out recently. Still, the disorder assumed serious proportions at times. In one such outburst death resulted from the violence of the strikers. The strike has long since been forgotten, but not the strikers. It is one thing to strike, but it is another to be disorderly. Five strike rioters formerly in the service of the Brooklyn Rapid Transit Company whose activity resulted in the death of a young man pleaded guilty recently to manslaughter. They have been sentenced to Sing Sing. The lawyers for the men made a plea for clemency. Judge Cropsey, who passed sentence on the accused men, disagreed with their counsel. To the offenders he said: "You are all guilty of murder. I think every consideration was shown you when the District Attorney accepted your plea of manslaughter. You had the right to strike, but you did not have the right to interfere with any one who wanted to work." In thus expressing itself the court reflected the attitude of the general public in regard to those who practice strong-arm methods. The men under sentence to Sing Sing will have from eight to twenty years to ponder over Judge Cropsey's words. Organized labor everywhere should take the remarks of the court to heart at once.

Will National or State Commissions Establish Intrastate Rates?

THE controversy over what authority will control intrastate rates of interstate carriers is a subject of far greater importance to the steam railroads than to the electric railways. But there is one phase of the question in which the electric railways are greatly concerned, and that is the policy of commissions toward utilities which will follow the decision of the Supreme Court determining where the rate-making power lies. Wherever this power is found to rest, we sincerely trust that the governing authorities will have both the will and the power to make it possible for the utilities adequately to serve the public.

If there is to be rivalry in this matter of control between states and national commissions, let it be a rivalry to see which can best build up the utilities and increase the service which they are giving to the public at rates which while not being extortionate shall yet pay adequately for the cost of the service. Several of the states, through their commissions, have already taken the attitude that a solution to the steam railroad problem is needed and that the rates authorized by the Interstate Commerce Commission should have a fair trial in intrastate as well as interstate service. The California commission, for example, in

its announcement to the carriers last summer apparently considered that obtaining service was of paramount importance. It realized that any questions of defining the relative authority of state and federal commissions could be considered just as fairly without delaying the relief the carriers needed in order to render service. This is a broadminded attitude which can well be accepted by others as the proper one to follow.

Somebody Has Commenced to Regulate the Highways

WE INQUIRED editorially some time ago (Aug. 14, page 303): "Who Will Regulate the Improved Highways?" pointing out at the time, and since, the rapid destruction of the public roads by motor trucks and the complicated but pressing questions of some sort of fair division of charges for the use of the roads. Electric railways and trunk lines are keenly interested in this allocation of charges and regulation of the present almost uncontrolled competition on the part of the motor trucks.

It is a pleasure for electric railway men and a healthy thing for the motor truck industry and for the public to note that Commissioner Bennett of Connecticut, in charge of the state highways, has commenced to regulate with an iron but just hand. Mindful of the effects of overloading, he has limited the gross weight of truck and load to 20,000 lb. and is enforcing the order. Connecticut, like many other small Eastern states, is commencing to feel the effects of trans-state shipments from which it derives no benefit but the roads for which the state provides free of charge to the motor industry.

As a result of the order, many motor truck men who have been loading up to fourteen tons gross are complaining that they cannot make their business pay under the limitations set. All this is true, too, without any attempt to make any additional charges upon the truck business.

Chicago, through her Lincoln Park Board, has set a similar limitation upon weight and weight distribution of the motor buses which operate through Lincoln Park.

All this looks good and sensible. It is not that the electric railways are glad to see any unjust restrictions placed upon a legitimate means of transportation, for the electric railway, as we have often pointed out, is the logical agency to operate motor vehicles within certain limits. But the electric railway which knows that, when all factors are considered, rail haul is frequently more economical is glad to see the regulation of competing agencies commence to take proper form. As we said before, the problem is very complex. We hope for a fair solution. Commissioner Bennett has at least made a good start in the matter.

A Psychological Moment for the Railway Movies

WITH the Pennsylvania Board of Censors in the lead there is appearing a widespread feeling against a certain form of movie film which it is said has become so common that it is the usual thing seen, and a change is wanted. We refer to the film whose story is based either on the "eternal triangle"—most common—or the luring vampire. Not that there is a noticeable falling off in movie attendance, but even the movie "fan" is beginning to ask why something else can't be found for a story.

If this is so and the movie people are at all on the lookout for new material—and they seem to show evidences of good business judgment—why is not now a psychological time to put forth a railway scenario such as has been discussed in these columns for the past three months and two samples of which were given in the issue of the JOURNAL for Nov. 27?

The Runaway Street Car Problem Again

THE casualties following the runaway of a street car on a steep grade in Kansas City last week bring up forcibly again the question of possible means for avoiding such an occurrence. Runaway accidents fortunately are uncommon, thanks to the safeguards which equipment designers have provided to prevent a car from getting away from the control of the motorman when on a grade, but when these accidents occur they are apt to be serious.

In Kansas City the accident was caused by the breaking of a $\frac{1}{2}$ -in. steel bolt in the clevis connecting the main brake pull rod with the brake cylinder piston, thus disconnecting both the air and hand-brake mechanisms. With the brakes thus inoperative, the car rushed down an 8 per cent grade, grazing or striking two other cars and a steel pole, and finally went to pieces after striking the second car. To the fact that the car was of the safety type and unusually light may be attributed the small injury to the cars hit. The "one-man" feature has been attacked, but it is hard to see how the presence of a conductor in the car would have prevented the accident. The evidence is not clear as to whether the motorman tried to reverse his motors or break the circuit and put the motors in the full parallel so that they would tend to retard the car. Probably he did not.

Measures to avoid an accident of this kind may take two forms. On roads with steep grades over private right-of-way the derail with sand track stop has been used. Derails have been installed to some extent also on hills in paved streets, but obviously they are not so satisfactory in such locations. In the second place, possible improvements in the usual car brake rigging might be made. One of these is the employment of box jaws on all rods and other connections, as was exhibited for use on surface cars at the Atlantic City convention for the first time last October. With this design the parts would still engage even if a pin broke or came out. As we remember it, this construction was first applied to safety cars in Oswego, N. Y., last summer. Another possible plan would be a series of stops such as have been worked out for double-truck cars, by which the rigging on one truck, if disabled, comes against a stop, leaving the rigging on the other truck operative.

Duplicate brake rigging could also be used, so that if one set should give way the other would be available, but clearly one set is better if it can be kept in good operating condition.

Use of But One Form of Propulsion Is Not an Innate Necessity

IN DISCUSSING the present and possible future development of the motor bus in its relation to mass transportation some long-time electric railway operators place more stress upon the means used for propulsion of public vehicles than on the purposes which such vehicles are intended to serve. They seem to feel that there is an inevitable and indissoluble connection between transit over rails and the carriage of large numbers of people. Surely, it is not well to look at the matter in this narrow way. The function of a public utility transportation system, as distinguished from individually hired or individually owned conveyances, is to carry the masses in the cheapest and most comfortable fashion. It simply happens that between the passing of the horse bus and the development of the self-propelled vehicle the horse car and then the electric car running on rails offered the only practical means for wholesale urban transportation. At bottom, those who give this service have but one problem regardless of the time. It is to adopt or adapt anything whatsoever that will enable them to carry out their special undertaking still better.

This eclectic attitude is compelled all the more by the fact that a monopoly of mass transportation must also include services where there are no "masses," or where the masses come only at irregular intervals. To meet such conditions the operator owes it to his stockholders to fulfill his monopoly obligations with the least possible loss. He will therefore look into any and every mode of transport equipment available, since it is *his* business to move people and not to worry about the type of equipment used. This is particularly the case where extensions have to be made. At present prices for track construction, buses may often be found more economical than cars, and it is fortunate for the railway manager that both are available.

The Norfolk Report Has Valuable Features

IN THIS issue the third and last of the series on the Norfolk (Va.) traction situation is presented. The report which these articles have analyzed has not been formally accepted by the city as yet, so far as we are advised, but it has apparently been well received by both city and company. Comment on the report, as a piece of public utility engineering work, is pertinent. In general it contains no radically new facts or ideas. It does, however, present some of these in a new light and it is very outspoken and frank on all points.

As to valuation, that moot question and the rock upon which so many otherwise satisfactory agreements are wrecked, Mr. Taylor says frankly that his decision is not subject to mathematical proof; it is nothing more than a "judicial" determination after certain "indices" of value are known. This, it appears, is only acting upon the recognition of the fact that the final determination of value as made by a commission is always upon such a basis, admittedly or not. While engineers in the past have no doubt fre-

quently arrived at their final figures in this manner, it is not customary so to admit. The test of such a method will rest upon some court decision ultimately, but court decisions will be unnecessary when cities and utilities can agree upon a business-like method of dealing with each other.

Mr. Taylor's arguments on "historical investment," the right of the company to press for an appreciation of its past deficiency in earnings, and the theory of "service" depreciation all have novel elements which should be both interesting and useful to railway men and to commissions in their work of utility regulation.

Mr. Taylor's position in Norfolk was strengthened by the conditions under which we are informed he made the study. These were that the city and company desired a business-like settlement of their relations; that the city, employing Mr. Taylor, recognized him as a partisan of neither side and that the city recognized the right of capital legitimately invested in public utilities to be protected both as to principal and return.

Cutting the Coat to Fit the Cloth

WITH individuals as well as corporations, the more difficult it is to make ends meet the more urgent is it to follow some kind of a budget plan of estimating receipts and expenses. Moreover this plan must be effective in exerting control over expenses and, if possible, in stimulating growth in receipts. It is cold comfort, if any comfort at all, to make up estimates, if these contain merely inert figures with no suggestive power of improvement. If, however, the budget is recognized as a potent influence in the operation of a property, it is worth a considerable effort in compilation and administration. In connection with an application for increase in railway fares the existence of a going budget system could not but impress a public utilities commission favorably.

The attention of the *ELECTRIC RAILWAY JOURNAL* having been recently directed to the dearth of information regarding the budget plans of electric railways, the editors arranged for a short article on the system which has been in successful use by the Boston Elevated Railway for a decade or more. It was, we believe, inaugurated by C. D. Emmons when he was general manager of this railway, and it has been found especially useful under the trustee operation. The article appears in this issue and we plan to follow it with others on the same subject, bringing out as many of its aspects as possible. If any other railway can "go the Boston Elevated one better" as to budgets now is a good time to say so.

A word of caution, however, in regard to budgets may not be out of order, especially where they are made to exert control instantaneously. This is that momentary fluctuations in expenses should not be permitted to cause a cutting of service or of maintenance activities, which in the end will react unfavorably on the balance sheet; in fact, may prove to be a boomerang. The budget has just as important a function to perform in stimulating the getting of new business as in tightening the pursestrings. The adage suggested at the head of this article is all right as far as it goes, but sometimes it is necessary also to get more cloth.

Syracuse Loses an Opportunity

PROPOSED operation at service-at-cost has been rejected in Syracuse, N. Y. Chaos has followed. The New York State Railways, operating at a cumulative loss at 6 cents, has cut service and asked the Public Service Commission for a 10-cent fare. The city has rushed to the same commission for relief, contending that "the regulations and practices of the respondent are improper, unjust, unreasonable and illegal," charges which, the city forgets, the company may well bring against it for its negative attitude.

Negotiations looking toward a basis for the permanent settlement of the railway situation in Syracuse have been conducted for nine months. During this time a special commission reported in favor of a service-at-cost proposal and engineers employed by the city returned a property value of \$12,450,000. While all this has been going on in Syracuse the city of Rochester, in which the New York State Railways also operates, has approved service-at-cost and is now operating at a 7-cent fare under the new grant.

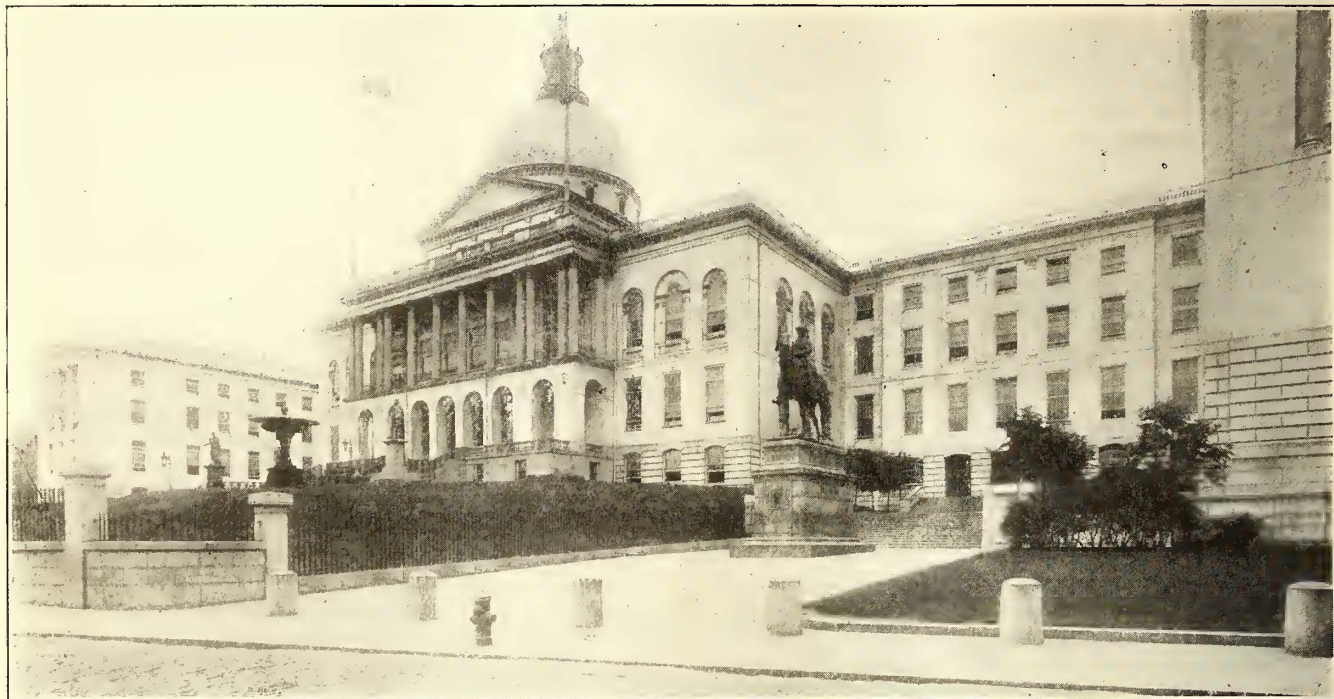
The disposition in some quarters has been strong to contrast the two cities and to make much of the fact that the Public Service Commission had approved a provisional valuation as the basis of the Rochester service-at-cost contract at a rate of something more than \$58,000 to every 1,000 inhabitants, as against the appraisal of about \$70,000 per 1,000 inhabitants for Syracuse. This great discovery was made by the *Syracuse Herald*, with which it has degenerated into a fetish.

It is of course foolish to contrast figures in this way, but a gullible public has evidently been impressed by the seeming deadly parallel. If this were all there were to valuation, then the value of a railway in any city could be obtained by multiplying a given base figure by the number of thousands of inhabitants in the city under consideration. This of course reduces the criticism which has been advanced at Syracuse, plausible though it may sound, to an absurdity. Density of population and the existing number of miles of track and number of cars are forgotten. Further, in the criticism of the valuation under review, the fact has been ignored that during the past few years several independent valuations have been made of the Syracuse lines. In one of these, McClellan & Campion reported the fair value of the property used in the public service in the Syracuse district as of June 30, 1920, based on present day prices, to be \$21,012,201; based on average prices, 1915 to 1919, \$16,663,300; and based on pre-war prices, \$12,006,134. So \$12,450,000 sounds reasonable.

It seems to us that if any comparisons were to be made between the two cities they had better be on the basis of the sense displayed by one city and the senselessness displayed by the other. Service-at-cost may not be the panacea for railway ills that some would hold it to be, but Rochester, under service-at-cost, has a means now of adjusting its railways problem amicably from time to time as questions calling for settlement arise. Syracuse, on the other hand, appears to be in for the perpetuation of the bickering which has been ushered in with the failure of the grant. Rochester is in a position where it can carry on; Syracuse is not. Credit has been restored to the Rochester lines and the program of improvements to be carried out as written into the new grant will soon be well on its way to realization. Syracuse, on the other hand, is slipping from bad to worse.

The Public Service Commissions of the Bay State

The Massachusetts Commission Is of Particular Interest Because of Its Early History and the Precedents It Has Established, Which Have Since Been Followed by Many Other States



THE BAY STATE CAPITOL, WHICH TOWERS ABOVE THE BOSTON COMMON

WHEN Public Service Commissions or Railroad Commissions are mentioned, the mind reverts at once to the State of Massachusetts, which was the pioneer in railroad and later in other public utility regulation.

Although the State has always recognized the railroads as having some obligations under its jurisdiction, probably the first provision for the control of the railroads by a State commission will be found in the Acts of 1864 of the Massachusetts Legislature. The wording of this act, entitled "An Act Providing for the Appointment of a Board of Railroad Commissioners, and Relating to Railroad Crossings at Grade," Acts of 1864, Chap. 152, quoted in part below, is surprisingly similar to many more recent provisions.

There shall be a board of railroad commissioners, consisting of three persons, appointed and commissioned by the Governor, with advice and consent of the Council, and subject to removal in like manner—said commissioners, upon the application of any railroad corporation authorized to construct its road across a turnpike, highway, or townway, or of the proprietors of the turnpike, or the selectmen of the town, or the mayor and aldermen of the city in which the crossing is situated, after due notice to the railroad corporation, the proprietors of the turnpike, and such mayor and aldermen, or selectmen, not themselves being the applicants, and to any other persons or parties as they may direct, and after hearing the parties, may, if public necessity requires, authorize and require the railroad corporation to construct their railroad at such crossing, upon a level with such turnpike or way, in such manner as they may direct.

If a corporation unreasonably neglects or refuses to comply with any order made under the preceding section, it shall forfeit for every such refusal or neglect a sum not exceeding one thousand dollars.

A feature in this act which would no doubt be con-

sidered a hardship by the railroads at present reads as follows:

In all cases heard before commissioners under the provisions of this act, the expenses and costs attending the same, including the compensation of the commissioners, shall be paid by the railroad corporation. The compensation of the commissioners shall be \$10 each per diem and traveling expenses.

The supervision of this commission over the railroads and the restrictions with regard to railway operation were gradually increased by legislative enactments during the subsequent years. In the eighties, a commission was provided for by the Legislature, to be appointed by the superior court, to study the needs and recommend the abolition of grade crossings.

The origin of commission regulation of gas utilities in Massachusetts is also of especial historical interest. The late Prof. William B. Rogers of Massachusetts Institute of Technology was asked by the Mayor and Board of Aldermen of the city of Boston, early in the year 1864, to make an investigation of the gas supply of the city. In the report, which is still a valuable record, submitted in response to this request, May 2, 1864, Prof. Rogers indicated the results of a most careful and scientific analysis of the candle-power and chemical content of the illuminating gas furnished the city at that time. The tests showed that 16.28 candle-power of illumination was available from a standard open burner through which 5 cu.ft. of gas was supplied per hour. This was probably the first thorough test which had been made, at least by parties without the corporation. As a result of this report the city authorities, and later the State of Massachusetts, inaugurated

an increasingly rigid inspection, analysis and regulation under the direction of Professor Rogers as "Inspector of Meters and Gas," of the gas supply provided by the various corporations. This is believed to be the earliest attempt to regulate the quality of service rendered by utilities other than railroads by means of municipal or state boards.

In 1885 a board was created to have general supervision of gas companies and in 1887 the board's jurisdiction was extended to electric light companies. The gas inspection division, which originated as a distinct organization in the early sixties, was made a division of the board in 1902. On Nov. 30, 1919, the board ceased to exist, its powers being taken over by the newly created Commission of the Department of Public Utilities, as described later in this article.

In 1902 the Board of Railroad Commissioners still consisted of three commissioners appointed by the Governor for three-year terms. The salaries at this time were \$5,000 for the chairman, and \$4,000 for each of the other members. A clerk was provided, to be appointed by the Governor, at a salary of \$2,500. The assistant clerk and inspectors were selected by the commission and were paid by the state \$1,200 and \$1,500 per annum respectively. The accountant's salary was established with a maximum of \$2,500. Other expenditures of the commission were very definitely limited by law and a detailed annual report required for such expenditures.

An interesting provision for the payment of the expenses of the commission, although not so severe upon the railways as that previously quoted, still placed the burden upon the utilities. It is worded thus:

The annual expenses of the board, including..... shall be apportioned by the tax commissioner among the several railroads and street railway corporations and, on or before the first day of July in each year, he shall assess upon each of said corporations its share of such expenses, in proportion to its gross earnings from the transportation of persons and property for the year last preceding the year in which the assessment is made; and such assessments shall be collected in the same manner as taxes upon corporations.

The organization of the Railroad Commission and the number of members included therein have been changed by frequent amendments. In the acts of 1906 it was composed of three members and called the Board of Railroad Commissioners. In 1913 the board was changed to five members and renamed the Public Service Commission. Two additional members were appointed by the Governor under the provision of this law. All the terms ranging from one to five years were to be assigned by the Governor regardless of the length of unexpired term of any member of the old board. New members were to be appointed subsequently for five-year terms. The salaries were raised in the law of 1913 to \$8,500 for the chairman and \$8,000 each for the other commissioners. No more than three commissioners could be appointed from any one political party under this enactment.

The work of the new commission was made by this act to include the common carriers, electric and steam, steamship lines, and the telephone and telegraph companies, as well as to include the functions of the old Highway Commission. The latter was merged into the Public Service Commission. It was permitted to inquire into the rates, regulations, practices, equipment and services of the common carriers, and be represented at public hearings before legislative committees, etc. It

was authorized to examine the books and documents of the railroads and to prescribe forms for their accounts. Further provision was made in this Act of 1913 for the representatives of the commission to enter the premises of the utility to inspect its property or for any purpose consistent with the provisions of the act.

It was provided that the fair valuation of the property of the common carriers should be investigated by the commission when it was deemed necessary in order to carry out any provision of the act. Access to all books and documents was granted the commission for such purpose.

EARLY DECISIONS ON SECURITY ISSUES REQUIRED

Not only was it required that bonds or notes of more than twelve months' duration should be approved by the commission, but it was further specified that decision upon such an issue should be rendered within thirty days after the final hearing thereon. The law definitely provided that any mortgage executed by a railroad company should secure all bonds, notes and other evidences of indebtedness previously issued and then outstanding on equal terms with any other indebtedness secured by the mortgage.

Provision was made for such obligations to an amount which, when added to the amount of all its then outstanding bonds, notes and other evidences of indebtedness, would not cause the aggregate amount to exceed twice the amount of the capital stock of the corporation actually paid in at the time. Directors, other officers or stockholders who knowingly vote upon measures in opposition to this requirement may, under this act, be fined and imprisoned. Considerable protection was therefore provided against radical capitalization of utilities.

Zone systems for railroad fares were provided for, it should be noted, in the legislative act itself, which permitted the commission after investigation "to authorize a common carrier in special cases to charge less for longer than for shorter distances for the transportation of passengers or property, whenever in the opinion of the commission such authorization is consistent with the public interests."

Advocates of the electrification of steam roads will be interested in the definite provision in the Law of 1913 which granted authority to the commission to order, after a proper hearing, a railroad company to operate its lines or fractions thereof by electricity instead of steam power and to prescribe the time within which the work of electrification should be done.

Jurisdiction by the supreme judicial court was provided in equity to review, annul, modify or amend any rulings or orders of the commission which are unlawful *to the extent only of such unlawfulness*. Such court proceedings reviewing orders of the commission have preference over all other civil proceedings pending in such a court, except election cases.

CHANGES OF ORGANIZATION

The number of members constituting the commission, and therefore its personnel, have been frequently changed by the Massachusetts Legislature. As previously stated the staff in 1913 consisted of five men. The Acts of 1918 reduced the commission again to three men. The members at the time the act took effect retired and the Governor, with advice and consent of the Council, appointed one member for one year, one for two years and one for three years. Two were

appointed from the former commission. The term of office was changed to three years.

ESTABLISHMENT OF PRESENT COMMISSION

In 1919, a more radical change was made in the Public Service Commission Law which again altered the organization of the staff. Chapter 350 of this general act, which is entitled "An Act to Organize in Departments the Executive and Administrative Functions of the Commonwealth," was approved July 23, 1919, and went into complete effect Dec. 1, 1919. As it changes quite radically the executive and administrative functions of the State and places the Public Service Commission in a rather unique relation to the other departments of the Commonwealth, a brief outline of its provisions may be of interest.

A "Department of Public Utilities" is established by the new act upon the same status as fourteen other departments, prominent among which were to be found those of Agriculture, Banking and Insurance, Corporations and Taxation, Education, Labor and Industries, Public Health, Public Works, etc. All executive and administrative offices, boards, commissions and other governmental organizations and agencies, except those serving directly under the Governor, or the Governor and Council, are placed in this department. Those not definitely provided for in the act are placed, by order of the Governor, under the direction and control of the departments above mentioned, subject to the direction of the Governor and the advice of the Council.

The Public Service Commission, existing under the Acts of 1913 and 1918, and the Board of Gas and Electric Light Commissioners, existing under the Acts of 1914, were abolished and all their rights, powers, duties and obligations were transferred to the Department of Public Utilities.

The latter department consists of five members appointed by the Governor with advice and consent of the Council. Their first terms range from one to five years, the standard length of term thereafter being five years. The Governor designates the chairman. The chairman receives such an annual salary as the Governor and Council may determine, not exceeding \$8,000, and the other commissioners receive salaries not exceeding \$7,000.

The chairman is not charged with any administrative functions, nor is it intended that any members of the commission nor the secretary shall devote his whole time to the work of the department.

In the hearing of all matters other than those of formal or administrative character, at least two commissioners are expected to participate, and in a decision, three members are required. In every case a majority of those participating is necessary for a decision. With the consent of all parties concerned in a matter coming before the commission, the hearing may be held by a single commissioner.

All the classes of corporations previously subjected to the jurisdiction of the Public Service Commission and the Board of Gas and Electric Light Commissioners are now regulated by the new department. As the railroads, with the exception of the Boston Elevated Railroad and the West End Railway, were formerly under the Public Service Commission and the telegraph and telephone companies were placed under it in 1918, practically the entire group of public utilities, including the highways in 1918, are now controlled by the Department of Public

Utilities. The general court makes annual appropriations for the department and designates the portion to be used for salaries of employees and expenses in connection with the functions previously performed by the Board of Gas and Electric Light Commissioners.

SPECIAL STATE CONTROL OF TWO RAILWAY SYSTEMS

The two electric railway systems mentioned as exceptions to the jurisdiction of the former commission and the Department of Public Utilities as organized at present are regulated by the State more directly as provided in a special act of the Legislature in 1918. This act, Chapter 159, is entitled, "An Act to Provide for the Public Operation of the Boston Elevated Railway Company." It was approved May 22, 1918, and accepted by the company June 3, 1918.

This unique legislative proceeding provides for a board of trustees of five persons, appointed by the Governor, with the advice and consent of the Council. Their term of office is ten years and their annual salaries of \$5,000 each are paid by the corporation. The board appoints its own chairman. If, after the term has expired, operation by the State is to be continued, trustees are to be appointed by the Governor for the succeeding period. The trustees manage and operate the railroad during their term of office. They have power to appoint and remove from office the president, treasurer, clerk and all other officers except the directors.

The powers of this board of trustees are rather more sweeping than those usually granted a public service commission. They may establish and regulate fares, including the issue and withdrawal of transfer privileges, and may determine the charges, if any, to be made for such transfers. The character and extent of service to be furnished are also within their jurisdiction. In these respects their authority is final and is not subject to the approval, control or direction of any state board or commission.

The trustees act as agents of the corporation and not of the State. The company is liable for acts of negligence, etc., just as in the case of other utilities and is not in any way freed from taxation by the State: The trustees are not personally liable. The corporation may make contracts and issue stocks and bonds as before. The stockholders elect directors to represent their interests, but the latter have no voice in the actual management of the railroad.

Another unique feature of the provision is to the effect that a reserve fund is to be provided of \$3,000,000 in cash from the sale of cumulative preferred stock (par \$100) approved by the present stockholders and not exceeding 7 per cent dividend. This is subject to retirement by the trustees or after the period of public operation at 105 with accrued dividends. This issue of stock does not require the approval of the Department of Public Utilities. Of this reserve \$1,000,000 is to be set aside as a reserve fund to provide for deficit in income, while \$2,000,000 is to be used by the trustees for additions and improvements.

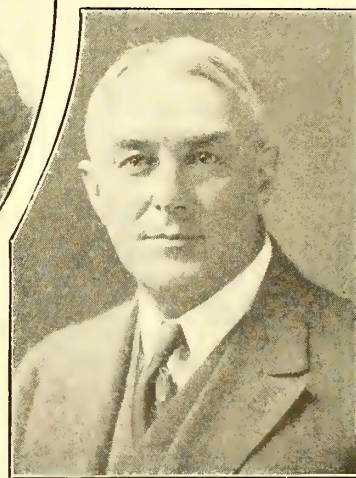
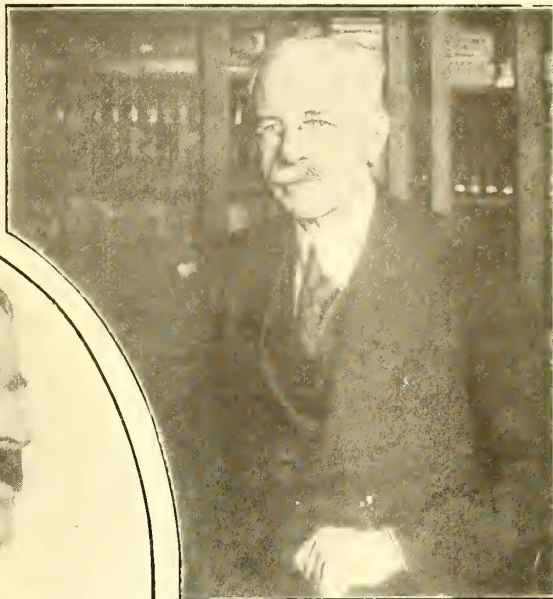
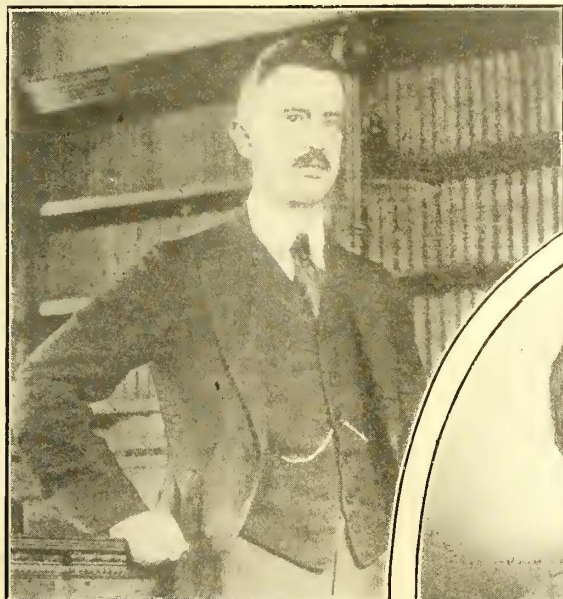
The trustees fix the rate of fare from time to time to insure sufficient income to meet the cost of service, including operating expenses, taxes, rentals, interest on all debt, depreciation, obsolescence, losses, charges properly made to surplus, fixed dividends on all preferred stock and the following dividends upon common stock: 5 per cent first two years; 5½ per cent next two years; 6 per cent balance of period of public operation.

Common dividends are to be paid quarterly but none is to exceed the rates indicated. Provision is further made for the reimbursement of the fund by the State, when depleted.

The trustees are permitted to borrow money to pay the obligations pending such reimbursement. When the fund exceeds the required payments indicated, provision is made for the trustees to pay back past deficits to the State. This is distributed among the cities and towns in which the railroad operates in proportion to the amounts

An example of still more direct supervision of the operation of the street railways by the State of Massachusetts is to be found in the General Acts of 1919, Chapter 359, entitled "An Act to Provide for an Investigation by a Special Commission of Problems Relating to the Street Railways of the Commonwealth." In accordance with this act, approved July 24, 1919, a temporary commission was established of three members of the Senate appointed by the President, five members of the House of Representatives appointed by the Speaker, and

MASSACHUSETTS' FIVE COMMISSIONERS



HENRY C. ATTWILL
Chairman

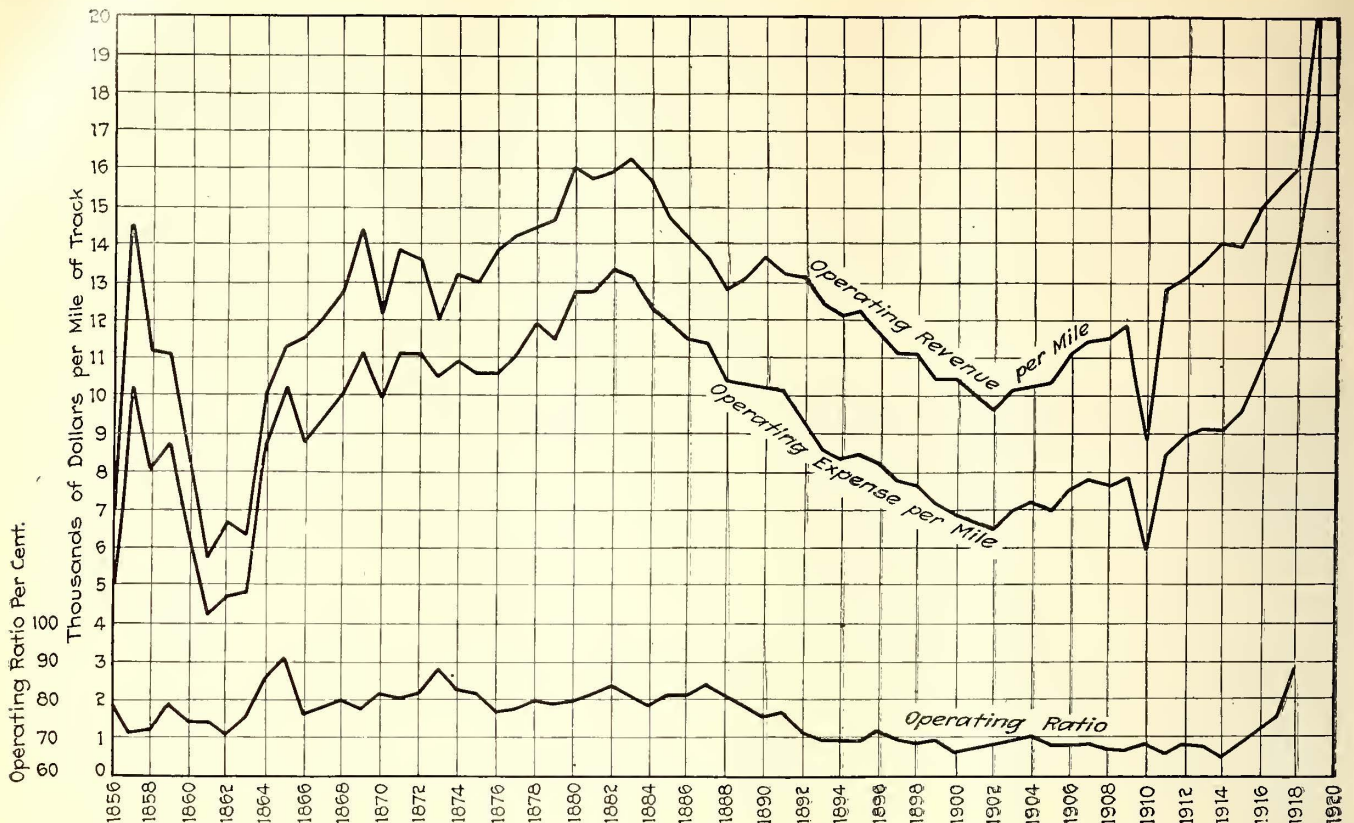
UPPER LEFT, HENRY G. WELLS; UPPER RIGHT, EVERETT E. STONE;
LOWER LEFT, DAVID A. ELLIS; LOWER RIGHT, ALONZO R. WEED

they have been assessed to pay deficits. Annual prescribed changes in rates for fare are to be placed in operation in case the income is too low or too great to maintain the reserve within predetermined bounds.

Such public management of the railroad may continue beyond the ten-year period prescribed until the State elects to discontinue the process. In such a case two years' notice must be given.

A provision in 1911 for the control of the West End Railway by the Boston Elevated Railway Company causes the former to come within the jurisdiction of this act.

five persons, not members of the general court, appointed by the Governor, with the advice and consent of the Council. The duty of this commission was to make an investigation and study of the street railway situation of the Commonwealth with a view to determining what action may be required to promote the public welfare and convenience in relation thereto, what action should be taken for the purpose of securing lower fares, what portion of the expenses of operation if any, should be borne by the public treasury, what means should be used for the purpose of providing adequate and low priced transportation, and whether and to what extent public



AN INSTRUCTIVE FINANCIAL AND OPERATING HISTORY OF THE MASSACHUSETTS ELECTRIC RAILWAYS FOR SEVERAL DECADES

ownership is the proper solution of the street railway problem.

This commission made a voluminous report to the General Court in November, 1919, supporting the past activities of the Public Service Commission, but expressing the opinion that too large and varied responsibilities are being imposed thereon and that the State must take a more direct part in the administration of public utilities.

THE ORGANIZATION OF THE DEPARTMENT OF UTILITIES

As a result of the appointments by Governor Coolidge under the Legislative Acts of 1919 the following men make up the Department of Utilities:

1. Honorable Henry C. Attwill of Lynn, chairman, appointed for five years, Dec. 1, 1919.
2. Honorable Everett E. Stone of Springfield, appointed for four years.
3. Honorable Alonzo R. Weed of Newton, appointed for three years.
4. Honorable David A. Ellis of Boston, appointed for two years.
5. Honorable Henry G. Wells of Haverhill, appointed for one year.

Andrew A. Highlands, for many years secretary of the Railroad Commission, was named as secretary for the new department. Allan Brooks is assistant secretary.

The organization of the work of the department involves the following sub-departments or divisions:

1. Inspection of gas and gas meters, in charge of Charles D. Jenkins, inspector of gas and gas meters.
2. Railroads and street railways, in charge of Henry W. Seward, chief inspector.
3. Telephone and telegraph inspection, in charge of William H. O'Brien, chief of division.

4. Accounting department, in charge of Justice W. Lester.

5. Rate and tariff division, in charge of C. Peter Clark.

6. Engineering department, in charge of Henry W. Hayes.

As has been previously stated Prof. W. B. Rogers, in the early sixties, really established the precedent for the department of gas and gas meter inspection as the result of his pioneer scientific gas testing. As predecessor of the present head of the department, Prof. Rogers held the position for twenty-two years. He succeeded in breaking down a very marked ingrained distrust, on the part of the public, of gas meter accuracy. The testing laboratory established by Prof. Rogers was in operation for forty-five years in one location until recently moved to the State House.

The rendering of good service by a utility has been recognized by the commission as an engineering problem and competent professional engineers have been employed to direct the work of the various divisions. C. D. Jenkins, for eleven years assistant to Prof. Rogers, and now in charge of the gas division, imported gas testing apparatus from England in 1895 and as a result of his report to the Legislature upon the practical calorific values of gas, the original statutory candle-power standard was changed to a B.t.u. minimum of 528 units. Daily tests are required of the gas corporations and weekly averages, high and low values are recorded. Gas plants of 15,000,000 cu.ft. capacity and larger are required to maintain testing stations and unannounced check tests are also made by the inspectors employed by the department. Three successive violations of the specifications of any one element in the gas service render the utility liable for a fine of \$100.

Electric meters are tested by the department only upon complaint. This work, which never reaches large proportions, is done at the Massachusetts Institute of Technology. The margin of error for gas meters is plus or minus 2 per cent and for electric meters 5 per cent. Either the corporation or the consumer may request a test, but in all cases the fee goes to the State. If the meter is found to be within the specified range of allowable error, the fee is paid by the consumer, otherwise by the corporation.

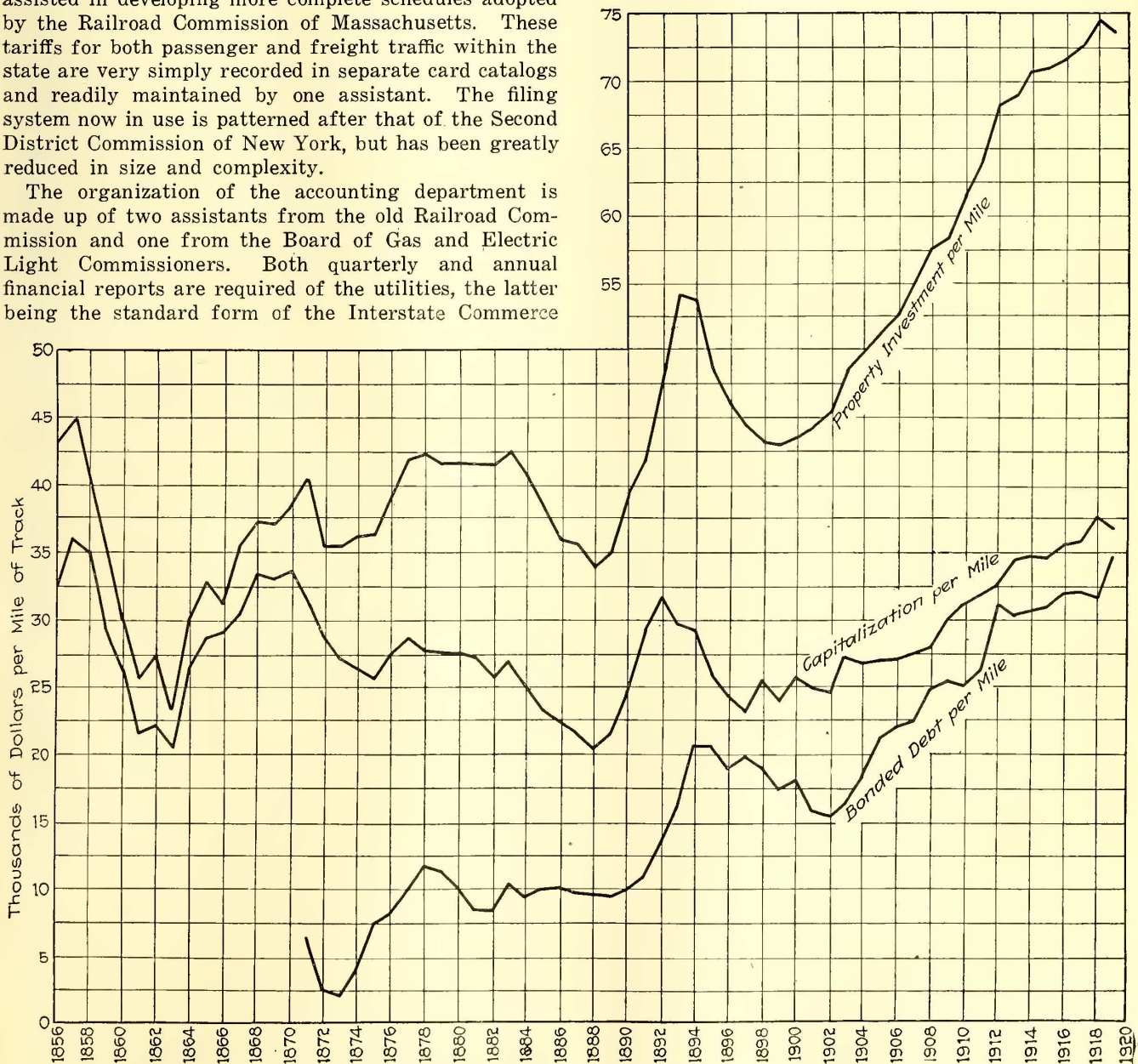
In connection with all the activities of the various departments of this commission the impression is evident that the work is being done with relatively little formality and few detailed or elaborate records. For example, although reports by utilities of serious accidents are required, as in other states, no forms are used and telephone or script statements are typewritten upon their receipt in very informal fashion.

In the regulation of rates and railroad tariffs by the State, Massachusetts was again the leader. In New York State dummy tariffs had been outlined which assisted in developing more complete schedules adopted by the Railroad Commission of Massachusetts. These tariffs for both passenger and freight traffic within the state are very simply recorded in separate card catalogs and readily maintained by one assistant. The filing system now in use is patterned after that of the Second District Commission of New York, but has been greatly reduced in size and complexity.

The organization of the accounting department is made up of two assistants from the old Railroad Commission and one from the Board of Gas and Electric Light Commissioners. Both quarterly and annual financial reports are required of the utilities, the latter being the standard form of the Interstate Commerce

Commission. This commission makes use of the "Original Cost" basis for valuation of utilities for the determination of rates and security issues and expects the utilities to keep a continuous inventory of their plant and equipment. The so-called "Straight-Line" method of determining depreciation reserves is universally adopted in contrast to the "Sinking-Fund" system in use in some states. A very complete record of the capitalization, subdivided into the various classes of bonds and stocks, together with the invested valuation of all the utilities regulated, is maintained by the accounting department. In this record are also filed the docket number, date of order and amount of additional securities applied for and approved by the commission from time to time. The specific purpose of the issue is also recorded. This record is found to be of great practical value as each new application for increased capitalization is presented for consideration.

In this connection particular interest attaches to the accompanying curves, which probably represent the most complete financial records of the street railways of any



RIISING COSTS ARE CLEARLY INDICATED BY THESE LONG TIME RECORDS OF MASSACHUSETTS STREET RAILWAYS
 NOTE.—"Capitalization" in this chart signifies amount of capital stock outstanding.

state in existence. Beginning in the year 1856, with the few small street railways in existence at that time and extending through the period of extensive electric railway installations in the nineties, the curves show the variations in bonded indebtedness, capital stock, investments, operating ratio, etc., up to and including the year 1919. The convergence of the curves in the later years, indicating the relatively increased amount of the indebtedness in proportion to stock issues, is particularly striking.

HOW DEPARTMENTS ARE CONDUCTED

In the engineering department an interesting arrangement is noted, as a result of legislative enactment, to the effect that the engineer in charge, Henry W. Hayes, devotes a portion of his time to the work of the Attorney-General of the state, particularly in connection with investigations and hearings upon grade-crossing elimination problems. This work has been relatively light, however, during the last few years. This department checks estimates upon needed improvements requested by the utilities and after the installation has been completed the work is inspected and the expenditures and values approved for the accounting department. The street railways cannot begin new bridge and signal construction until plans and specifications have been approved by this department. The steam railroads submit plans but do not necessarily wait for approval. In both instances the finished structure must be inspected and approved before being put into service.

The other divisions of the Department of Utilities are not unlike those of other commissions, although their organization is at present in a state of transition because of the recent amalgamation of the two commissions into the Department of Utilities. The elimination of the largest electric railway system of the state from the commission regulation, involving more direct control by the state and the taxation of communities served to make up operating deficits, represents a departure which will be followed closely by all interested in public utility control. It seems to be a compromise between commission regulation, as understood at present, and government ownership. It has the advantage over the latter procedure in that the burden falls directly upon the communities served where the reaction is likely to be immediate, rather than in the form of a general tax upon the state or federal government. It may be that Massachusetts has again established a valuable precedent which will lead the way to new and more equitable solutions of the railway and other utility problems.

[NOTE.—Previous articles portraying the "behind the scenes" activity of commissions have appeared Dec. 30, 1916, page 1328, and Feb. 3, 1917, page 196, covering the Public Service Commission of New York, Second District, and Nov. 13, 1920, page 100, covering the Public Service Commission of New York, First District.—EDITORS.]

At more than forty of the busiest traffic points in London, England, "fogmen" are employed by the London General Omnibus Company to pilot buses across the street during foggy weather. These men are stationed at specified points equipped with powerful lamps. When a bus arrives at their point they hail the driver and then cross the street a few yards in front of the bus. By the introduction of this system confusion and delay in foggy weather is reduced to a minimum.

Training Motormen for Limited Runs

Very High Speeds on Chicago, North Shore & Milwaukee Involve Exceptional Responsibility, Requiring Special Training of Men

THE Chicago, North Shore & Milwaukee Railroad operates limited trains hourly each way between Milwaukee and Chicago at very high rate of speed. While this high-speed service is very popular and has attracted a considerable patronage to the road, the operating officials are very much alert to the dangers which accompany such service and they are consequently taking exceptional caution in the selection and training of men and in surrounding the service with safeguards in every other respect.

In the selection of motormen for these limited runs, M. J. Feron, general superintendent, requires as a preliminary training that these men shall have worked as motormen on the local passenger service of the North Shore Line for at least six months prior to receiving any consideration for an assignment on a limited car. Only the best men are given an opportunity to try out for these runs. If accepted for trial, they are required to run on the limited cars for a period of thirty days, during which time they are under constant attendance and instruction. If approved at the end of this period by the instructor, they are then subjected to questioning by the local superintendent, the superintendent of transportation on the North Shore Line, and are then finally sent to Chicago to Mr. Feron, who passes finally upon them. He puts the candidate through a rigid examination and if the latter cannot answer questions to the entire satisfaction of Mr. Feron he is rejected and has no further opportunity to qualify for the position.

These limited runs are considered the best jobs the company has, and they are much sought after. The men get nine hours' pay for the seven hours' work required to make one round trip between Chicago and Milwaukee. With this short working period, the men should always be fresh and any negligence from overwork impossible.

On last Labor Day a limited train was run every twenty minutes each way for ten hours, in addition to the heavy local service. Despite the short headway involved, everything went along smoothly all day until about 8 o'clock in the evening, when an especially heavy fog settled over the whole north shore. Officials were naturally much concerned and took great precautions to guard against the danger of the short headway. Limited trains were required to call the dispatcher at each stop and were not permitted to proceed to the next station until the train ahead had reported there. The motormen were not informed of this blocking of trains by stations, but were cautioned by the dispatcher upon each call to use the utmost care. These precautions of course made trains a little late, but the situation was handled with absolute safety.

Another practice followed which has contributed materially to the no-accident record of the company for the present season is that on Sundays every grade crossing on the line is provided with a watchman. Trackmen are used to fill in for the roads not usually protected, and this expense is considered very worth while, for the automobile traffic on the north shore on Sundays is very heavy, and the high speed of the trains makes special safety measures advisable.

Getting the Utmost Out of the Cars

A Dialogue Arising Out of an Overcrowded Condition of the Cars and Bringing Out the Points Involved in Scientifically Determining Whether More Cars Are Needed, How Many and What Kind

BY E. A. W.

THE SCENE is laid in the executive office of any medium or large sized street railway company. The dramatis personæ are a general manager and the superintendent of transportation. The plot opens something like this:

G. M. "Jim, are you putting everything that can roll out on the streets during rush hours these days?"

S. T. "Chief, we surely are. I'm even robbing the shops of overhauls and painting jobs. We need cars and need them badly."

G. M. "How much additional equipment could you use to advantage and on what lines?"

S. T. "We need 100 additional cars and 150 if you'll let me retire to the 'boneyard' the 39-footers with two-motor equipment."

G. M. "You've carefully checked your requirements and 100 is the least number it is possible to get along with?"

S. T. "Don't put it so strong, Chief. We are *getting along now*. But the lost fares, passed up passengers, packed cars, and continual growl from our patrons can only be relieved by putting 100 more cars on the road."

G. M. "This estimate of yours no doubt has been carefully checked; but, Jim, have you tried to get better use of our present equipment by means of turn-backs on long-haul, sparsely settled lines, increasing schedule speeds through careful time-point studies of each line, reduction of overhauling and painting time, use of skip-stops, rerouting, etc., etc.?"

HE GAVE THOSE POINTS SOME CONSIDERATION

S. T. "Well, we have given those points some consideration, but of course this matter is so involved we have only hit the high spots. My thirty years' experience handling traffic tells me that more cars are needed, and these other matters, if studied, will only reduce the number slightly, if at all. Think of the expense and time involved in making such a study."

G. M. "But, Jim, purchasing 100 cars today is a costly matter. Not only has the price of equipment doubled, but we shall need additional car house and shop facilities and substation and generating capacity, all of which means heavy investment with our paper selling for about half what it did before the war."

S. T. "I know, Chief; but think of the increased earnings 100 more cars would bring in."

G. M. "I'm not so sure, Jim. We are handling most of the riders now, perhaps losing some. More cars and facilities mean a heavy increase in operating and fixed charges. You haven't told me the type of car we ought to buy."

S. T. "Why not get the same type as our present standard?"

G. M. "Have you thought of the safety car?"

S. T. "Well, some; but frankly I can't see it for our service. They are probably good in other places, but our conditions are different."

G. M. "The old story, Jim. By the way, do you think I have enough facts and information to go before my board of directors and get a million for new cars and what goes with them? If you had to go good for the million, Jim, would you feel that we had gone into this matter as thoroughly as we should?"

S. T. (faltering). "No, but—the time required to make— Oh, hell, Chief, we ought to step carefully. A million dollars! I never thought about it just this way. I'll tell you what I'll do. Give me two days to mull this over and I'll try to draw up a program which will give you a real basis on which to go after the new cars that we need."

G. M. "Go to it!"

JIM BEGINS TO STUDY

As a preliminary to his study of requirements, the S. T. began to jot down the various things to be considered in arriving at a sound basis of conclusion and was astonished to find how many things had a bearing on his problem. Several days later he sat down with the G. M. and went over an outline something like the following, desiring support for his plan of study before undertaking to carry it out.

POINTS TO BE CONSIDERED IN A STUDY OF TRAFFIC AND ROLLING STOCK CONDITIONS AND FORECAST.

I. *Historical Outline of the Development of Rolling Stock, Including Present Types.*

A. Present equipment.

1. List of present equipment,
2. Complete set of typical drawings,
3. Brief history of each of the present types of cars.

B. Advantages to be gained from use of modern types of equipment.

1. Birney type one-man safety cars.
2. Peter Witt pay-pass cars.
3. Center entrance stepless cars.
4. Near-side-stop cars.

C. Discussion and advantages of various fare collection methods.

1. Collection by passing through the car.
2. Pay-as-you-enter.
3. Pay-pass.
4. Prepayment area.
5. Use of metal tokens.

G. M. "What's the idea of working up data on fare collection methods?"

S. T. "You'll see later on. We ought to get our ideas on the table, and when we discuss increasing schedule speeds we will select the method productive of best results."

G. M. "All right, let's go on."

S. T. "In considering this matter we have available several very complete reports and recent checks. I don't think we need to go into a long detailed traffic study now as that would take too much time. We can make fairly accurate deductions from data at hand or that can soon be obtained. But we ought to cover the

points in Section II pretty well in order intelligently to forecast the future.

II. Growth of Traffic and Predictions for the Future, Showing the Necessity for Increased Service.

A. Natural growth of city.

1. In population.
2. In territory.
 - a. Comparison with other cities.
 - b. Study of pin maps showing locations of buildings and car lines; also on the same map public and private garages are separately designated.
 - c. Maps locating points of 25, 50 and 75 per cent of street car travel on each line.
 - d. Discussion.

B. Influence of the automobile.

1. On average load.
2. On peak loads.
3. On seasonal fluctuations.
4. On schedule speeds.

C. Transfer privilege.

Restriction of extension.

D. Traffic studies.

1. Number of passengers on each line, rush hour, peak load points.
2. Frequency of service required, expressed in seats.
3. Average length of standing rides during the rush hour.
4. Location of turn-back points.
 - a. Downtown—To get crowds now passed up by cars on various routes outside most central congested point.
 - b. Outlying points.
5. Frequency of service during rush hours necessary beyond turn-back points.

E. Necessity of uniformity in service to keep diversity factor low.

G. M. "Why do you indicate garages on the map and make a distinction between those for public and those for private use?"

S. T. "It seems to me that in a town the size of ours the number of garages in a section gives a direct indication of the travel to be expected from that section. Moreover, the increase in the number of garages should be a gauge of the effect automobiles are having on street railway travel. The reason for designating between public and private garages is to show the great increase in this class of commercial business. It is logical to assume that a private garage back of a residence would have only one car, but a large public garage might have several hundred, and the rapidity with which these are being built deserves as careful attention on the part of the street railway manager as any other thing that might affect his business."

G. M. "Now explain what you mean by keeping diversity factor low, Jim?"

S. T. "There are present in the travel characteristics of every line certain periods of time during rush hours when an accumulation of passengers for that line is more rapid than ordinarily. These momentary peaks may affect one or possibly two trips only. However, if they occur regularly their identity should be established, recognized and provided for. It is this fact that makes it necessary to have uniform service so that Mr. Doolittle's diversity factor or ratio of maximum loaded car to the average car load will be low. Mr. Doolittle was pleased to term this ratio 'diversity factor' as it is the measure of the diversity between carloads for different times of the day. If these points are clear I would like to present to you an outline of the methods which we can follow to get more use from our

present facilities. I have grouped these under Section III."

III. Discussion of Means of Increasing Service.

1. Increasing schedule speeds. Results to be obtained from hypothetical speeds.
2. By reducing the excess car-miles, due to dead cars going to or from carhouses, or excess service on the outer ends of long lines.
3. By the purchase of additional rolling stock.
4. Justification of increase in service from the standpoint of net returns from added service. Increase in riding habit to be expected from an increase in service. This would cover possibilities of short haul riders on present routes where considerable walking is apparent. This matter might well include a consideration of the use of present equipment under one-man operation between rush hours.
5. Saving in time of cars out of service due to pull-ins, inspection, overhauling, painting, etc., by reducing time now required to accomplish such work.
6. Additional trackage on present single track lines, either as double track or closed sidings.

S. T. "Some of these points involve so many important things that I have detailed them more particularly. In line with your thought about getting better use of our facilities this is a most important subject. Most of the information needed is available and requires editing and slight revision to make it useful in this study."

IV. Increasing Schedule Speeds.

A. Theory.

1. Rate of acceleration and braking.
2. Number of stops and slowdowns.
3. Skip-stops. (Find the proper place on each line outside of a central zone where skip-stop operation should be commenced.)
4. Density of traffic and its proper regulation.
5. Rerouting.
6. Rapidity in boarding and alighting.
7. Pay-enter and pay-leave on safety cars.
8. Condition of track and overhead.
9. Supervision,
 - a. Use of headway recorders,
 - b. Use of peak load checks,
 - c. Use of traffic charts,
 - d. Office study of traffic records,
 - e. Use of facilities by track department in street work that will reduce delays such as track trucks, portable cross-overs, oxyacetylene and electric welders.
10. Power distribution and return system.
11. Trainmen's efficiency.
 - a. Training car men.
 - b. Follow up on knowledge of rules.
 - c. Follow-up on coasting.
 - d. Stationing inspectors at centers of congestion.
 - e. Collection of fare and distribution of transfers.
 - Increasing the use of metal tokens.
 - Pay-pass possibilities.
12. Prepayment areas.

B. Discussion of each line in accordance with the above.

G. M. "I notice you have covered certain items under 'increasing schedule speeds,' the importance of which I fail to grasp. For example, what do you mean by the item 'condition of track and overhead?'"

S. T. "Since we have been paying such enormous prices for materials and labor, we have been forced to defer certain maintenance work. We have some sections of track that need repairs, so we have to make allowance in our schedule speeds for this bad condition. The same applies to the overhead, although in this case it is more a lack of copper than any physical condition that affects us."

G. M. "How about the item 'power distribution and return system'?"

S. T. "We intend to cover our power situation more fully than this report contemplates, but certain sections are overloaded and cause so serious a drop in voltage that during rush hours it slows up car speeds materially. We intend to cover this point for each line.

"If you are through with the schedule speed matters, let's look at the next division of the outline."

V. Reduction of Unused Car Mileage.

A. Theory.

1. Effect on increased use of cars by proposed turn-backs.
2. Decreasing dead trailer mileage and dead extra car mileage.

B. Discussion of each line.

S. T. "Our system developed without much plan—as you are aware. As we increased the number of our cars sometimes we failed to increase our carhouse facilities. As a result, we have cars housed at considerable distances from the lines over which they operate. This results in considerable dead mileage each day, so we thought some reassignments could be worked out that would reduce dead mileage expense."

G. M. "Now we come to the heavy part, I see: 'purchase of new rolling stock'."

VI. Purchase of New Rolling Stock.

- A. New cars needed if all present equipment remains in service. This would be the minimum requirement and sufficient only for our growing needs.
- B. New cars needed assuming the retirement of certain equipment now obsolete or rapidly becoming so.
- C. Extra equipment required if carhouse work is done in the day time instead of nights.
- D. Extra equipment needed if the carhouse work is done at night and each car is put in the same run daily, thereby getting the same motorman.
- E. Discussion of each line, showing the number of new cars and types necessary for each.
- F. Use of auto buses.
 - a. As feeders from outlying districts needing transportation between car line and such district.
 - b. To supplement car service taking care of close-in short-haul business.
 - c. To run on regular routes over streets downtown, and in outlying districts not having street car facilities.
- G. Kind and number of new equipment to buy:
 - a. One-man safety cars.
 - b. Peter Witt motor cars,
 - c. Peter Witt trailers.

G. M. "I can't find much fault with your detail. When you have it worked out we ought to know fairly accurately what we will have to buy and what results we can expect; and I can see now the reason for the detail that precedes this 'purchase of new rolling stock' section. You have done a good job; is there any more to it?"

S. T. "Why, Chief, you wanted the whole story for your board of directors, and I've only got started. We have the most important matter of all ahead of us—costs. But before we come to that I believe we can do some remodeling as suggested here":

VII. Remodeling Present Rolling Stock.

We may be able to do much in this direction. We are hauling trailers over grades with two-motor cars with a serious slowing up of service. Considerable economy may be realized by instituting changes covered in the following items—enough to warrant consideration of them in this study:

- A. Abandonment of 29-ft. two-motor cars and utilization of motors under these cars to make four-motor cars out of certain other two-motor cars, at present unable to haul trailers.
- B. Remotoring four-motor cars at present equipped with GE-58 motors with modern light-weight motors.
- C. Rebuilding center-entrance type bodies for pay-pass collection and operation by one man before and after rush hours.
- D. Possibilities of reduction in weight of present equipment.
 1. Nature of changes.
 2. Saving in power.
 3. Increase in schedule speed.
 - a. Loading time,
 - b. Acceleration and braking,
 - c. Running time.
 4. Decreasing number of step accidents.
- E. Use of helical gears instead of spur gears.
 1. Saving in power.
 2. Reduction of noise.
 3. Reduction of motor trouble, from vibration.

VIII. Other Facilities Rendered Necessary.

- A. Mechanical department facilities and methods.
 1. Divorcing division repair work from general shops.
 2. Night work vs. day work at carhouses and placing each car on same run. Advantages and disadvantages.
 3. Daylight work.
 - a. Truck shop.
 - b. Machine shop.
 - c. Blacksmith shop.
 - d. Armature shop.
 - e. Wood shop.
 - f. Paint shop.
 - g. Carhouses.
 - h. Résumé.
- B. Power department changes and additions needed.
 1. Generating equipment.
 2. Converting equipment.
 3. Transmission and distribution system.
- C. Track betterments needed; discussion of each line.
- D. Overhead and bonding; discussion of each line.
- E. Increase in storeroom facilities to accommodate increase in stock of parts for new equipment.

IX. Cost of Providing Additional Service.

S. T. "Now we come to costs, and in the following we have attempted to cover this subject in a general way; the detailed estimates will be on file in the engineering department. I am forced to confess that when we first talked this matter over, I did not have any idea that it involved so many ramifications and the vitals of so many departments. But I can see now that all these things must be taken into account.

- A. Purchase of additional rolling stock.
- B. Remodeling present rolling stock.
- C. Changes in mechanical department and carhouses.
- D. Power equipment.
- E. Special work for turn-backs.
- F. Track renewals and betterments.
- G. Overhead and bonding.
- H. Storeroom and yard facilities.
- I. Summary.

X. Financial Aspects.

- A. Additional revenue possible from increased and bettered service.
- B. Investment required, divided between construction and maintenance.
- C. Effect of operating costs of—
 1. Decreased power,
 2. Decreased maintenance of cars and track,
 3. Decreased accidents,
 4. Increased car-hours and car-trips,
 5. Added fixed charges due to increasing capital investment.
 6. Decreased labor due to one-man operation,
 - a. Safety cars.
 - b. Existing equipment.

- D. Source of funds.
 1. From revenue.
 2. From capital.

S. T. "Under this section we aimed to summarize the apparent conclusions that a careful reading and study of the foregoing would make manifest, taking into consideration the operating, construction and financial features jointly, and thereby arriving at a proper and feasible solution and program."

XI. *Summary, Conclusions and Recommendations.*

- A. New equipment.
 B. Changes in existing equipment.
 C. Shops and carhouses.
 D. Power.
 E. Track, overhead and bonding.
 F. Training methods and type of men to be selected for safety car operation.
 G. Lines best suited to safety car operation and suggested schedules and spacing.
 H. Lines on which present equipment changed to one-man safety type can be operated before and after the rush hours and the savings resulting therefrom.

XII. *Suggested Program. Rate at which various steps can be carried out.*

G. M. "This matter is of course regulated by the financial ability of the company to secure funds to carry out the work, also by the physical limitations imposed by organization, purchasing, deliveries, and carrying out the adopted changes under operation, and educating the public to the changes involved."

S. T. "You are right. We will include in the report a program of carrying out the work also, so that your board, when once it has authorized the funds for this purpose, won't expect the job done two days later. We will have a lot to do and it can't be done 'yesterday' or even in a week."

G. M. "Well, Jim, if you have missed anything, it isn't important. Frankly, I, too, little realized what a real study to get better use of our facilities would lead us into. Get busy and compile the data and I'll use my most persuasive arts with that hard-headed but human and likable old board of mine."

The Electric Railway Budget

Boston Elevated Finds Monthly Revision of Estimates Necessary—The Budget Serves Several Useful Purposes

BY E. M. FLINT

Assistant to the General Manager Boston Elevated Railway

AS WE READ the criticisms of extravagant expenditures by the national government and the necessity for the adoption of an adequate budget system to insure that government departments shall be conducted on a business-like basis we are increasingly convinced that a budget system is the backbone of all successful business enterprises. Yet it is surprising that few details of such systems are available, especially as applied to the street railway industry. That such a system has been adopted by some street railway companies with satisfactory results is indicated by the statements to that effect in their annual reports. There is no doubt that a budget system, perfected to meet the requirements of the particular industry, is helpful in enabling an executive to plan ahead and keep a definite check on the expenditure of money.

The system in use by the Boston Elevated Railway, which is described in this article, differs from other systems which are known to the writer in that instead of being confined to an annual budget it is made more flexible by having in addition to the annual budget a monthly budget also. It has been found to be practically impossible to anticipate a year in advance all of the difficulties with which the company will have to contend throughout the year, necessitating changes in the program determined upon when the annual budget was prepared. For instance, it is not possible to ascertain to what extent expenditures must be incurred for track work in connection with the reconstruction of streets by municipal authorities, nor is it possible accurately to estimate a year in advance the cost of snow removal. Earnings, which are the basis of the budget, are materially affected by unforeseen weather conditions. If, however, the annual budget is used for a guide, and monthly budgets are prepared also, the system becomes much more flexible. Many of the difficulties suggested can be anticipated reasonably well in advance and can be

provided for in the monthly budget by the postponement of less important work.

The printed forms which are used by the Boston Elevated follow the Interstate Commerce Commission method of accounting. This makes it possible to check with the auditing department the expenditures under any account number and to avoid conflicting statements.

The summary sheet, as reproduced in part, and the other forms, represented by the sample reproduced on

BOSTON ELEVATED RAILWAY COMPANY				
Controlling Sheet For				
	Previous Year	Dept. Estimate	Allowed	Actual
RAILWAY OPERATING REVENUES				
Revenue from Transportation				
Revenue from Other Railway Operation				
TOTAL RAILWAY OPERATING REVENUES				
NET (ALLOWING FOR DIVIDENDS)				
SPACE LEFT FOR NOTES				

FORM "A," USED FOR GENERAL SUMMARY OF BUDGET
 (Actual size of this and other budget sheets 8½ x 14 in.)

the opposite page, show the amounts each department is authorized to spend, subdivided by the various account numbers.

The annual budget is prepared after each department head has made a careful survey and has presented a written report with estimates covering the requirements of his department for the year. The reports are discussed at meetings of department heads and less important work eliminated to meet the estimate of money available for operating and maintenance requirements.

BOSTON ELEVATED RAILWAY COMPANY				
ESTIMATE FOR MONTH OF				
WAY AND STRUCTURES	Made by			
	Previous Year	Dept. Estimate	Allowed	Actual
1. Superintendence of Way and Structures				
2. Ballast				
25. Depreciation of Way & Structure				
TOTAL WAY AND STRUCTURES				
Approved	Amount Allowed			

FORM WHICH IS USED FOR ITEMIZED DEPARTMENTAL BUDGETS

When the program for the year is determined upon, estimated expenditures are distributed to account numbers on the budget forms. This is done on the detail sheets by the respective departments and submitted to the general manager's office, where they are summarized on form "A."

The complete list of items appearing on form "A" is as follows:

RAILWAY OPERATING REVENUES
 Revenue from transportation
 Revenue from other railway operation
TOTAL RAILWAY OPERATING REVENUES
RAILWAY OPERATING EXPENSES
 Way and structures Equipment
 Power Conducting transportation
 Traffic General and miscellaneous
TOTAL RAILWAY OPERATING EXPENSES
 Per cent of operating expenses to operating revenues
 Net revenue—railway operations

TAXES ASSIGNABLE TO RAILWAY OPERATION
 Operating income
NON-OPERATING INCOME
 Gross income
DEDUCTIONS FROM GROSS INCOME
 Rent for leased roads
 W. E. St. Ry. Co.
 W. E. St. Ry. Co. Tremont subway
 Other roads
 Total rent for leased roads
 Miscellaneous rents (other subway tunnels)
 Interest on funded debt (B. E.)
 Interest on unfunded debt (Notes)
 Miscellaneous deductions

TOTAL DEDUCTIONS FROM GROSS INCOME
NET INCOME
 DIVIDENDS (at 5 per cent on common and 7 per cent on preferred)
NET
 (Allowing for Dividends)

The items which appear on the five general budget forms, devoted respectively to way and structures, equipment, power, conducting transportation and general and miscellaneous, are as follows:

- WAY AND STRUCTURES**
- Superintendence of way and structures.
 - Ballast.
 - Ties.
 - Rails.
 - Rail fastenings and joints.
 - Special work.
 - Track and roadway labor.
 - Miscellaneous track and roadway expenses.
 - Paving.
 - Cleaning and sanding track.
 - Removal of snow and ice.
 - Tunnels and subways.
 - Structure and foundations.
 - Bridges, trestles and culverts.
 - Crossings, fences and signs.
 - Signal and interlocking apparatus.
 - Telephone and telegraph lines.
 - Other miscellaneous way expenses.
 - Poles and fixtures.
 - Underground conduits.
 - Distribution system.
 - Miscellaneous electric line expenses.
 - Maintenance of buildings, fixtures and grounds.
 - Depreciation of way and structures.
- EQUIPMENT**
- Superintendence of equipment.
 - Passenger and combination cars.
 - Freight, express and mail cars.

- Service cars.
 - Electric equipment of cars.
 - Shop equipment.
 - Miscellaneous shop expenses.
 - Vehicles and horses.
 - Miscellaneous equipment expenses.
 - Depreciation of equipment.
 - Equipment retired.
- POWER**
- Superintendence of power.
 - Power plant buildings, fixtures and grounds.
 - Power-plant equipment.
 - Substation equipment.
 - Transmission system.
 - Depreciation of power-plant buildings and equipment.
 - Power-plant employees.
 - Fuel for power.
 - Water for power.
 - Lubricants for power.
 - Miscellaneous supplies and expenses of power plants.
 - Substation employees.
 - Substation supplies and expenses.
 - Power purchased.
 - Power exchanged.
 - Power transferred, Cr.
- CONDUCTING TRANSPORTATION**
- Superintendence of transportation.
 - Passenger conductors, motormen and trainmen.

- Freight conductors and motormen.
 - Miscellaneous car-service employees.
 - Miscellaneous car-service expenses.
 - Station employees.
 - Station expenses.
 - Carhouse employees.
 - Carhouse expenses.
 - Operation of signal and interlocking apparatus.
 - Operation of electric and telephone lines.
 - Other transportation expenses.
- TRAFFIC**
- Superintendence of solicitation.
 - Advertising.
 - Miscellaneous traffic expenses.
- GENERAL AND MISCELLANEOUS**
- Salaries and expenses of general officers.
 - Salaries and expenses of general office clerks.
 - General office supplies and expenses.
 - Law expenses.
 - Relief department expenses.
 - Pensions and gratuities.
 - Miscellaneous general expenses.
 - Injuries and damages.
 - Insurance.
 - Stationery and printing.
 - Store expenses.
 - Garage and stable expenses.
 - Rent of tracks and facilities.
 - Rent of equipment.

Departments are required to keep a close check on all their expenditures and to know approximately the amounts of money spent from their allowances at all times. This is not difficult, because the budget forms adhere to the Interstate Commerce Commission method of accounting used by the company.

With a statement before him, at weekly meetings of department heads, showing the daily and accumulated earnings each month, and the percentage of increase as compared with the estimates used in the budget, the general manager has fairly accurate continuous information as to whether or not the expenditures allowed by the monthly budget are likely to exceed the earnings and can take such action as may be necessary to avoid it.

Furthermore, the budget system tends to promote the closest kind of co-operation and to insure that every dollar is being spent where it will do the most good. Department heads are enthusiastic supporters of the budget because it enables them to plan ahead and to know definitely the amount of money at their disposal.

The clerical work required under this plan is negligible compared with the results obtained. As a matter of fact the budget superseded a miscellaneous assortment of statements intended to accomplish the same purpose, without any increase in the clerical force,

and established a uniform method of accounting.

Since it is essential that full value be received for every dollar spent the budget, to those who have had experience with it, seems absolutely necessary.

Skip-Stop Still Used

Statistics from Seventeen Street Railway Companies Which Have Continued It, Giving Data on Its Use

CLEVELAND has the honor of being the first city to institute the skip-stop on a considerable scale. This system was introduced in 1912 by Peter Witt, but little was done until the war, when the necessity for conservation in energy and fuel, the impossibility of increasing rolling stock and the added congestion on the streets due to the heavy industrial and vehicular traffic so interfered with the schedules and operation of railway companies that the skip-stop obtained a prominent place in railway operation.

To determine the present status of the skip-stop, the American Electric Railway Association has recently issued a data sheet which furnishes some very interesting information. Of forty large street railway companies using the skip-stop during the war, seventeen companies have continued it. Six of these companies have increased the use of the skip-stop on their systems, five have decreased it and six have made no change in its installation since the war. Sixteen of these companies use the skip-stop in regular service.

DISTANCE BETWEEN STOPS

The general principle in arranging stops seems to be to equalize the spacing, but in some cases a different spacing is used for the congested districts and city traffic from that used in the suburban districts. The stops used by most companies in the cities vary from 600 to 700 ft., the general average being about eight to the mile. In suburban districts three or four companies have a distance between stops of about 850 ft. and one reports 1,000 ft.

One of the great features of the skip-stop is the fact that it makes possible an increased scheduled speed. The percentage increase of the companies reporting varies from 7 per cent to 24.4 per cent, with an average figure of about 17½ per cent. An average figure for speed without skip-stops seems to be 8.5 miles per hour, and the use of skip-stops makes possible a speed of 9.5 miles per hour. However, in connection with these speed figures it must not be forgotten that the increased use of safety cars has had some effect on the figures. The decrease in power consumption per car-mile because of the use of the skip-stop varies from 4½ to 10 per cent, an average figure being about 5½ per cent. With skip-stops the power consumption on an average is about 2.5 kw.-hr. per car-mile, while without skip-stops under the same conditions the power consumption would be about 3 kw.-hr. per car-mile. But again in considering these figures, it must not be forgotten that during the war the platform men and the operators on the street car were measurably less efficient than those now operating on the different systems.

In discussing the advantages of the skip-stop, thirty-seven individual companies reported various advantages for skip-stops, briefly outlined as follows: Increased speed, less power, better service at less cost, better regulation of service, saving in equipment, more comfort in riding, due to fewer stops and faster speeds; reduction of accidents, reduction in time schedule without increasing car speeds, giving more rapid service, equalizing the distances between stops makes possible additional trips without increasing the number of cars, gives

more regular service, eliminates congestion, which makes possible more regular headways; saves maintenance of brake shoes.

In discussing the disadvantages of the skip-stops, thirty-five individual companies reported, and twelve of the thirty-five said they could see no disadvantages whatsoever in the use of the skip-stop. Others alleged the following: Lack of incentive for short distance riders, opposition of public opinion, increases the use of automobiles and jitneys, the owners of corner property object, inexperienced and new operators confuse stops and thus irritate passengers, inconveniences the passengers because they have to walk to the stops, strangers in the city do not understand the system, in small cities where the cars operate on a ten or fifteen-minute headway the skip-stops encourage walking as the distances are short.

The seventeen street railway companies which are now using the skip-stop report that they contemplated retaining it as long as possible, as it has proved extremely valuable in the operation of their systems.

The companies now using the skip-stop mentioned in this tabulation are the following:

Capital Traction Company, Washington.
Chicago Surface Lines, Chicago, Ill.
Cleveland Railway, Cleveland, Ohio.
Detroit United Railway, Detroit, Mich.
Empire State Railroad Corporation, Syracuse, N. Y.
Houston Electric Company, Houston, Tex.
Indiana Service Corporation, Ft. Wayne, Ind.
International Railway, Buffalo, N. Y.
Kansas City Railways, Kansas City, Mo.
Milford & Uxbridge Street Railway, Milford, Mass.
Mobile Light & Railway Company, Mobile, Ala.
Northern Texas Traction Company, Fort Worth, Tex.
Omaha & Council Bluffs Railway, Omaha, Neb.
Ottawa Electric Railway, Ottawa, Ont.
Pacific Electric Railway, Los Angeles, Cal.
Toledo Railways & Light Company, Toledo, Ohio.
Washington Railway & Electric Company, Washington, D. C.

Water Power Valuations

IN A RECENT pamphlet Edward J. Cheney, engineer, 61 Broadway, New York, has digested the opinion of a large number of court and public service commissions with reference to the principles and methods used in arriving at the value of water rights in connection with different classes of cases which arise. On account of the similarity of the valuation of land to that of water rights, leading decisions with respect to land values have been included in instances where no cases on water rights were discovered.

Mr. Cheney summarizes the result of his study as follows:

The courts approved, for all purposes, market value, determined as at private sale between a willing buyer and a willing seller after all circumstances and conditions have been considered. The commissions have a strong leaning toward market value determined in the same way, tempered somewhat by consideration of cost of promotion (if recently acquired), but with a general disposition to be liberal and to reward promoters for the effort and outlay. In rate cases there is some tendency toward vagueness and generality along the lines of *Smyth vs. Ames* (169 U. S., 466). There is also some sentiment for the sharing of benefits between owners and public, but no method has been outlined for carrying out this idea.

A new type of bus is to be put into operation in London which will seat fifty-seven passengers, as compared with forty-six passengers in the present large-capacity buses.

Norfolk's Traction Situation—III

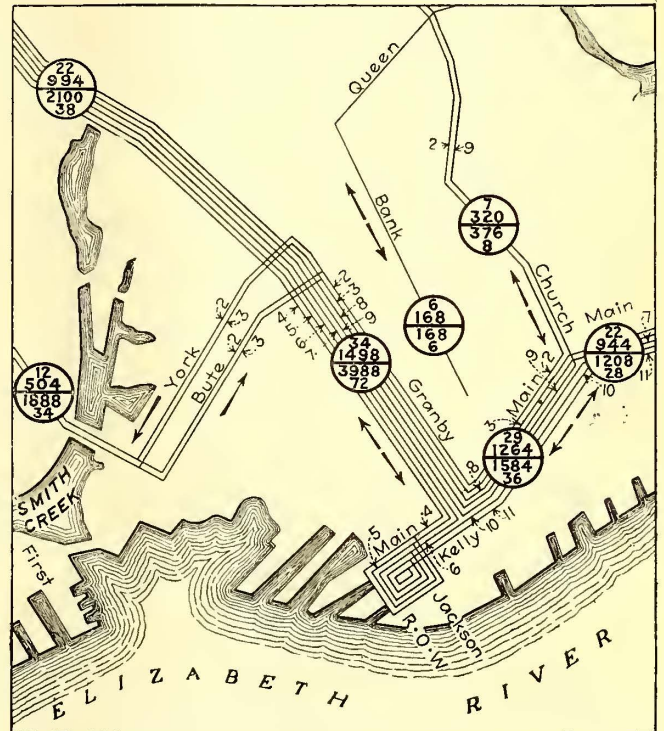
Operating Conditions Considered—Fare Policy Is Outlined on a Flat Fare Basis—Rerouting Suggestions Are Made and Jitney Competition Is Shown to Be Detrimental to City's Best Interests

IN THE first two articles of this three-part series on the traction situation in Norfolk, Va., the recommendations of Messrs. Taylor and Cooke with reference to franchise provisions and the valuation for rate base were outlined. Their report also includes an analysis of the operating condition of the railway property and makes recommendations as to fare policy, how the net income may be increased, rerouting, jitney competition and certain rehabilitations which should be made.

ANALYSIS OF INCOME, EXPENSES AND FIXED CHARGES

Owing to an increase in the rate of fare during 1919 (5 cents to Oct. 1, 1919, and 6 cents thereafter), and to a wage increase in October and because expenditures for maintenance and renewal reserves were below normal during 1919, the actual accounts for that year showed an apparent surplus over fixed charges of \$130,853. A careful analysis and adjustment of the accounts reveals that instead of a surplus there was actually a deficit of \$157,939 after fixed charges. Actual and correct income statements follow in condensed form:

	Actual Year to Apr. 30, 1920	Corrected Year to Apr. 30, 1920
Gross revenue.....	\$1,935,978	\$2,119,269
Maintenance—track and roadway.....	162,000	168,000
Renewal reserves.....	.....	316,408
Maintenance—overhead.....	56,642	57,222
Buildings.....	8,208	8,208
Care of equipment and shop expense.....	191,449	194,249
Power.....	154,185	163,347
Wages—M. & C.....	452,292	510,292
Other operations of cars.....	157,796	162,142
Damages and legal expenses.....	121,607	132,607
General administration.....	83,014	85,064
	\$1,387,294	\$1,798,291
Operating income.....	548,684	320,978
Taxes.....	86,493	114,583
Fixed charges.....	331,338	365,334
Surplus after fixed charges.....	\$130,853	(a) \$157,939
Total annual deficiency below 8 per cent on \$8,750,000 valuation		\$492,605
(a) Deficit.		



ROUTING OF CARS, WITH NUMBERS OF CARS AND SEATS, BEFORE REROUTING PLANS WERE SUGGESTED

The foregoing study reveals that 85.2 per cent of the deficit from all zones is ascribable to operations in the first zone, which corresponds substantially to the area within the city limits. With reference to the cost differentials involved, the report says:

The large loss chargeable to city, as compared with county service, is due principally to the fact that the cost of maintenance and renewal reserve per mile of track in paved city streets is about 3.4 times as great as maintenance and renewals per mile of open track on county lines operating mostly on private right of way. Expressed upon a total money basis, the cost of maintenance and renewal reserves for 67.2 miles of city track with overhead lines amounts to \$467,515, while cost of similar work and reserves on 35.4 miles of county track (more than half of city track distance), amounts only to \$74,867.

Another important cause of increased cost of service within city, as compared with county districts, is the low speed at which cars must be operated in built up sections. Car speeds average 7.7 and 12.3 m.p.h. in city and county respectively. Wages of motormen and conductors amount to 11.7 cents per car-mile of service within city limits and 7.3 cents per car-mile on county lines outside of city. In other words the average car-mile operated in Norfolk city streets consumes 7.8 minutes and costs on the average 60 per cent more for platform wages than does the car-mile operated on county lines, which consumes only 4.88 minutes.

With reference to Zones 2 and 3, which are substantially outside the city limits, the report emphasizes the unprofitable result of wide seasonal variations in traffic, requiring maintenance of idle equipment nine months for service during three months of the year. The effect of this and of low average traffic density on outlying

STUDY OF PROFITS AND LOSSES BY LINES AND ZONES

An allocation of all revenues and expenses (both actual and corrected) was made by lines and by fare zones based upon analysis of all items of expense with respect to the unit of property or service with which they vary or to which they may be considered as chargeable for allocation purposes. The results are summarized in the following table:

	Upon Basis of Actual Expenditures, Year Ending April 30, 1920.		Upon Basis of Actual Expenditures Corrected to Give True Cost.	
	Deficit After Paying Fixed Charges	Surplus After Paying Fixed Charges	Deficit After Paying Fixed Charges	Surplus After Paying Fixed Charges
Zone No. 1.....	\$40,146	\$199,715	\$150,924	\$16,468
Net surplus or deficit.....	.....	159,569	134,456	.....
Zone No. 2.....	73,813	54,141	85,916	73,900
Net surplus or deficit.....	19,672	.....	12,016	.....
Zone No. 3.....	9,045	.....	11,367	.....
Net surplus or deficit.....	9,045	.....	11,367	.....
Total, all zones.....	\$123,003	\$253,856	\$248,207	\$90,368
Net surplus or deficit.....	.....	130,853	157,839	.....

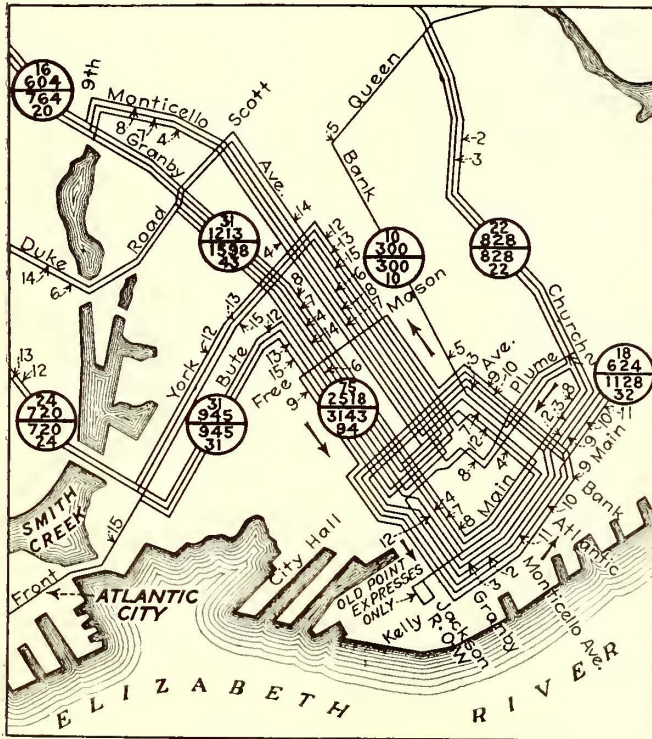
lines as compared with city lines is reflected in the following tabulation of fixed charges per car-mile and per car-hour.

	Fixed Charges per Car-Mile Cents	Fixed Charges per Car-Hour
Zone 1 — City.....	6	\$0.46
Zone 2 — County.....	11	1.38
Zone 3 — County.....	17	2.09

As a result of the study made the conclusion was reached that additional revenue should be secured through introduction of an additional fare zone on county lines and that net income from operations within city limits should be increased by methods other than an increase in the basic 6-cent fare within the city, to which reference is made later.

FARES AND FARE POLICIES

It is pointed out that an 8-cent or 9-cent fare will be necessary to yield 8 per cent on the established valuation if present conditions are continued with respect to:



RECOMMENDED ROUTING, SHOWING APPLICATION OF ONE-WAY STREETS IN DELIVERY DISTRICT*

- (1) Routing; (2) continued use of heavy two-man cars where one-man safety cars would be more economical;
- (3) jitney competition, which depletes railway earnings to the extent of about \$350,000 per year;
- (4) burdensome franchise conditions, including unjust paving obligations, and diversion of revenue from sale of transfers to the city treasury;
- (5) abnormal maintenance due to the depleted condition of the property.

City Fares: No increase in city fares is recommended for the reason that while the company is entitled to charge rates which will yield a fair return, net income can be increased by specified economies in operations and by increasing traffic in part through extended and improved service. The proposed improvements and

*Routing of cars westwardly on City Hall Avenue is temporary only pending construction of single track in Plume Street to accommodate all westbound trolleys in the delivery looping operation, thus eliminating route crossings in City Hall Avenue.

economies, however, are shown to be dependent upon municipal co-operation in the matter of franchise revision, traffic regulation, and the elimination of jitney competition. It is, however, made clear that it will be necessary to raise the city base fare if the specified program does not produce adequate net income.

The factors which should be considered in determining the proper form of such increase are discussed at length. With respect to this it is stated that while the form of increase is a matter of no concern to the company so long as it provides adequate revenues, it is of real importance from a civic standpoint. The position is taken that uniform fares with substantial transfer privileges encourages desirable development of the city unrestricted by unnatural barriers of fare differentials and provides equal opportunity for the population at large to enjoy the advantages of city parks, recreation centers and educational institutions maintained by general taxation. While widespread shifts of population would occur only after long continued operation under a zone fare system, it is considered that ultimately such a system is bound to show its effect in warping the areas of development into the districts of minimum transportation costs.

That conditions in American cities which have developed over wide areas upon the flat fare principle differ widely from those in foreign cities whose growth has occurred under zone fare systems is maintained in the manner in which this subject is treated. The analogy is drawn that if zone fares can be justified on the "cost of service" basis then rates for water, gas or electric service could with equal logic be increased in outlying districts on the ground that more facilities are required to reach them than to reach the districts adjacent to the source of supply. In the case of street railway service, the use of long haul facilities likewise carries with it the inconvenience of a long ride, which considered with other factors leads to the conclusion that from the passenger's standpoint the value of a long ride to him is no greater than the value of a shorter ride as he is buying a transportation service primarily, and not a length of ride.

The suitability of city zone fares is considered to depend largely upon the broad question of the "value of the service" to the passenger as measured by his own standards and cannot be justified upon the sole basis of theoretical "cost of service" per mile of ride.

The report argues at length on these points, suggesting a great deal which space does not permit treating at length. It holds that the flat uniform fare stimulates the riding habit because it encourages expansion of residential sections and thus broadens the market for the sale of transportation. The inference is that a demand for transportation is thus created, which is firm and durable as compared with that produced by fostering of short-haul traffic at the expense of general development of a company's transportation market considered as a whole.

Transfer Charge of 2 Cents Retained Temporarily: While as a policy free transfers are advocated, it was determined that 90 per cent of Norfolk's travel is to and from the business district. While the bulk of the 2-cent transfer business is in the light-load direction in the business district and therefore adds little to the cost of operation, it was found necessary to continue the existing transfer charge temporarily, but instead of paying all transfer revenues over to the city, as the company now does, it is recommended that this revenue be

retained by the company. When the company's net income shall have been increased to the desired amount through the adoption of the proposed co-operative program it is provided that the transfer charge should be abolished.

County Zones Changed: The seasonal variations on all lines which operate across the city limits are pointed out as one cause for their unprofitable status. No important economies can be effected in the outlying zones; and hence, in keeping with the conclusions reached from the study of profits and losses by lines and by zones it was recommended that additional revenue be secured outside the city limits through a change in zone limits, which will produce an increase in annual revenue of \$265,000, based on detailed estimates and traffic analyses made for each county line.

Summarizing, the fare situation at Norfolk was handled by recommending the continuance, for the present, of the flat uniform 6-cent fare within the city limits, additional revenue from the county zones to be secured largely by changes in zone limits, and net income to be further increased by the elimination of jitney competition, use of safety cars, rerouting and relief of congestion by one-way streets and other traffic regulations, relocation of car stops, reduction of maintenance costs by rehabilitation, increased traffic by extended and improved service, and by revision of franchises with the elimination of obsolete and unjust franchise obligations.

COMPREHENSIVE REHABILITATION PROGRAM RECOMMENDED

Upward of \$1,000,000 could be expended on new construction to advantage. Of this, \$221,831 for track construction and \$330,000 for fifty Birney safety cars is already under contract.

The rehabilitation program of \$830,572 includes the relaying of 314,475 ft. of single track, the rehabilitation of cars to the extent of \$150,000 and the removal of track and paving repairs to the extent of \$132,755. The necessity of completing the more important part of this program in order to improve service, reduce cost and conserve equipment was emphasized.*

REROUTING SUGGESTED

The Norfolk street railway system is of the radial or fan type and the principal feature of the service problem centered largely in the congested conditions in the narrow streets leading into the delivery district. Most of the cars entered and emerged from this district along one narrow street, and operations as found were seriously interfered with by head-on crossings and by unrestricted vehicular traffic.

The obvious expedient of one-way traffic, both with respect to trolley and vehicles, was recommended, and a plan was devised for the co-ordination of all street traffic.

Originally all looping occurred on a single-track loop in the trucking district, occasioning great loss of time. The looping system as laid out and now partially in effect will occur as a simple operation of entering on one street, turning and emerging on another without interference between lines at any point. The group of routes entering the district from the north will loop independently of the routes entering from the south

and east. The accompanying maps show the delivery district operation as found and as rerouted.

That jitneys constitute an immense handicap to the traction company in its efforts to provide good service is apparent from the fact that jitneys carry 6,000,000 passengers annually as compared with the 38,000,000 railway passengers in the city and county. As is usually the case, the jitneys in Norfolk cater only to the short rider within the built-up sections of the city.

The report clearly describes the ruinous effect of jitney operations and after an interesting discussion of the subject concludes that:

"The bald truth of the matter is that Norfolk must make a choice between backing her jitneys or backing her street railways."

The report recommends that definite and binding assurance be given to the company by municipal edict providing for the elimination of jitneys upon the inauguration of agreed-upon improvements in street railway facilities.

Overhead Contact System in Heavy Traction

SIR PHILIP DAWSON recently contributed to the Institution of Electrical Engineers of Great Britain a paper on "Electric Railway Contact Systems." Among general principles he points out that the overhead construction and the collector arrangement on the coaches or locomotives must be such as to make it certain that the collector bow will never be liable to come off the contact wire and must also follow the contact wire with the utmost flexibility. For this reason the ordinary trolley wire construction utilized for tramway purposes is unsuitable. In other words, the risk of a collector coming off the contact wire must be no greater than the risk existing today that the wheels of a truck will come off the track. The overhead construction must be designed and put up in such a manner that, while the risk of failure is minimized, the cost of maintenance and the time required for renewal or replacement of any individual portion requiring attention should be reduced to a minimum. At the same time the investment cost must be kept low.

The author points out that the principles adopted in 1907 on the Brighton Railway have been demonstrated by experience in Germany and the United States to have been the correct ones. These were as follows: (1) The conductor wire should be as flexible as possible and all hard spots should be avoided; (2) double insulation is essential and the mechanical as well as the electrical factor of safety of the insulators in overhead construction must be very considerable; (3) all insulators should be placed in positions where they will be least subjected to the direct effect of the hot gases given off the steam locomotives; (4) with the exception of complicated yards and crossovers, the up and down lines should be sectionalized so as to permit them to be cut out independently, while the complicated crossover roads and yards are designed in such a way as to be sufficiently short to be coasted over; (5) insulators should be utilized only under compression, and elastic substances should always be placed between the insulator and its solid support as well as between it and the mechanical construction which it supports; (6) provision should be made when designing insulators that there is no possibility of moisture or water collecting and freezing, thereby fracturing the insulation.

*The discussion over this and other financial matters in the report was given in the ELECTRIC RAILWAY JOURNAL, Oct. 2, 1920, page 688.

Economical Sectional Pavement for Crossings

Toledo Railways & Light Company's Street Crossings Are Made Accessible for Tamping by Removable Sectional Construction of Pavement

By A. SWARTZ

Assistant Manager Toledo (Ohio) Railways & Light Company

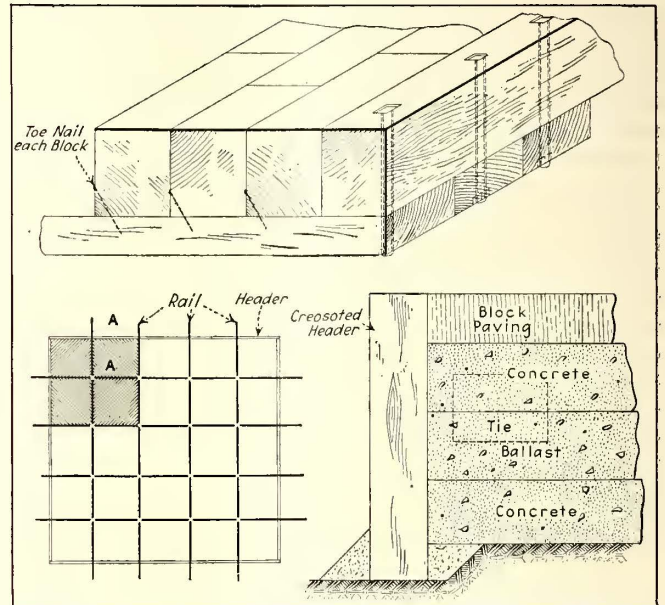
MOST electric railway engineers have to contend with maintenance of crossings with steam railways having a great deal of heavy traffic, and where city ordinances require a smooth driveway across steam railways it is quite a job to tear out the paving for the purpose of tamping up the crossings. This job is necessary three or four times a year, so that it becomes quite an expensive burden. In Toledo the street railway company maintains nearly all of the railroad crossings, which number around 200, so that this item is an exceptionally expensive one for the company. The company's roadmaster, P. H. Farrell, struck on the idea of providing a paving across these intersections which could be easily removed and patented his idea with the thought that it would be a commercial success.

We have had one intersection of a double-track electric line with a double-track steam railway over which heavy traffic is carried paved with this patent crossing pavement for four years, and the success we have had has proved to our satisfaction that it is a great labor saver.

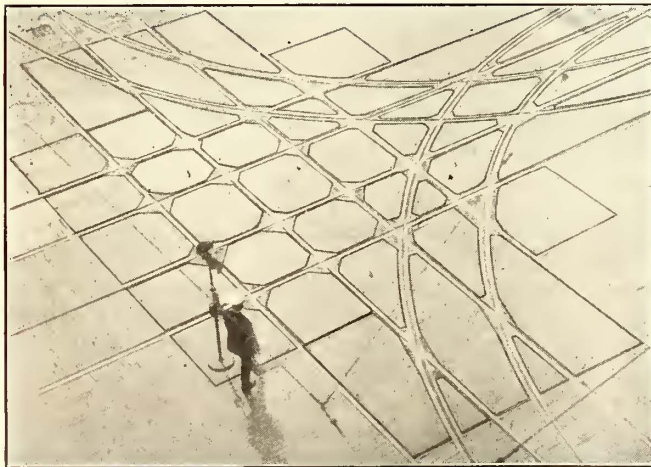
This paving is built up by first providing a floor and a framework which fits carefully in the diamonds and squares of the crossing and which rests upon the flanges of the rails. This box is then paved with wood blocks, each block being nailed to the floor. All the timber used is creosoted, which of course gives a great deal

the first installation that it was decided to go further with it and to use it in special work intersections in the downtown district, where it will be readily seen that instead of rectangular forms all sorts of shapes would be encountered in making the sections of the patented paving.

The method of constructing special work intersections in Toledo has been to first provide a concrete foundation, on top of which about 2 in. of crushed stone ballast is placed. Above the ballast is placed a bed of



METHOD OF CONSTRUCTION AND LAYING REMOVABLE PAVING SECTIONS



A TYPICAL CROSSOVER IN TOLEDO WHERE THE REMOVABLE SECTIONAL CONSTRUCTION HAS SPEEDED UP REPAIR WORK

more life to the timber than untreated timber. In the center of each diamond or square a ring is bolted to the floor of the paving to allow each square to be easily taken out with a derrick, so that the track gang may then tamp the crossing. If the derrick is not handy two men with a pinch bar can easily pry up one of the squares.

Prior to the use of such paving it sometimes took two to four days to tamp up four crossings, whereas with the new type of paving the work can be readily done in one day. So much success has resulted with

concrete on which to lay paving materials. This requires a great deal of labor when it becomes necessary to replace the special work or to surface it. With the new paving we have simply placed ballast on top of the foundation to the top of the tie and form our paving with the patented sections. The top layer of concrete had thus been eliminated and the special work made very accessible for replacement or for surfacing. Some of the paving sections are very ill-shaped and of such a size that to take them out requires the use of a derrick to lift them by means of the ring in the center. The regular street paving is carried forward to the point where the patented paving is to be encountered, between which and the regular paving we have placed wood block crossways of the track to act as a curb for the regular street paving.

All engineers will admit that the secret of good track and special work is proper drainage, so that this fact must not be lost sight of in constructing the type of intersection. To take care of the drainage we have built the concrete foundation with a grade toward a hidden catchbasin, the top of which is even with the top of the concrete foundation. These catchbasins are provided with an iron mesh screen so as to hold back the ballast, but at the same time they permit drainage to enter the catchbasins, which are connected with the sewer inlets in the street corner.

We had one particularly bad double-track crossing in the city where the drainage was very poor; in fact, the intersection lay in a dip of the street grade of both streets so that the crossings received the full benefit of all rain. In the summer of 1919, while repaving this street, we determined to drain this crossing properly

and pave it with patent paving. We built a concrete foundation to support the crossings. The foundation was about 25 ft. square, laid with a grade toward one corner and a drainage valley on the line of the diagonal of the square, thus draining into a catch basin which was connected with the sewer inlet. The crossings were laid on crushed stone as described and the patent paving was installed. We have gone through one winter and an exceptionally rainy summer with the best of results so far.

At another point where we have installed the patented crossing pavement where one double-track line crosses another double-track line it was necessary for us to take up the pavement and renew the bolts in the crossings. One foreman and four men did this work and renewed 300 bolts in two nights, working from midnight until 5:30 a.m. After the first night's work they replaced the paving and traffic was carried over the crossings without any interruption, and the next night the paving was again taken up and the work finished, so that there was no delay to traffic necessary. Had the ordinary type of paving been installed, such as brick, Medina, woodblock or any other type, it can be seen that it would have been necessary to do a great deal of work to renew these bolts. We believe that the job would have been open about a week and that it would have cost us about \$300 for labor, whereas the way we did it it cost us \$55.

This patented paving is in the hands of the Jennison-Wright Company of Toledo, Ohio, and was described in the *ELECTRIC RAILWAY JOURNAL* for July 5, 1919, page 30. The name of "Kreolite Crossings" has been chosen for this construction. A similar replacement type of construction was described in the *ELECTRIC RAILWAY JOURNAL* of Aug. 14, 1920, page 326.

A Few High-Lights

Interesting Parts of the Discussion at Fall Conference of British Municipal Tramways Association, Whose Proceedings Were Abstracted Recently

IN THE issue of this paper for Dec. 4, 1920, page 1149, a report was given of the Municipal Tramway Association (British) conference at Cardiff. In some of the papers and the subsequent discussions some interesting statements were made on various subjects, as quoted below:

Speaking of the abuse which always comes subsequent to a showing of necessity of increase in fares, Councilor Higham, chairman of the Blackburn Corporation Tramways Committee, said: "It is always clearly shown that the proper way to increase revenue is to reduce fares instead of increasing them and to lengthen rides in lieu of shortening them, until you are almost forced to the conclusion that the people to manage tramway undertakings most efficiently are those who never had any experience with them, and that if you only reduce fares to the vanishing point you will have ample revenue to meet all your obligations."

In the discussion on fares, J. F. D. Moffett of Belfast said that when he went to Belfast he had to tackle the fare question immediately, but, he said, "I was told immediately this was brought up that if I knew anything about tramway matters at all, I ought to be able to put the finances of the undertaking into a proper state without bothering about fares. 'What about the conductors?' I was asked. 'Are they not missing fares?'

I was assured that if they got in all the fares they missed, the problem would be settled. I could not convince the officials that the missed fares, which tramway managers, as we all know, try to reduce to a minimum, are almost a negligible quantity, but after a lot of abuse and a lot of criticism the corporation finally decided to move in the matter."

J. B. Hamilton, general manager Leeds City Tramways, in discussing the fare situation, said: "During the last three years, concurrently with the continued demands for higher wages, most tramway undertakings have come forward and increased their fares." But the speaker said that from his personal experiences while there was a falling off in passengers when the fares were raised, the deficit in numbers was made good again in a short time.

H. Mozley, general manager Corporation Tramways, Burnley, argued that there were serious losses sustained by fares missed by conductors. Mr. Mozley said that there was a method of preventing the overlooking of fares, which, strange to say, was almost confined in its operation to his own system. The method lay in the collection of tickets by the conductor. The missed fares on the British tramways resulted in a net loss of £500,000 a year, yet a simple system could be put into operation which would prevent that loss. The system is as follows: When a car is within a quarter of a mile of the terminus the conductor collects the issued tickets from every passenger.

G. Barnard, general manager Corporation Tramways, Bolton, said: "In my numerous visits to Burnley I have never had my ticket collected, and on most occasions I have never even been asked for it."

A. L. C. Fell, general manager London County Council Tramways, said at one point: "It should be noted that the journals of all the trail cars in London are fitted with radial ball bearings. Tests taken on the level showed the tractive effort at the drawbar to be 17.02 lb. per ton of load with these bearings as against 38.03 lb. per ton of load when the journals were fitted with round bearings, and to this fact low energy consumption can be partly attributed." Mr. Fell gave the following statistics obtained from metered readings on cars in regular service in London, with and without trailers respectively, averaged over a period of forty-five weeks: Tractor and trailer, 2.87 units per car-mile; tractor only, 2.04 units per car-mile.

The passenger-seating capacity of the tractor was seventy-eight and the trailer forty-six.

Diesel Electric Cars on the Swedish Railways

THE scarcity of coal in Sweden and the encouraging results obtained from experiments made in 1913 with the Diesel electric drive for cars have caused further favorable development of this type of car for interurban use. An article appearing in the *Génie Civil* of Oct. 16, 1920, gives some test and operating data on these cars. One of the latest design cars, equipped with an 8-cylinder, 160-hp. Diesel engine and pulling two trailers, made a trip of 69 miles with eight stops in about three hours. The weight of this train, including 139 passengers, was 91 tons and the fuel consumption was about 0.017 lb. per ton-mile. Records kept for the operation over several years showed that fuel cost for the Diesel electric cars was about 6 per cent of that required for steam operation under identical conditions.

Examination Questions for Trainmen

List of Questions Used in Examining Men by Omaha & Council Bluffs Company on Which High Grade Is Required

THE transportation department of the Omaha & Council Bluffs Street Railway, Omaha, Neb., has been making use for several years of a training school for motormen and conductors, which is equipped similar to many other company schools throughout the country, with decided success. After this preliminary training has been completed, and within thirty days from the date they are entered on the roll, all trainmen in Omaha are called in and required to undergo a written examination, which must be passed with a grade for motormen of at least 75 and for conductors of 90. The questions used in these examinations are changed periodically. The questions which appear at the present time on the printed examination blanks are as follows:

MOTORMEN'S EXAMINATION QUESTIONS

1. (a) Name in order the principal pieces of electrical apparatus through which the current passes from trolley to ground. (b) Give the location of each. (c) Give the location of wires connecting each.
2. (a) How would a two-motor car act with a broken motor lead, and what should be done? (b) How would a four-motor car act with a broken motor lead, and what should be done? (c) How would a motor car act with a broken resistance grid or resistance lead? (d) How would you know that a resistance lead or grid was broken?
3. (a) Explain fully how you are enabled to stop a car with a two-motor equipment without line power or brakes. (b) Explain fully how you are enabled to stop a car with a four-motor equipment without line power or brakes.
4. (a) Have you read the rules in the rule book? Are you familiar with them? (b) Answer Rule 81 here . . . (c) If in doubt about a rule or bulletin, what would you do? (d) What is the emergency stop signal?
5. (a) What is to be reported on the regular accident blank? (b) Is it necessary to answer *all* questions on accident blanks? (c) Who is responsible for getting witness names? (d) Are you familiar with Rules 32 and 33?
6. What is the rule in regard to speed on track crossings, curves or switches?
7. (a) What is a circuit breaker? Explains its duty. (b) What is a fuse? Explain its duty. (c) What is a controller? Explain its duty. (d) Should a controller be thrown from a higher to a lower point? (e) How should a controller be fed up when the motor is cut out? (f) In case of controller arcing what is your duty? (g) What is a resistance? Explain its duty. (h) Should a car be allowed to run on resistance points? (i) What is a choke coil? Explain its duty. (j) What is a lightning arrester? Explain its duty.
8. In case you do not get power on the first point, what is the first thing for you to do to ascertain the trouble?
9. (a) What is the rule regarding hand brakes? (b) If air brakes become disabled what should be done?
10. (a) What is a motorman's air valve? (b) Explain its different positions. (c) Should frequent applications of air be made, or should stop be effected with one or at any rate not over two applications? (d) What is an application of air? (e) What is an air governor? (f) What is an air compressor? (g) In case your air gage shows no air, or pressure goes down, what is the first thing to do? (h) Is it necessary to keep close watch on the air gage?
11. (a) What is always the first thing to do before examining the parts of your car, either in vestibule or underneath? (b) What is always your first consideration in case of hazard of injury to person or damage to property?
12. (a) If motor trouble of any kind develops, how would you determine which motor or set of motors was defective? (b) What is the difference in motor connections between a two- and four-motor equipment? (c) How do you cut out a motor at the controller, and give what motor or combination of motors is connected to each cut-out switch? (d) What is a motor?
13. (a) What is your duty regarding broken trolley wires? (b) Span wires? (c) Exit doors? (d) Use of sand?
14. (a) What is your duty running through fog, smoke or

other places where your view is obscured? (b) What is the rule regarding two or more cars coupled together, especially at electric switches?

CONDUCTOR'S EXAMINATION QUESTIONS

1. (a) Are you familiar with the proper way to make out a trip slip? An intermediate? A deposit slip? A refund slip? When are refunds made? (b) Which directions are out on trip sheet? (c) Which directions are in on trip sheet?
2. (a) Have you read the fare box rules? (b) Are you familiar with them? (c) Where are registers or fare boxes to be set back to zero? (d) If fare box gets out of order, what would you do? (e) If register gets out of order, what would you do? (f) When should tickets and coupons or employees' pass tickets be canceled? (g) When should fare be collected? (h) Should fares be registered separately?
3. (a) What is to be reported on regular accident blanks? (b) Is it necessary to answer *all* questions on accident blanks? (c) Who is responsible for getting witness names? (d) Are you familiar with Rules 32 and 33? (e) Should you converse with, or give witness names or any information to any one concerning an accident except to the proper company officials? Who are they? (f) What is the proper thing to do in case of a serious accident? (g) What is your duty regarding passengers who are seemingly about to alight from a moving car?
4. (a) In case it is necessary to back your car, where should your position on the car be? (b) Why?
5. (a) What is the rule pertaining to children riding free? (b) Should children not paying fare be permitted to occupy seats to the exclusion of paying passengers?
6. (a) Have you read the rules in the rule book? (b) Are you familiar with them? (c) If in doubt about a rule or bulletin order, what would you do? (d) When is the proper time to look at bulletin boards?
7. What is the rule pertaining to badges that are presented by passengers in citizens' clothes?
8. (a) What are the two best things to use when dealing with the public? (b) In your dealings with passengers when you are in doubt, what are you to do? (c) What is the order regarding collection of fares at end of line? (d) What is the rule regarding conductor depositing passenger's fare? (e) What is the order regarding making up trip slips, such as counting tickets, transfers, hat checks, on a moving car?
9. (a) Who is responsible for waiting for passengers at transfer points?
10. What is the general order in regard to carrying packages on the car?
11. (a) What is the conductor's duty in regard to keeping car clean? (b) In case you receive a dirty car, what is your duty?
12. What is your duty regarding slippery steps and platforms?
13. (a) If your car should become disabled or derailed and conditions were such that it could not be seen readily by drivers of vehicles or motormen on approaching cars, what is your duty? (b) What is always the first consideration in case of hazard of injury to persons or damage to property?
14. (a) When do you issue transfers? (b) What does the originating line mean on a transfer? (c) Why is it necessary to punch the originating line correctly on a transfer? (d) Should a transfer be issued back to the originating line? (e) If after issuing a transfer a passenger changes his mind and wishes to go by another route, should you accommodate him? How? (f) Should you at any time punch a transfer twice so that it would mean two distinct things? (g) How would you determine the time allowance to be given on a transfer? (h) Should your car become disabled, or for any other reason it becomes necessary to transfer passengers to another car, how would you proceed? (i) When transfers are tendered on which the time has expired or which are furnished for a different transfer point, what is the proper thing for conductor to do?
15. What is the rule governing railway crossing?
16. (a) What is the emergency bell signal? (b) When should it be given?
17. (a) Under what conditions would the ejection of a passenger be warranted? (b) Before taking it upon yourself to eject a passenger from the car, what should you do?
18. (a) What is your duty regarding broken trolley wires? (b) Span wires? (c) Trolley retrievers?
19. In case a passenger has been carried by his destination, what is the conductor's duty?
20. What is the order regarding ventilators?
21. In case of a serious blockade, such as fires, or broken down vehicles, what is your duty?

ELECTRIC RAILWAY PUBLICITY

Devoted to How to Tell the Story

Telling the Public About the Jitneys

EDMUND W. WAKELEE, vice-president of the Public Service Railway Company, is favoring the patrons of the Public Service Corporation and at the same time is placing the company's analysis of the jitney situation before these patrons by mailing to them a copy of his address on "The Street Railways, the Jitneys and the Public," delivered before the fifth annual convention of the New Jersey Utilities Association at Atlantic City on Oct. 30. The address is sent out in an attractively printed booklet.

Mr. Wakelee differentiates between the motor buses which furnish service on independent routes built up under proper franchises or which furnish feeders to other existing methods of transportation and those jitneys which are being operated under mere permits, which add nothing to the development of cities, but increase congestion; which operate under practically pirate methods, and which financially are neither organized nor responsible. He presents an excellent analysis of the transportation demands of the public and the relation of the jitney thereto, and also shows the part the electric railway has played in this problem.

Improvements in Transportation Methods Capitalized

Novel Form of Publicity Used in St. Louis

A NOVEL type of publicity, designed to give the riding public an appreciation of the difference in values offered by the traction company of today and that of twenty-five years ago, was used recently by the United Railways of St. Louis. This consisted of an exhibit, comprising the oldest car in the possession of the company and the newest car, just built and not as yet put into service. The display was placed on an unused track on one of the busy downtown streets and remained there for several days, attracting a great deal of attention from the public. After remaining on view downtown for several days the exhibit was taken around to the various public schools to give the pupils an opportunity to see how their grandfathers traveled.

"Bellefontaine 33," as the old mule car was known, was built in 1875 and was used until 1895. It was "unearthed" recently at the end of the Tower Grove line, where it was formerly used as a waiting station. It was half buried in the dirt, but paint and new trucks worked wonders. Then, in charge of Patrick O'Hare, who has been in the service of the various St. Louis traction companies for forty-five years, the old car, drawn by a shaky and wheezing mule, was sent on its journey to downtown St. Louis. The run took forty-three minutes. The new car, operating under its own power, made the run in ten minutes.

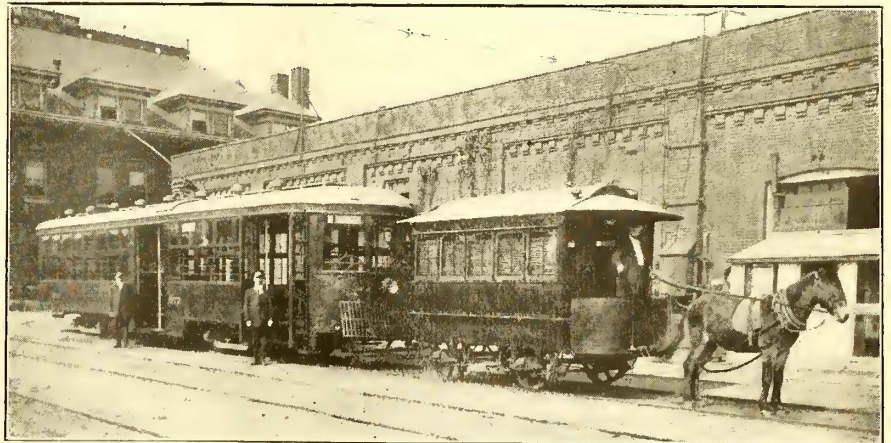
Those who viewed the exhibit were impressed with the fact that the two cars represented epochs having little in common. This contrast between the old and the new was made more vivid by the distribution of a pamphlet describing the cars on display and sketching the conditions

forced ventilation heater. Cost to heat—77 cents per day. Light, twenty electric lamps. Cost to light, 13 cents per day. Ventilators, sixteen. Wages of crew, per hour, \$1.30 (two men).

Fares—1875, 7 cents cash (five tickets for 25 cents). 1920, 7 cents.

Maximum length of ride on Bellefontaine line in 1875—2.5 miles.

Maximum length of ride on Belle-



PRESENT-DAY AS COMPARED WITH ANCIENT METHODS

under which each operated. This pamphlet summarized the development of the traction industry as follows:

Car 33—Built in 1875. Cost \$700. Length, 10 ft. Power, mule. Seating capacity, 14. Heat, none. Cost to heat, 3 cents for straw on floor. Light, two single-burner oil lamps. Cost to light, 24 cents per day. Ventilators, none. Wages of crew, per hour, 9½ cents (one man).

Car 777—Built in 1920. Cost \$15,000. Length, 50.5 ft. Power, electric. Seating capacity, 60. Heat, Peter Smith

fontaine line in 1920, 15.8 miles (without transfer).

In 1875—No transfers.

In 1920—Free transfers for any city destination.

Average speed of cars in 1920, over four times that in 1875.

Prior to United Railways consolidation in 1899 it took four fares to go from City Hall to Baden—now only one fare.

U. R. present trackage, 460 miles.

Cars in actual service over 1,300 per day (this has increased 100 during receivership). 110 additional cars now under construction.

Number of employees, 6,000.

American Association News

Engineering Association Committee Assignments

(Personnel of committees not yet complete)

Committee on buildings and structures, chairman D. E. Crouse, chief engineer Rochester & Syracuse Railroad, Inc., Syracuse, N. Y.

1. Continue study of equipment for prepayment and postpayment of fares. It is recommended that the committee get in touch with the president of the Transportation & Traffic Association, looking to the appointment of a representative to co-operate with the committee, one who is familiar with this phase of transportation.

2. Report on design of typical shop buildings and shop layouts for property of moderate size. Include results of a study of the practice on progressive properties. Co-operate in this matter with the committee on equipment. The design of shop layout should be consistent with modern plans of routing work through a shop, and this year attention should be confined to what may be termed the "centralized shop plan." It is assumed that the equipment to be carried will be of modern type. The shop layout should also be considered with reference to the impression to be created upon the public.

3. Study existing standards and specifications with a view to possible revision.

4. Co-operate with the way committee in the preparation of specifications relating to preservation of structural timber.

Committee on equipment, chairman Daniel Durie, general superintendent West Penn Railways, Connellsville, Pa.

1. Continue the study of brake shoes, brakeshoe heads and brakeshoe keys.

2. Revise standard tread and flange contours for steel wheels as referred back to the committee by the convention.

3. Prepare standard wheel contour for cast-iron wheels.

4. Revise specifications of carbon steel wheels, referred back to the committee by the association, and take up this matter with the American Society for Testing Materials and the American Railway Engineering Association.

5. Continue study of helical gears.

6. Report on car arrangement and design which are attractive to the public and conduce to comfort, convenience and efficiency of operation.

10. Study existing standards and specifications with a view to possible revision.

11. Co-operate with the way committee on the possible advantages of curved contours for treads of new wheels.

12. Co-operate with the committee on buildings and structures on the design of a typical shop building and shop layout for a property of moderate size.

Committee on heavy traction, chairman Sydney Withington, acting electrical engineer New York, New Haven & Hartford Railroad, New Haven, Conn.

1. Co-operate with the American Railway Engineering Association regarding progress in heavy electric traction, with a view to keeping the members of the American Electric Railway Engineering Association posted on developments in this field. In this connection cover foreign practice as well as that in the United States.

2. Continue the compilation of statistics regarding electric locomotives.

3. Continue the study of electric switching engines.

4. Study the subject of multiple-unit cars vs. electric locomotives in passenger service, and report on the percentage of service given by means of such cars.

Committee on power distribution, chairman Charles R. Harte, construction engineer the Connecticut Company, New Haven, Conn.

1. Review the overhead crossing specifications.

2. Outline specifications for catenary overhead construction.

3. Continue study of standard stranding of cables.

4. Continue study of standard specifications for wires and cables.

5. Study subject of composition of trolley wire and limits of economical wear, together with causes contributing to wear.

6. Report on present status of direct-current lightning arresters in collaboration with the committee on equipment.

7. Co-operate with the committee on way matters in the preparation of specifications for preservation of wood power transmission poles.

Committee on power generation, chairman A. B. Stitzer, chief engineer Republic Engineers, Inc., New York.

1. Continue study of a form of contract for purchase of power.

2. Continue study of the comparative costs of steam produced from coal and from gas and other special fuels.

3. Report on the progress which has

Program of the Mid-Year Conference of the American Electric Railway Association to be held at The Drake, Chicago, Feb. 10, 1921

Main Topic:

Electric Railway Financing

The Papers to Be Presented Are:

1. **Previous Methods of Electric Railway Finance.**

By JAMES F. FOGARTY, secretary the North American Company, New York.

2. **Present Requirements for Mortgage Securities.**

By F. K. SHRADER, Halsey, Stuart & Company, Chicago.

3. **Home-Town Financing—Partial Mutual Ownership.**

By S. B. WAY, vice-president and general manager the Milwaukee Electric Railway & Light Company, Milwaukee.

4. **Necessity of Financing by Sale of Capital Shares.**

By CHESTER COREY, vice-president Harris Trust & Savings Bank, Chicago.

5. **Municipal Aid in Electric Railway Financing.**

By MELVIN A. TRAYLOR, president First Trust & Savings Bank, Chicago.

7. Continue study of life of wearing parts of electrical equipment.

8. Report on personal observations of members of committee or their representatives on life of wearing parts on selected properties, and on shop practices relating to improving wearing qualities of parts. The object of this assignment is the collection of first-hand data on the subject. A reel or two of motion picture films might be prepared in connection with this study of the life of wearing parts.

9. Report on present status of direct-current lightning arresters.

been made up to date of the report with the so-called super-power plan described at the convention by W. S. Murray.

4. Report on multiple-unit automatic substations, including financial comparisons with manual substation operation.

Committee on way matters, chairman R. C. Cram, engineer surface roadway, Brooklyn Rapid Transit Company, Brooklyn, N. Y.

1. Standardization of frogs and track centers in special trackwork layouts.

2. Report, in co-operation with the committee on equipment, on the possible advantages of curved contours for treads on new wheels.

3. Investigate the application of curved treads to the association standard girder guard and plain girder rails, and the need, in any event, for changing the slope of the tread of the guard rail to agree with the slope of the association standard wheel treads.

4. Investigate the subject of arc-weld joints.

5. Prepare specifications for special trackwork of rail-bound-insert, composite and insert types.

6. Revise girder-rail specifications in respect to methods of tests with particular reference to the impression test proposed by the American Society for Testing Materials.

7. Report on designs of steel and other forms of substitute ties for use in paved streets.

8. Prepare specifications for wood preservation with respect to the several uses of wood or timber in its various forms in the electric railway industry. This matter should be taken up in conjunction with the committees on buildings and structures and on power distribution. The committee on way matters should confine itself particularly to specifications for wood-block paving.

Committee on apprentice systems, chairman F. R. Phillips, superintendent of equipment Pittsburgh Railways, Pittsburgh, Pa. (No detailed assignments yet made.)

Other members of this committee are H. A. Johnson, organization engineer the Metropolitan West Side Elevated Railway, Chicago, Ill., and L. C. Datz, engineer American Cities Company, Birmingham, Ala.

T. & T. Association Committee Assignments and Personnel

Following are details of the committee membership and assignments for three important 1920-1921 committees of the Transportation & Traffic Association:

Committee on economics of schedules, chairman Edward Dana, general manager Boston Elevated Railway, Boston, Mass.; Donald Goodrich, Twin City Rapid Transit Company, Minneapolis, Minn.; E. H. Ives, Detroit United Railway, Detroit, Mich.; H. C. Moser, Fifth Avenue Coach Company, New York City; Samuel Riddle, Louisville Railway, Louisville, Ky.; J. A. Stoll, United Railways & Electric Company, Baltimore, Md.

The committee is to continue the study of economics of schedules; to develop further the definitions and analyses of car-hours and crew-hours, bearing in mind the discussion at the last convention, and with the aid of the accountant members to formulate a definite procedure for keeping operating schedule statistics of member companies on a basis which will make them comparable. Further study should be given to the question of variable running time and a definite recommendation for this committee is wanted on this matter. It is suggested also that this committee include in its report a summary of recent methods developed for improving the handling of traffic in congested centers, along the lines of work done in Boston, Washington and Kansas City by John A. Beeler, also at any other points where the committee feels that steps have been taken of a character to facilitate movement of passengers and cars in congested areas.

Committee on express and freight

(chairman to be appointed); W. P. Bristol, the Connecticut Company, Hartford, Conn.; J. H. Crall, Terre Haute, Indianapolis & Eastern Traction Company, Indianapolis, Ind.; F. D. Norviel, Union Traction Company of Indiana, Anderson, Ind.; W. S. Rodger, Detroit United Railway, Detroit, Mich.; T. H. Stoffel, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.; C. E. Thompson, Chicago, North Shore & Milwaukee Railroad, Highwood, Ill.; A. F. Van Deirse, Columbus, Delaware & Marion Electric Company, Marion, Ohio.

This committee is to continue the study of the costs of handling express and freight service and if possible, with the aid of the accounting members, bring it to a conclusion. Further study of how additional business can be obtained from freight and package or express traffic should be made, with particular references to motor truck competition.

Committee on safety work (chairman to be appointed); W. H. Boyce, Beaver Valley Traction Company, New Brighton, Pa.; C. B. Scott, Chicago Edison Company, Chicago, Ill.; E. M. Walker, Terre Haute Traction & Light Company, Terre Haute, Ind.

This committee is to work with a similar committee from the Claims Association on developing methods for public safety work and the utilization of the National Safety Council's plans and methods for decreasing injury and hazard in public streets. C. M. Talbert, Commissioner of Streets and Sewers, St. Louis, Mo., who is chairman of the public safety section of the National Safety Council, is preparing a program

of work in which he feels this committee can assist. The public safety section desires to obtain the assistance of electric railways in the adoption of a standard public accident report to be used in all cities of 25,000 population or over. The committee should be prepared to recommend to member companies how they can fit in and push forward the work of the local councils of the N. S. C.

Special Committee on National Reports

President Gadsden is naming a special committee on the Federal Electric Railways Commission report and also on the report of the public utilities committee of the Chamber of Commerce of the United States. This committee will be requested to make a report at the Chicago conference on February 10.

Electric Lines Not Under Railroad Labor Board

The United States Railroad Labor Board handed down a decision on Dec. 18 interpreting the Esch-Cummings transportation act to mean that the board does not have jurisdiction over any interurban or electric lines. Appeals from employees on various electric railways asking the board to hear their grievances were denied. The decision is said to affect every electric interurban line in the country, and many city transportation systems owned by interurban companies.

Arguments in the case were heard several months ago. Members of the board stated at the time their belief that, regardless of which side won, the matter would be appealed to the United States Supreme Court for interpretation of the transportation act.

The board held that the meaning of Congress in the transportation act was to exempt all electric lines "not operating as a part of a general steam railroad system of transportation." The fact that some electric lines haul freight, exchange cars with steam lines, operate in interstate traffic, or use in part the tracks of a steam line does not bring those lines within the provisions of the law, the decision says.

The board also points out that the Interstate Commerce Commission granted the interurbans a freight rate increase, but decided that it had no jurisdiction over the passenger business.

Senator Cummins of Iowa, chairman of the Senate Interstate Commerce Committee and one of the framers of the transportation act, is reported to have said that the decision of the Railroad Labor Board that the act did not apply to interurban electric lines was not in accord with the intention of the framers of the measure.

The hearings before the Railway Labor Board in Chicago have been referred to previously in the *ELECTRIC RAILWAY JOURNAL*, notably in the case of the Washington & Old Dominion Railway, reviewed in the issue of this paper for Oct. 9, page 730.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

Street Collection Successful

Front-End Fare Collectors Help to Handle Rush-Hour Traffic in Milwaukee

Success in expediting traffic during the evening rush hours at heavy loading points has been achieved by the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., through the employment of a number of front-end fare collectors. The company now utilizes for this purpose approximately twenty-five men, though this number varies somewhat with the season of the year and the extent of traffic handled.

The men are recruited from a number of sources. Some are engineering and college students working their way through school, a number are office employees of the company who find this a convenient way of supplementing their earnings. Some are men who have short runs, which they finish out by doing street duty, and the rest are men taken from the extra list. All men employed as front-end fare collectors receive special instruction.

SUPERVISOR AND COLLECTOR IN ONE

Since the Milwaukee Electric Railway & Light Company was one of the first companies in the country to employ front-end fare collectors some of the men have been performing this work for a number of years and have therefore become highly proficient. Such men when placed at important loading points really combine the duties of a supervisor with those of the front-end fare collector.

Collectors report at the car station nearest to their post to receive their fare box and other supplies. They then travel to their post in time to report to the dispatcher over the company dispatching phone system at 4:30 p.m. They remain on duty until 6:15 p.m., when they again report to the dispatcher and then return to the car station to turn in the fare box and account for tickets sold, etc. Though the work lasts from 4:30 to 6:15 p.m. collectors are paid the standard trainmen's rate for two and one-half hours; that is, an allowance for traveling time to and from the car station to point of duty.

The men are equipped with change makers and with locked, non-registering fare boxes which they carry over the shoulder by means of a leather strap. The boxes weigh approximately seven pounds. They are somewhat smaller and lighter than the similar boxes in use on the cars.

Upon reporting at his post a collector stations himself at the intersection in position to load through the front door the first car to arrive. He

calls the destination of the car, collects fares, makes change, sells tickets and issues transfers, just as do the regular conductors. When all passengers desiring to enter through the front door have done so the collector moves on to the rear door and assists the conductor in closing it. If a second car has arrived and is being loaded he similarly assists in the loading of the second car. At certain intersections switches have to be manually thrown. If a switchman or supervisor is not present the collector as a rule also acts as switchman.

The accompanying illustration shows a collector in action at West Water and Sycamore Streets, Milwaukee. This is one of the busy intersections in the city, six or seven car lines passing through



FRONT-END COLLECTOR AT WORK

it. It is taken care of at present by a front-end collector and a supervisor. Any one watching the men at work realizes how tremendously they help to speed up the traffic at this particular point.

New Grant Suggested at Findlay

To retain the local service of the Toledo, Bowling Green & Southern Traction Company, at Findlay, Ohio, a joint committee of the City Council and Chamber of Commerce as a street railway arbitration committee has taken up the task of drafting a service-at-cost ordinance. The railway has asked the Ohio Public Utilities Commission for permission to discontinue service. The committee will ask that the hearing be deferred again. It was to come up for final settlement on Dec. 17. The committee members feel that a compromise may be effected before that month expires. The report of the commission's appraiser, who valued the property, has arrived at Findlay, but its contents have not been made known.

Open Shop in Buffalo

Wage Increase Arbitration Broken Off by International Railway—Many Applicants for Employment

Owing to a pronounced change in business conditions since last spring, resulting in many applications for employment and a downward trend in wages in all lines, the International Railway, Buffalo, N. Y., announces it will proceed no further with the wage arbitration proceedings involving increases for its employees.

Herbert G. Tulley, president of the International, has made public a letter which Charlton Ogburn, New York, the third arbitrator, has sent to Governor Smith tendering his resignation. Inability of the company to get its employees to agree to terms of arbitration was stated by Mr. Ogburn as his reason for resigning.

Mr. Tulley says that although six months have elapsed since the company appointed its representative to the board there has been no indication of the acceptance of the conditions it laid down by the representatives of the men. The union employees have had no agreement with the International since the last wage contract expired April 30 last. The company now maintains it is running the railway on the open shop basis.

WAGE EFFORT FAILS

The principal condition of the International Railway which never was accepted by the men was that whatever wage increase, if any, was agreed to by the arbitration board should date from the time any fare increase was put into effect that was made necessary by a wage increase. The men always have insisted that the award, if any, should be retroactive to April 30, the date the old contract expired.

As a result of the changed business conditions, "resulting in many applications for employment and a downward trend of wages in all lines," and the resignation of Mr. Ogburn as the umpire on the board, President Tulley explains that "the company would not now be justified in proceeding further with the wage arbitration."

The resignation of Mr. Ogburn and the company's decision to withdraw from the arbitration proceedings mean the complete failure of the efforts of the union's representatives to secure a wage increase for the men.

Mr. Tulley says he will continue to operate on the open shop basis. There will be no discrimination against members of the union, but the general feeling is that the men will resign from the organization because they have found it can no longer be of assistance to them.

Labor Precedents Established

Kansas Court of Industrial Relations Hands Down Interesting Decision in Interurban Case

The nine-hour day is equitable for electric railway workers; Sunday work in electric railway shops is a necessary routine of this industry and not subject to over-time wage payments, and the number of men in freight crews on interurbans is a matter for foremen to decide. These are a few important conclusions of the Court of Industrial Relations for the State of Kansas. The decisions establish precedent. They were made with reference to the operation of the Joplin & Pittsburg Railway, contract features having been submitted to the court by the company and the employees.

TWO QUESTIONS CONSIDERED

In deciding against the eight-hour day for interurban railway trainmen, the court considered two aspects of the question—the interests of the men and feasibility of the eight-hour day plan in the operation of the railway. The work, the court found, was not such as to make a nine-hour day exhausting and the men were not deprived of social rights by such a day. The court had investigated the results which would follow the establishment of an eight-hour day for trainmen. A schedule was prepared on this basis, supposing operation of trains for eighteen hours a day, and it was disclosed that the reduction of the hours per day to eight would involve an additional expense of \$25,000 a year for the company. This expense could not be borne, the court said, without curtailment of service to the public, or reducing of wages.

SUNDAY WORK NOT PROFITABLE

Clyde Taylor presented the facts and arguments for the company at the various hearings. He laid stress on the fact that interurban service required seven-day operation of the shop, in order that equipment might be in usable and proper shape for accommodation of patrons. The company, he had pointed out, did not profit by Sunday work in the shop, and it should not be penalized, by being required to pay higher wages for its essential and routine operation of the shop on Sundays. The court took this view, stating that "it is not proper to penalize the company for Sunday work which is absolutely necessary."

REQUEST REFUSED

The request of the men for a ruling requiring the use of three men on freight car strings of three cars or more is denied, on the ground that the employment of three men would serve no public benefit, but would be an unjust burden on the company, to be reflected later in poorer service or lower wages.

An interesting feature of the opinion of the court is that in reference to car-house men on an eight-hour basis. Sev-

eral months ago the men, who are paid by the hour, asked that the ten-hour day be reduced to eight. The company acceded, the men receiving pay of course for only eight hours. In these eight hours, as the company stated, the men had done the same amount of work that they formerly did in ten. The court, therefore, said that the men should receive pay for ten hours—a finding acceptable to the company. The increased efficiency, company representatives said, naturally warranted the larger wage.

THE COURT'S DOUBLE FUNCTION

The opinion in this case is providing persons favorable to the present organization of the court, with illustration of the advantage of this method of handling industrial cases. It is observed that the court, in considering the matter of Sunday work for electric interurban companies, the employment of a larger number of men than customary on freight car handling, and the readjustment of hours of labor, looked at the problem judicially from its position as a Public Utilities Commission and also from its position as a Court of Industrial Relations. It weighed the interests of the public, the interests of the men, and the ability of the company to continue uninterruptedly in the service of the public under conditions of employment such as were requested.

ADJUSTMENT REACHED AMICABLY

Throughout the hearings, there was no element of controversy or hostility, no effort to gain a present advantage as an offset to possible detrimental findings by another body. All of the equities of the situation were handled by the one court, in Kansas, in the one series of hearings, and the one program of investigation of conditions by accountants and representatives of the court.

New Subway Bond Issue Planned

Transit Construction Commissioner John H. Delaney of New York City has submitted to the Board of Estimate an application for a new bond issue of \$25,981,000 to provide for carrying on construction work upon the city-owned rapid transit system during 1921. Of this amount more than \$11,000,000 is for the Interborough system and more than \$14,000,000 for the New York Municipal Railway (B. R. T.). The chief item for the Interborough is the extension of the Steinway Tunnel route from Queens westward from Lexington Avenue under Forty-first Street to Seventh Avenue, for which \$4,300,000 is asked, and also for the acquisition and construction of storage yards and repair shops in Brooklyn, Queens and the Bronx, \$4,250,000. The work planned for the B. R. T. includes \$8,200,000 for the subway from the Municipal building south under Nassau and Broad Streets to Whitehall Street and \$6,100,000 for the Bushwick-East New York section of the Fourteenth Street-Eastern District Subway line.

Toledo Meeting Jan. 20

Directors of Toledo Railways & Light Company Will Then Ratify Transfer of Property

It appears quite certain now that the board of control of the electric railway system under the Milner cost-of-service ordinance at Toledo, Ohio, will make a selection of commissioner and that the company will be prepared to turn over its property to the new Community Traction Company so that the ordinance may go into effect on Feb. 1.

The matter of the personnel for the new operating company has not been determined, but it will probably be announced immediately following the meeting of the stockholders of the Toledo Railways & Light Company, on Jan. 20, 1921. At that meeting the matter of ratifying the cost-of-service agreement will be taken up and finally passed upon.

NEW PERSONNEL LIKELY

It is expected that Frank R. Coates, president of the Toledo Railways & Light Company, who has been in Toledo in that capacity for more than nine years, will remain as president of both the Community Traction Company and the Rail-Light. That is the only office which may be held in both companies by the same individual. There must be a separation of all other offices.

In the work of separating the properties many difficulties have been encountered. The Doherty interests at Toledo have many diverse lines operating under one holding company and interchanging equipment and labor in various ways.

A method of financing maintenance and improvements in use for the last four years will also cease when the cost-of-service plan goes into effect. During litigation between the city and the company in the federal court Judge John M. Killits set up a fund into which the Rail-Light was compelled to pay weekly 6 per cent of its gross passenger revenues. The fund was called the Craig Fund after its administrator, Captain John Craig. The first payments were made into the fund April 18, 1916, and it has been in operation ever since that time. Fares had advanced twice since that time, but the fund has never been able to catch up with the moneys expended for new cars, track improvements and other service betterments.

CRAIG FUND RESULTS

The federal court will soon issue an order winding up the affairs of this fund. The maintenance and betterments will be automatically cared for in the working of the new plan.

Professor Henry Riggs, of the civil engineering department of the University of Michigan, did not come to Toledo to consult with the street railway board. He merely wrote a letter indorsing two or three candidates who had applied for appointment to the office of commissioner under the new franchise grant.

Wage Reduction Conference Suggested

Detroit United Railway Suggests that Wage Scale Be Reduced in Keeping with Commodity Price Cuts

E. J. Burdick, assistant general manager of the Detroit (Mich.) United Lines, has informed the Amalgamated Association of its intention to move for a reduction in the pay of platform men to be effective on Jan. 1, such reduction to be in line with the lower cost of living now effected. Mr. Burdick explains that the administrative officers have voluntarily submitted to a substantial reduction in their salaries and that forces in other departments have been reduced in numbers. The management has resorted to every possible economy, but owing to an unprecedented decrease in travel the income of the railway has been so reduced that nothing that has been done or can be done will overcome the daily losses that are accumulating. The president of the local division of the Amalgamated has replied to Mr. Burdick with a copy of the resolution adopted at a joint meeting of all the employees affected. This resolution was concluded to the effect that the officers of the divisions are requested to see that the company "observes and lives up to the contracts as the laws of our association require."

THE present scale in Detroit is 70, 73 and 75 cents an hour. The outcome with respect to the proposed wage reduction appears to be uncertain, as the union by its action has closed the door for the time being at least to any conferences. With the knowledge that throughout the country other wage scales have gone down or will go down when factories reopen, it is expected that the railway employees will realize that they cannot remain a favored class at the expense of the car riders whose pay is being cut.

Mr. Burdick's letter to the union follows:

The company's situation is now such, due to the extreme burden of costs under which it is now and has been doing business, that a readjustment of its burden must of necessity be made.

During the period of the war, as you well know, the company was refused any relief by the public authorities, in consequence of which its burdens increased and accumulated, and the recent slight relief afforded is greatly offset by the increase granted in the pay of employees.

To sustain this increase in pay, the management has resorted to every possible economy, but, owing to an unprecedented decrease in travel, its income has been so reduced that nothing that has been done or can be done in that way will overcome the tremendous daily losses that are accumulating.

Forces in other departments have been reduced in numbers and in working hours, as much as seems wise, and the company's administrative officers have voluntarily submitted to a substantial reduction in their salaries.

While we regret the necessity for such action, it is none the less imperative that a further substantial reduction in the cost of operation be effected, and accordingly we must hereby give you notice of our intention to move for a reduction of the pay of platform men, to be effective Jan. 1, next, such reduction to be in line with the lower costs of living, now effected—say, 20 per cent.

It occurs to us that you may deem it advisable to acquaint your members with this situation, and to discuss the matter with us without delay, in the hope that an amicable agreement may be reached without resort to arbitration.

In the resolution in reply to the company the men say:

Resolved, that we, the motormen and conductors in the employ of the Detroit United Railway System, do hereby instruct the joint officers of our three divisions to wait upon the officers of the company and to inform them that upon the part of their employees we are surprised at the action that they have taken and to point out to them that they have agreements with our respective division associates which specifically provide for the wage and provide when and how it shall be changed and that for the company to attempt to change this wage on Jan. 1, 1921, would be a flagrant

violation of the contract that they have with our respective divisions.

The officers of the union are then instructed with respect to the specific clauses in the present agreement between the railway and the men that should be called to the attention of the officers of the railway. The resolution is concluded as follows:

Then call their attention that while the agreement with Division No. 26 does not state any specific date of opening, that it was an understanding which has existed for some time that this agreement shall be opened once a year and has always been opened at the same time that the other divisions' agreements just quoted, and the present scale of wage was agreed to in May, 1920, jointly as was in all these other agreements and that, therefore, any reduction in the wage of any of the membership of these three divisions on Jan. 1 would be a violation of the contract that has existed for years between our respective divisions and this company, and that upon the part of the employees we protest and will not agree to accept any reduction of wage or any change in these agreements so long as they are in force and binding upon membership and the company.

The officers of the joint divisions are requested to carry out the above instructions and to see that the company observes and lives up to the contracts as the laws of our association require.

In a statement which he made Mr. Burdick said that unwarranted statements from whatever source do not and cannot alter the great fact that the Detroit United Railway's receipts have not been, and are not now, sufficient to meet all proper cost obligations and that a material readjustment in the way of decreases in wages and some increase in the rate of fare are both vitally necessary in order for the company to continue serving the people. He said:

Our records are open to competent investigation by anybody before which all of the facts may be brought forth and will be found fully to justify what I have said.

When wages of motormen and conductors were advanced from 50 cents, 55 cents and 60 cents to the present scale of 70 cents, 73 cents and 75 cents—increases ranging from 25 per cent to 40 per cent—in order to meet the growing cost of living, it was patent to all that, facing the same living conditions, other employees had also to be advanced. This was pointed out in the company's letter to the Common Council of May 24 of this year.

To provide the necessary funds the company at that time asked for an increase of 1 cent in the fares, making the rate flat 6 cents, or if more convenient to the public a combination cash and ticket fare producing practically the same financial result.

When in the hearing before Judge Jayne it was agreed to try out a 6-cent cash fare with nine tickets for 50 cents it was done because of an assurance that in or connected with a suit before Judge Jayne a

just and lawful rate of fare would be established. The accepted rate was substantially less than we were confident to be necessary to meet all proper and necessary costs of conducting the system. This need existed with all due allowance for a continuing increase in business. That increase has stopped. It has not only stopped but we have gone backward.

Our passenger receipts for the month of December are below those of the same period of last year, and that decrease is getting worse every day. But during this same period of decreased income our expenses, including wages, have been in excess of those of a year ago.

With our income decreasing and with certain fixed charges, such as taxes, that cannot be cut and with other necessary obligations it is clear to all who have made a study of the situation that reductions in salaries and wages of the men cannot go far enough to meet the loss and that even with these reductions in the pay-roll a small raise in the fare is necessary to continue operation. It is impossible to render service much longer under present conditions.

The great reduction in the number of people riding has resulted in some reduction in the amount of service, but the saving through this cannot be made proportionate with the reduction in receipts. We cannot shut down and stop expenses like other lines of business, but we can be stopped for lack of money to go ahead.

As stated in our letter to the motormen and conductors the executive officers of the company have taken a reduction in salaries. Following a conference of department heads Saturday morning, reductions in salaries of all departments were decided upon in order to help through a serious situation. It is, of course, only proper that wages of motormen and conductors—their combined wages consisting of the largest single item of expense—must also come down. Any other action would result in too great a burden on the riding public.

Our situation with respect to the inter-urban lines is similar to that within the one-fare zone. The fare increases granted by the State Legislature have not resulted in giving the company a sufficient income. While the fare was fixed at 2 cents a mile, the exemption of cities and the territory within 5 miles thereof have brought the average rate per mile to considerable below the 2-cent rate.

In the endeavor to bring about a proper readjustment of the transportation situation we most respectfully ask of the people and those in authority a calm and earnest consideration of the matter. We are doing everything in our power to keep the wheels turning, but I am very frankly stating that a readjustment is needed and is needed speedily. It is not a political but a business problem that confronts all of us.

Utilities Need Funds

Jacob H. Schmuckler, writing for the *Financial World* on the subject "The Interesting Status of Utility Bonds," says "we shall undoubtedly see large public utility flotations for years to come." He regards this as a favorable sign. On the matter of earnings Mr. Schmuckler says the monthly net earnings figures, so far as they are available, indicate improvement compared with corresponding periods last year. In regard to financing for the future the author says:

The public utility properties of this country need a great deal of new funds, and need them badly. These are necessary not only to put present properties in good condition but also to expand them to care for the requirements of the various communities throughout the United States. We shall undoubtedly see large public utility flotations for years to come.

On first blush these flotations may strike us as an unfavorable factor, but in reality they are favorable, if only the money can be raised for the funds will be used to put the properties on a plane of high operating efficiency and will permit the expansion demanded.

The services rendered by the utility companies are necessities, and once net earnings improve to the point where they will be sufficient to cover interest charges with liberal margins and will enable the properties to be taken care of as required the problem is solved.

\$500 Awaits You

This Liberal Reward Is Offered for Solving Seattle Municipal Railway Problem

The Seattle *Daily Times*, the leading newspaper of the city, has established a novel contest, dealing with the problem of municipal operation of the city's railways. The contest provides a prize of \$25 each week for the best solution of the present railway situation and suggestion for rehabilitation of the lines presented by a citizen of Seattle.

The weekly prizes will be offered for twelve successive weeks. At the end of that time the author of the best of the twelve weekly prize-winning letters will receive an additional prize of \$200. The management of the *Times* is to be the sole judge throughout the contest.

In the event that the final prize winner's plan, complete and unchanged, is adopted and put into effect by the City Council, or other constituted authority, within two months of the announcement of the prize award, an additional \$300 will be paid the author of the plan, provided the plan is kept in operation for a period of six continuous calendar months. Furthermore, in the event any other plan submitted in the contest and published by the *Times* other than the plan picked by the *Times* is adopted by the city, as above, a special prize of \$100 will be paid the author.

No Seattle newspaper ever before made so ambitious an attempt to poll popular sentiment on a matter of this kind. It is pointed out by the management that this is a "community problem"; that the Mayor and the City Council and the street car executives are all working on it and seeking relief, and it is intimated that some citizen of Seattle, now engaged in public life, may have hit upon a satisfactory solution.

The contest has aroused a great deal of interest by the public. Six to eight letters are published daily in the columns of the *Times*. Some fantastic and impractical solutions have been suggested, but most of them indicate that patrons of the railway have devoted earnest thought to the transportation question. Most of the letters agree that the jitney bus must be eliminated. Many suggest that the fare be left as it is, or reduced, and the expensive transfer abolished or be issued only upon additional payment.

Chicago Traction Commission Report Said to Be Completed

The plans of Mayor Thompson's traction commission for the construction of a subway system in Chicago and the creation of a local transportation district governed by five trustees are reported to have been completed at an executive session of the commission on Dec. 20.

The Mayor is said to have put his unqualified approval upon the eight months' work of the commission's lawyers and engineers. The plans are in the hands of the printer. They are

expected to be made public within the next week or two.

It is understood that George W. Jackson, the commission's subway engineer, recommended two subway plans. The one approved by the commission includes two lines radiating diagonally southeast and northwest from the loop district under Ogden Boulevard and Milwaukee Avenue, respectively. The other scheme contemplates the building of 18 miles of subway and underneath Ashland Avenue, which is a north and south street not passing through the loop, to run from Lawrence Avenue on the north to Sixty-third Street on the south, with a main tube under Madison or Washington Street connecting this to the loop.

News Notes

One-Cent Ride Over Bridge.—Shuttle service over the Williamsburg Bridge, New York, at a 1-cent fare is a new plan suggested by Grover A. Whalen, commissioner of plant and structures. The 1-cent fare seems unlikely, but there is possibility that the charge for the trip will be three tickets for 5 cents.

Speakers' Bulletin No. 4 Issued.—The Illinois Committee on Public Utility Information, Chicago, has issued Speakers' Bulletin No. 4, the fourth of a series of printed pamphlets designed to supply information and give suggestions to those who would speak in behalf of the public utilities. Bulletin No. 4 deals with the subject of the "regulation of public service companies—just and reasonable rates."

Service-at-Cost a Real Success.—A unique service-at-cost scheme has been put in operation in Dallas, and according to all reports this plan has been successful. The "rolling stock" consists of non-perishable groceries. "Replacements" of bacon, flour, etc., are in the hands of Conductor Woodson, with Mrs. Woodson assisting in the operation of the business. This co-operative cafe-grocery was opened on Nov. 15 at the East Dallas carhouse. The plan behind it is service-at-cost. The cafe-grocery was established as a result of the insistent demand that employees be relieved of the necessity of patronizing inferior places where high prices prevailed. Purchases are limited to company employees and their families. In discussing the new enterprise Mr. Crampton, superintendent of the safety and efficiency department, said: "The cafe-grocery is operated wholly in the interests of employees. No effort will be spared to make its service of the highest quality and at the most economical cost."

Algiers-Gretna Men Again on Strike.—The conductors and motormen of the South New Orleans Light & Traction

Company, New Orleans, La., operating between Algiers, Gretna and several small towns on the upper side of the Mississippi River, have gone on another strike for an increase in wages. This is the second strike of the men in six weeks. On Nov. 1 the men struck, but returned to work on Nov. 24, under a retroactive wage agreement. At that time a committee named by the Jefferson Parish Police Jury investigated the finances of the company to find out if it should be permitted to increase its fares. The decision was not in favor of the company and accordingly it refused to pay the 45 cents an hour which the men are demanding. The employees involved, about seventy in all, have refused a wage scale equivalent to \$96 a month, alleging that it will be impossible for the officials to obtain competent men at that price. The new district attorney and the legal adviser of the police jury of Jefferson Parish have been asked to take steps to bring action against the company to forfeit its franchise.

Christmas Bonus in Los Angeles.—Approximately \$60,000 was received by trainmen of the Los Angeles (Cal.) Railway as a Christmas bonus. The awards were made on Dec. 15. They marked the first payment under the company's merit system, established last April. The amount of bonus received by each trainman was based on his efficiency record. A rating of 100 per cent or better each month brought a bonus of \$5 for that period so that \$40 was the maximum for the eight months the merit system had been in operation. All trainmen who had been with the company six months participated, the total number being approximately 1,500. Of these 90 per cent received the full amount. The merit system of the Los Angeles Railway was established by G. J. Kuhrts, general manager. It is known as the Kuhrts plan. Records are kept of every trainman. Demerits are assessed for discourtesy, careless operation and other offences, but they can be counterbalanced by credits which are awarded for commendations.

Programs of Meetings

Central Electric Traffic Association

The Central Electric Traffic Association will hold its annual meeting in Toledo, Ohio, on Jan. 19 and 20.

Central Electric Accounting Association

The Central Electric Accounting Association will hold its meeting in Dayton, Ohio, on Jan. 22, 1921.

Central Electric Railway Association

The Central Electric Railway Association meeting will be held on Jan. 27 and 28. The place has not yet been decided upon and the program is not definitely arranged.

Financial and Corporate

Purchase Vote Jan. 1

Council Accepts Offer of Mackenzie Interests for Sale of Light Plant and Radial Railway

The City Council of Toronto, Ont., has accepted the proposal for the sale of the Toronto Electric Light Company and the Toronto & York Radial, Metropolitan and other railway lines within the city limits. The balance of the properties are acquired on behalf of the city of Toronto and all other Ontario municipalities embraced in the hydro-electric power and radial systems. The necessary by-law providing for \$10,000,000 of bonds, being the city's share of the purchase price, will be submitted to the ratepayers at the municipal elections on Jan. 1.

The by-law providing for the raising of \$500,000 for the use of the Transportation Commission to purchase and operate motor buses was withdrawn, as it is understood that the necessary legislation has been promised by the Ontario Government without the necessity of obtaining the sanction of the ratepayers.

DINNER TO SIR ADAM

After the Council had adjourned an informal dinner was tendered to Sir Adam Beck by the Council at the King Edward Hotel, when he was presented with a magnificent loving cup. At the dinner Sir Adam Beck predicted that the 1,000,000 hp. which will be the capacity of the Niagara plants when the Chippawa development is completed will be entirely absorbed within a reasonable number of years.

In connection with the railway question, Sir Adam stated that a single fare is to be established on the Scarborough and Mimico divisions of the Toronto & York Radials. Yonge Street through North Toronto is to be improved and the Metropolitan section on that street is to be double-tracked. An up-town terminal for the Hydro-radials is to be acquired at a point near the city hall. Passengers coming into the city from the Scarborough division would be enabled to transfer on the one fare to the proposed fast line to be constructed along the water front on the property of the Toronto Harbor Commission.

It is understood that the city of Toronto alone acquires the plant and properties of the Toronto Electric Light Company and also that section of the Metropolitan Division of the Toronto & York Radial Railway's line lying within the city limits on Yonge Street.

The purchase price of the Toronto Electric Light Company's distribution system within the city is \$7,226,295 and the price of the Metropolitan line is \$585,000, making a total of \$7,811,295,

which is to be paid for by the assumption by the city of Toronto of 6 per cent bonds against the property of the Toronto Electric Light Company to the extent of approximately \$840,000 and the issue by the city of 6 per cent bonds to the extent of the balance.

The city of Toronto, however, is to transfer to the Hydro-Electric Power Commission the right-of-way and physical assets it now owns with the city

\$6,234,141 Knoxville Value

Investigating Engineers Report This Amount to Tennessee Commission as Historical Cost

The report on the appraisal of the property of the Knoxville Railway & Light Company, Knoxville, Tenn., prepared in accordance with order of the Tennessee Railroad & Public Utilities Commission, was filed on Dec. 19, 1920.

TWO APPRAISERS FILE JOINT REPORT

The appraisal was made by Albert S. Richey, representing the State, and J. H. Perkins, representing the company. The city of Knoxville also had a representative, W. H. Weiss, but he failed to concur in the report as filed

OVERHEAD COSTS OF KNOXVILLE RAILWAY & LIGHT COMPANY

	Original Cost Railway, per Cent	Lighting, per Cent	Reproduction Railway, per Cent	Cost Basis Lighting, per Cent
Engineering and superintendence	6.0	6.0	7.5	7.5
Franchises	0.25	0.25	...	...
Law expenditures	0.50	0.5	1.0	1.0
Interest during construction	5.0	5.0	8.0	8.0
Injuries and damages	0.5	0.5	0.5	0.5
Taxes	0.35	0.35	0.35	0.35
Miscellaneous before construction	5.0	4.0	5.0	4.0
Miscellaneous during construction	2.0	1.0	2.0	1.0
Working capital	\$165,000	\$160,000	\$165,000	\$160,000
Cost of financing	\$255,508		\$533,787	
Development cost on 7 per cent return	\$314,268			

on the Kingston road to the Woodbine and on the Lake Shore road from the Humber River to Sunnyside.

It is expected that the necessary by-laws will be at once prepared and submitted to the ratepayers of Toronto at the municipal elections on Jan. 1 next.

All the other properties are acquired by the commission for and on behalf of the city of Toronto jointly with all the other municipalities who now own the Ontario hydro-electric power system of generation, transmission and distribution.

Abandonment Authorized

The Ohio Public Utilities Commission, on Dec. 16, issued an order authorizing the Southeastern Ohio Railroad to abandon its tracks and discontinue its service in Zanesville, Ohio, from Sixth and North Streets in that city to the Mill Run station of the Ohio River & Western Railway, a distance of approximately 1 mile. The order is effective Dec. 31 and follows the application of the company for such authorization.

The finding of the commission was as follows:

1. That said tracks have been in operation for more than five years next preceding the date of the filing of the application herein.

2. That the service upon said division was maintained during the fiscal year ended June 30, 1920, at an actual operating cost of \$11,318; that the revenues arising from the operation of said division during said period was \$8,533, and that the actual deficit for operating said division during said period was \$2,782.

3. That the continued operation of said division would jeopardize the successful operation of remainder of the applicant's system.

by the other representatives. It is understood that he will prepare a separate report.

The engineers representing the State Commission and the company found that the value of the property based on an inventory as of July 1, 1920, was \$6,234,141, under the original or historical cost basis, divided \$4,203,247 to the railway department and \$2,030,894 to the lighting department. Exclusive of unamortised superseded property, which was found to be \$554,207, the investment totals \$5,679,934, of which \$3,738,351 is credited to the railway and \$1,941,583 to the lighting department.

On the reproduction cost basis, using prices current during the first six months of this year, with a deduction for accrued depreciation or lack of newness, so called, amounting to \$1,967,522, the value determined upon was \$10,362,964, of which \$6,992,986 was found to be represented by the railway and the balance, \$3,369,978, by the lighting department.

STATEMENT OF HISTORICAL VALUE

The historical or investment value found checks within 2.35 per cent of the actual money put into the property by the present owners. The actual expenditures since acquisition Sept. 1, 1905, total \$6,087,600, divided as follows: at the time of acquisition, \$1,770,950; underlying securities assumed, \$1,150,000; property additions from that time to the date of appraisal, \$3,166,650. Additions to the physical bases under each of the two methods used were made for the usual overhead expenses in addition to superseded property as shown in above table.

The engineers also found that to bring the property into a state of normal operating efficiency as of July 1, 1920, it would take an additional ex-

penditure of \$235,000 in the railway and \$45,000 in the light department.

The State Commission in its order had requested that a segregation be made of the renewable or depreciable property to determine the proper allowance for renewals and replacements. The engineers found that the original cost of the renewable property was \$4,012,420 and that on the reproduction basis it would be \$8,422,596.

REPLACEMENT ALLOWANCE SHOULD VARY

The engineers believed that \$150,000, or approximately 3.75 per cent of the cost of renewable property, would be a proper annual allowance for the renewal and replacement reserve. However, they stated that such annual percentage allowance should be varied from time to time so that the reserve may never be greater than 6 per cent nor less than 2.5 per cent of the original investment in renewable property of the company.

Suit for Restoration Brought at Columbus

Pages in the past history of the Columbus Railway, Power & Light Company, Columbus, Ohio, were turned back and aired on Dec. 7, in the courts of Franklin County, when a cross petition was filed in the Augusta Slaymaker suit, which was originally brought some time ago, by the present board of directors of the company.

Unlawful diversion and misuse of corporation funds are charged in the cross petition, which, as in the Slaymaker original petition, is directed against all the old directors of the company, but more specifically against the E. W. Clark Company, the E. W. Clark Management Corporation, Clarence M. Clark and their associates.

The Slaymaker suit sought to compel an accounting from the Clark interests. The case was filed in January, 1919, and is now proceeding before a master commissioner in the county courts. Through the cross petition the present directors of the Columbus Railway, Power & Light Company hope to recover the sum of \$3,728,952.

The cross petition avers that at the dictation of the Clarks and their representatives the company tried to surrender its franchise and that this action cost the company \$209,032 in revenue because many persons refused to pay fares. Other charges are made in the bill.

Almost coincident with the filing of the cross petition the Columbus Street Railway Home Rule Association, of which former Mayor George S. Marshall is president, announced that steps were being taken toward submitting to the Legislature a bill which would, if passed, terminate so-called perpetual franchises, such as the Columbus company claims to hold with respect to several local lines. The association would have the perpetual franchises terminated at the same time the blanket franchise held by the company expires on March 4, 1926.

Underlying Companies Win

Superior Court Decides Commission May Not Interfere with P. R. T. Rentals to Subsidiaries

The Superior Court of Pennsylvania, as noted briefly in the *ELECTRIC RAILWAY JOURNAL* for Dec. 18, page 1261, has handed down a decision practically denying the right of the Public Service Commission to concern itself with the question of the rentals paid by the Philadelphia Rapid Transit Company to its subsidiaries.

THE COMMISSION ORDER DENIED

The opinion in the case was written by Judge Head. He denies the order of the commission requiring the underlying companies to file answers to averments made by the United Business Men's Association with regard to the rentals of the underlying companies. The court said:

The contracts in question cannot be attacked before the administrative body with the avowed end of having the rentals therein provided reduced to such sum as the Public Service Commission may determine should have been the rentals provided for. A very learned argument was advanced by one of the counsel for the intervening appellee to prove that all, or nearly all, of these leases were absolutely void because the makers of them, themselves being lessees, had exceeded their lawful power in fixing the terms of the lease. Such an argument might well be addressed to the highest court in the land, and it seems manifest that a decree, striking down these leases on the purely legal grounds advanced in the argument, would be an exercise of the highest judicial power and authority. We are unable to perceive how it can be seriously urged that upon the complaint pending before the commission, that administrative body could be successfully asked to enter a judicial decree of the magnitude and character indicated.

The commission has ample power, without doing violence to any legal principles, to compel the rendition of adequate service at fair rates over the property owned by the appellant companies, and there may come a time soon, without attempting to overstep its power, when it may with propriety take action, the result of which would very seriously affect the rentals under the contracts in question. But, as we view the case no ground is presented here for the action of the commission sought for in the complaint filed.

We are of the opinion the order complained of was unreasonable and unnecessary, and that as to the present appellants the complaint of the intervening appellee (United Business Men's Association) should have been dismissed. A similar order to the one we now enter will be made in each of the other appeals.

CONTRACTS SECURE FROM INTERFERENCE

On the one hand, the court said it was not prepared to accept as sound the broad proposition of counsel for the appellants that the Public Service Commission has no jurisdiction over the underlying companies. On the other hand, the court said that the Public Service Commission, in ascertaining a fair value of the property of the Philadelphia Rapid Transit Company, should not necessarily be obliged to consider the private contracts between the operating company and its lessors, the owners of the property. On this point the court said:

As between the parties who made them these contracts are as secure from interference as those of other citizens. But the public was no party to those contracts and no stipulation therein contained, for the benefit of one or the other of the parties thereto, can deprive the public of its paramount right to reasonably adequate service at a reasonable rate.

In September, 1919, the Cliveden Improvement Association filed complaint with the Public Service Commission that the Philadelphia Rapid Transit Company was seeking to have its rates of fare increased when such increase was not necessary. It desired the commission to prescribe a 5-cent fare, with universal free transfers in all sections, and that an order be made on the company to set aside certain sums annually for maintenance or renewal of the facilities of the company to enable it to render adequate public service. Further, that the company be ordered to expend a sum of \$1,000,000 yearly on extensions, until all of the city had adequate service. An answer was filed by the operating company.

In February, 1920, the United Business Men's Association asked leave to intervene and filed a new complaint alleging inability of the railway to render adequate service at reasonable rates, resulting from the fact that it was but lessee of most of the property it operated and by reasons of terms of underlying companies it was compelled to pay exorbitant rentals to the underlying companies, the real owners. The association asked that the commission inquire into the fairness of these terms of their agreements with the transit company and their leases, and, if necessary, reduce the rentals.

More Than \$1,000,000 for Taxes Alone in Cleveland

Increased taxes are going to take a considerable part of the gross receipts of the Cleveland (Ohio) Railway and of other public utilities operating in Cleveland, according to figures just made public by John A. Zangerle, Auditor of Cuyahoga County.

As a result of an increased rate, approved by the voters at the November election, the Cleveland Railway will have to pay \$70,943 more on its real estate and personal property this year than it did a year ago.

This increase will fall upon the Cleveland Railway in spite of the fact that the company's valuation has been reduced more than \$4,000,000 by the State Tax Commission. The valuation on which the company will pay its taxes in Cleveland this year is \$26,657,850. The total county taxes paid by the company for this year are \$649,413. Including the state excise tax of 1.2 per cent, and the federal income tax, the Cleveland Railway's total tax bill for 1920 will exceed \$1,000,000.

In all, by reason of the increased tax rate and higher valuations, public utility companies in Cleveland, exclusive of steam railroads, will have to pay \$532,783 more taxes on their real estate and personal property during the coming year than they did during the past year. Of this sum the Cleveland Electric Illuminating Company alone will have to pay \$231,023.

Judge Keller, who dissented, said that the appeals of the underlying companies should be quashed, as the order to answer made by the commission "is not such a finding as may be appealed from."

Only 74 Miles Left

Shore Line System of 246 Miles Reduced Through Abrogation of Leases and Sales

Many changes have been made in the corporate affairs of the Shore Line Electric Railway, Norwich, Conn., under the receivership. These changes, coming singly and at intervals separated sometimes by months, have naturally left some doubts as to the present status of the company.

The road originally consisted of 246.28 miles, both owned and leased. Of these the leased lines, consisting of 107.45 miles, were operated by the receiver for six months and then turned back to the Connecticut Company by annulling the lease.

EFFORT TO RESTORE PART OF LINE

Of the original system the receiver on Dec. 12 was operating 74.17 miles. In the case of 64.66 miles the track material has been sold to be dismantled and about 8 miles have actually been dismantled. An effort is now being made by the people along the line to purchase the track material from the second-hand dealers to whom it was sold and to purchase from the receiver the other part of the property necessary to continue operations on 47.61

The outstanding capital stock at the time of the receivership was \$1,000,000; the funded debt, \$6,700,000, and the floating debt, \$1,600,000, this sum including matured interest and rent unpaid.

P. R. T. Shows Surplus for November

In its report for November, 1920, the Philadelphia (Pa.) Rapid Transit Company shows a total operating revenue of \$3,726,376 or 22 per cent over the corresponding month last year. With expenses including payment of full wages for the month the operating income is \$1,192,200 against \$1,032,844 for November, 1919. After deducting fixed charges the net income amounts to \$372,926 and subtracting a 5 per cent return on P. R. T. stock the company shows a surplus of \$247,926. In its eleven months' operation the net income decreased 49 per cent over the same period a year ago. In submitting its report the company makes the following comment:

"The November net income \$372,926, as shown, is larger than will be the monthly income during the six-month period of the fare authorization to April 30, 1921; the coming winter months, January to March, represent

INCOME STATEMENT PHILADELPHIA RAPID TRANSIT COMPANY

	1920	1919	Percentage Change Over 1919
Month Ended Nov. 30:			
Operating revenue.....	\$3,726,376	\$3,055,953	22.0
Operation and taxes (Includes payment of full wage scale for the month).....	2,589,132	2,065,139	25.2
Operating income.....	\$1,137,244	\$990,814	14.7
Non-operating income.....	54,956	42,029	30.7
Gross income.....	\$1,192,200	\$1,032,844	15.4
Fixed charges.....	819,273	813,854	0.7
Net income.....	\$372,926	\$218,989	70.5
5 per cent return on P. R. T. paid in capital—One month.....	125,000		
Surplus.....	\$247,926		
Eleven Months Ended Nov. 30:			
Operating revenue.....	\$34,917,705	\$32,216,937	8.4
Operation and taxes.....	25,594,733	22,094,180	15.9
Operating income.....	\$9,322,972	\$10,122,756	-7.9
Non-operating income.....	531,266	483,341	9.9
Gross income.....	\$9,854,238	\$10,606,098	-7.1
Fixed charges.....	8,995,932	8,923,349	0.8
Net income.....	\$858,306	\$1,682,748	-49.0
Deferred wage adjustment—Period to Oct. 31.....	\$903,735.84		
5 per cent return on P. R. T. paid in capital—Eleven months.....	1,375,000.00	2,278,735	
Amount by which gross revenues are insufficient to provide for operating expenses, taxes, fixed charges, and the 5 per cent return upon P. R. T. stock.....		\$1,420,429	

miles of track or, to be specific, that portion of the road between New Haven and Chester.

The Shore Line Electric Railway went into the hands of R. W. Perkins as receiver on Oct. 1, 1919, by petition of its stockholders. The same receiver was later appointed under an action brought by the trustee under the mortgage, the two causes being joined. There has been no foreclosure sale, but the property is in process of liquidation. No receiver's certificates have been issued.

the period of lightest travel and heaviest expense. The net income for November, \$372,926, will, it is expected, be increased during the six-month period to April 30, 1921, to a net income of about \$1,000,000, nearly all of which amount will be necessary to pay the back wages of the men in the train service."

Net income \$858,306, as shown, includes \$485,379, net income January-October, inclusive, which was expended in improvements to cars, center exits, etc.

Financial News Notes

Receiver for Vermont Road.—H. J. Volholm, retired merchant and trustee of the Capitol Savings Bank & Trust Company, has been appointed receiver for the Barre & Montpelier Traction & Power Company, Montpelier, Vt., on the petition of the Westinghouse Electric & Manufacturing Company and others. Under the order of the chancellor cars will be run at least until Jan. 3.

South Morgantown Life Taken Over.—The Union Traction Company, recently organized by Morgantown citizens, has taken over the lines formerly operated by the South Morgantown Traction Company and expects to operate such lines in the future. The new company has a capital stock of \$50,000. The incorporators were James H. McGrew, A. J. Barlow, Frank Cox and George C. Baker.

Subsidy Defeated at Gloucester.—The outstanding issue of the recent election at Gloucester, Mass., was whether or not the voters would accept or reject a proposition to pay not less than \$20,000 annually if a deficit should ensue for operating the Eastern Massachusetts Street Railway between Rocky Neck and Lanesville. This service was cut off on June 20 and jitneys were substituted. The proposition was rejected, 4,492 voting against it and 1,001 voting yes.

Tacoma Municipal Road Still Losing.—The Tacoma (Wash.) Municipal Railway showed a deficit of \$4,614, for the month of October, according to a report recently filed by City Comptroller John M. Roberts to the City Council. The road failed to pay operating expenses by \$1,566, to which is added charges for interest, depreciation and gross income tax. The deficit during the operation of the line now totals \$137,944, of which \$29,516 is for this year's operation. The operating revenues for October were \$11,624 and the operating expenses were \$13,191.

Order Sought to Sell Road.—Judge Mouser has approved a report from George Whysall, receiver of the Marion (Ohio) Suburban Railway, of date of Dec. 6, wherein the receiver asks the court for authority to dispose of the property of the company at the best price obtainable. The court has ordered the receiver to have the property appraised and sold to satisfy a judgment for \$329 obtained against the company in the court by Charles W. Leffer, and others, Sept. 11, 1920. The receiver states that in his opinion there is no present possibility of the line being operated, and calls attention to the fact that the City Council by ordinance adopted, June 16, 1920, ordered the tracks removed from the streets.

Traffic and Transportation

Public Must Decide

J. P. Barnes Puts Louisville Traction Problem Squarely Up to People—Plans to Cut Service

Electric railway service in Louisville, Ky., will be drastically curtailed beginning Jan. 1, 1921, unless steps are immediately taken by the city authorities to relieve the financial condition of the Louisville Railway. James P. Barnes, president of the company, has announced that the railway can no longer continue to furnish service of the present quality at a nickel fare, and that a program of retrenchment is imperative to preserve the city's transporta-

tion system. He therefore proposes to close the smaller of the two power stations, thus reducing rush-hour service approximately 25 per cent. It is also proposed to restrict the transfer privilege and to reduce general schedules. Failure on the part of the City Council to cope with the local traction situation is responsible for the company's present plight. Although the granting of a higher fare has been repeatedly urged, the Council has taken no definite action. Three ordinances, providing for a 7-cent fare in one form or another, have been introduced, but there is little prospect of the enactment of a constructive measure in the near future. The Council is apparently seeking to avoid putting itself on record on the question.

Unsuccessful in its efforts to secure a higher fare from the Council, the company has appealed directly to the public. Mr. Barnes has addressed an open letter to the people of the city in which

he puts the settlement of the traction situation squarely upon their shoulders. "January 1, 1921, must find your street car service on one road or the other—relief or retrenchment," says Mr. Barnes, and continues, "The decision rests with you through your representatives in the City Council. Which road shall we take?"

In his open letter, published in the Louisville newspapers in the form of an advertisement, Mr. Barnes declares that "the experience of the last five months demonstrates that we cannot continue, on the present basis of operation, to give you even as good service as you are getting now." He names many

"RELIEF"

Which road is taken is a matter of vital interest to you. You must make the decision. Twentieth Century sentiment is agreed that the needs of those served by a public utility shall have first consideration. You must decide what is your best interest. Whatever your decision, my efforts always will be directed to giving you the best service we can for the fare paid. But, that you may be fully advised, before you make your decision, I am directing this open letter to you.

The road "Relief" is paved with a higher fare and leads to satisfactory and efficient service, the kind of service a growing community should have. At present that road is blocked, but you, through your representatives in the City Council, can remove the obstruction. Adoption of an ordinance permitting us to charge a higher fare will open that road and it will not be necessary to take the "Retrenchment" route.

If we are compelled to adopt a policy of retrenchment we shall not be able to give you the kind of service we want you to have, or to which you have been accustomed. We will scrupulously observe all franchise requirements and will not neglect the public safety, but it will be necessary for us to effect such economies as will enable us to operate safely within our income.

"RETRENCHMENT"

A policy of "Retrenchment" will require the closing of the Campbell Street Power Station, which, though good of its kind, is not efficient, measured by present-day standards. This will necessitate a reduction in service, because our power supply with the Campbell Street Power Station closed is sufficient to operate only about 75 per cent of the cars now run during rush hours.

Closing the Campbell Street Power Station and the consequent reduction of service will throw out of employment about 200 of our men.

We will be unable to effect the entire operating economy necessary under a policy of retrenchment without largely modifying and restricting the present universal transfer system.

I know this deficient service is not the kind you want. I believe that the great majority of Louisville citizens want the best possible street car service. I am assured by people in all walks of life that this is true. I believe you want us to take the road marked "Relief." I believe you are convinced that the good of your city demands relief for your street car service. These representative citizens among others have assured me that they favor immediate relief for the Louisville Railway Company and have authorized me to use their names in this letter to you.

LOUISVILLE'S PROBLEM AS OUTLINED BY MR. BARNES

prominent citizens and nine civic and business organizations as favoring a square deal for the railway. Mr. Barnes' summary of the alternatives which confront the Louisville system is published above.

Transfer Charge Authorized

The Public Service Commission of Indiana on Dec. 18 authorized the Indianapolis Street Railway to charge 1 cent for each transfer. This transfer charge was made effective Dec. 20, for a period of seventy-one days. It is intimated in the order that further relief will be granted if this does not prove sufficient. The basic 5-cent fare is retained. The railway had petitioned for a 2-cent transfer charge, and hearing on this petition, as well as a supplementary petition in relation to increased charges for track rentals and terminal facilities furnished to inter-urban companies, were held before the Commission.

Will Continue Service

Connecticut Company Will Not Stop Cars in Waterbury at Present—Fare Reduction Refused

Despite a daily loss of \$400 on its Waterbury city lines, the Connecticut Company will continue service in Waterbury for the present, according to Lucius S. Storrs, president of the company. The daily receipts from the local lines during the ten-day trial period agreed upon at a recent hearing before the State Public Utilities Commission were only about \$4,000. Connecticut Company officials maintain that at least \$4,400 is required to meet the operating expenses of the Waterbury Division. It is expected that an application for further restriction of jitney operation will be received by the Board of Aldermen from the company in the near future.

The Public Utilities Commission has rejected the petition of the Hartford City Council for reduced rates for factory workers, shoppers and insurance employees. The commission has also rejected a petition of the city of New London for a fare lower than the straight 10-cent fare now charged. The orders containing the commission's decision are signed by Chairman R. T. Higgins and Commissioner Joseph W. Alsop. There is attached to each order the following note signed by Commissioner C. C. Elwell, who dissented from his colleagues previously when they approved the fare increase to ten cents:

"I can see no reason at this time for granting a lower rate of fare for the city of Hartford (or for the city of New London) than has been established on other lines of the Connecticut Company and therefore concur in the conclusion denying the petition."

MUST GIVE GOOD SERVICE

While refusing trolley service at lower cost, the commission in its order calls upon the company to give the public satisfactory service. In this connection the commission says: "With the installation of the maximum 10-cent flat fare, however, the respondent is warned and directed to supply adequate and dependable service as far as possible within the ultimate limitation of its physical and financial powers."

The commission states in its references to the Hartford petition that the crucial problem at this time is to establish a temporary maximum rate to enable the company to continue to operate its cars until a more definite and equitable policy is determined, following possible legislative action. The commission states in regard to the New London petition that having prescribed a 10-cent rate for other cities it finds no dominating reason why a distinction should be made in this case.

The fare on the Connecticut Company's lines between Hartford and Manchester has been reduced from 30 cents to 20 cents and the short or middle zone has been eliminated. Announcement to this effect was made by the Board of Selectmen of the town of Manchester.

Unique Safety Exhibit

United Railways of St. Louis Equips Special Car to Teach Cost of Accidents

The United Railways of St. Louis, Mo., in an effort to further the "safety first" campaign of the Central Mississippi Valley Division of the National Safety Council, has equipped one of its special cars with an exhibit of artistic posters and other data, prepared for the most part by pupils of St. Louis public schools, on accidents, their causes and results. The exhibit is intended as a pointed warning to pedestrians and vehicle drivers of the uselessness and great economic waste of carelessness.

The seats have been removed from the car and the posters and placards arranged along both sides of a rack extending the length of the car. At the front entrance is a map of St. Louis

all of which gross carelessness is shown as the underlying cause. Employees of the company distribute copies of the city traffic ordinances, rules and regulations and pamphlet warnings to guide the readers safely through the maze of downtown vehicular traffic.

The exhibit was first shown to the public on a dead track in the heart of downtown St. Louis and proved to be of much interest to the public. As long as the car remained there the exhibit was constantly visited by large crowds. Later the exhibit was brought to the vicinity of various public schools, the principal of each school being notified when the car would be near his school. All the principals have arranged to have every child in their schools visit the exhibit. Wherever the car has gone it has aroused a great deal of interest and officials of the Safety First Bureau

This man was a passenger on a rear platform and was thrown from the car as it rounded the curve, conductor having left the rear door open. He is sixty-eight years of age and sustained a fractured skull and a severe injury to the right shoulder and left leg, resulting in a permanent impairment of these members of the body. . . . The settlement of \$3,250 alone will take the net income on the August, 1920, basis.



A CAMPAIGN POSTER

from 2,321,430 passengers. Or, taking it another way, it will take all the net income from 49,625 car hours. If a car should be in the service sixteen hours per day, every day steadily without being in for repairs, it would take it seven years to pay the amount of this settlement.

I suggest you put the above facts before your superintendents, foremen, and supervisors. We cannot keep in our employ men who are going to waste life and property, and who are going to destroy the resources from which their fellow-employees can be paid, in this manner. Our officers must watch this hereafter with the greatest care.



SAFETY-EXHIBIT CAR USED IN ST. LOUIS

prepared by the Safety First Bureau of the St. Louis Chamber of Commerce, in which are push-pins and thumbtacks, showing the number and location of accidents during the month of August, 1920. The type of accident is indicated also, the color of the push-pin showing whether the accident was fatal, caused an injury or merely resulted in property damage. At the end of each month a

consider it one of their most effective means to educate the public to the value of the "safety first" idea.

The number of accidents involving the company's cars has shown a marked decrease. During the first six months of 1920 nine persons were killed in electric railway accidents in St. Louis, against eighteen for the same period of 1919. In September, 1919, there were four fatal accidents, two of the victims being automobilists who had head-on collisions with electric cars, while the other two were pedestrians. In September of the present year there was only one fatality, the victim being an automobilist whose car collided with a trolley car.

Just what an accident outside the collision class may mean to the United Railways was strikingly brought home to the employees in a recent memorandum sent by Colonel A. T. Perkins, general manager for the receiver, to H. O. Butler, superintendent of transportation. Colonel Perkins said:

On the general claim agent's report to me for Oct. 2, covering settlements made on Oct. 1, is the following:
Julius Rohde, \$3,250.



INTERIOR OF EXHIBIT CAR

FIRST 6 MONTHS 1919 and FIRST 6 MONTHS 1920..	
AUTOMOBILES	ELEVATORS
1919 40	1919 5
1920 48 Increase 20%	1920 5
# of Cars 1919-47086, 1920-52864, Increase 12%	Increase 500%
RAILROADS	INDUSTRY
1918 7	1919 19 Increase 12%
1920 18 Increase 267%	1920 22
STREET CARS	CORONER'S INQUESTS
1919 19 Decrease 50%	1917 883 Decrease 103%
1920 9	1918 893
MOTORCYCLE	1919 278 Decrease 118%
1919 6 Decrease 66.6%	1920 728 Decrease 6.4%
1920 2	Decrease 1920-1917 - 26.9%

FATAL ACCIDENTS IN ST. LOUIS (Six Months Ended June 30, 1919 and 1920)

photograph of this map is taken by the Safety Bureau and filed among its records.

Almost every kind of accident that could happen in traffic is touched on either in the posters or in placards, in

Sweeping changes in the present system of handling traffic on the city streets and dealing with those apprehended for violating the traffic rules and regulations will be recommended to the Board of Aldermen within a short time by City Counselor Charles H. Daues. It is reported that a new traffic ordinance is being prepared for submission to the Board of Aldermen.

Milwaukee Case Remanded

Wisconsin Supreme Court Defines Interurban Service as Service Differing in Kind from City Operation

In a decision handed down on Dec. 14, in the case of the city of Milwaukee vs. the Milwaukee Electric Railway & Light Company, the Supreme Court of Wisconsin defined passenger street car service and passenger interurban service upon a basis of difference in the service rendered while operating within city limits, rather than upon the basis of the origin and destination of the cars.

The decision was on an appeal from an opinion of the Circuit Court of Milwaukee County holding in substance that the defendant company could not operate cars in the city of Milwaukee in connection with its interurban service or deliver freight over its city lines, unless it held franchises for these specific purposes from the city.

The Supreme Court upheld the decision of the Circuit Court that the city of Milwaukee was entitled to an injunction restraining the company from carrying freight across city limits without first obtaining a franchise. Judgment was reversed and the case was remanded for a new or further trial, however, in order to determine whether the company is rendering interurban service within the city as now defined by the Supreme Court, and, if so, on what lines and between what points. The rendering of such a service by the company would presumably necessitate the company obtaining an interurban franchise from the city.

CITY ASKED INJUNCTION

The case originated about three years ago in the contention of the city of Milwaukee that the Milwaukee Electric Railway & Light Company was making a use of the city's streets not warranted by its franchise, in that it was operating an interurban service and carrying freight. The city contended that additional franchises were necessary for these purposes. An agreement not being reached, the city asked for injunctions restraining interurban and freight traffic. These were granted on Jan. 13, 1920, after a trial of the action by the Circuit Court of Milwaukee County. A ninety-day stay of proceedings was granted by the court on Feb. 5, 1920, pending efforts by commercial and civic organizations of the city to obtain an amicable adjustment. When this failed, interruption of interurban traffic was prevented by the State Supreme Court issuing a stay of execution in the case, exercising its right of original jurisdiction. The entire matter was then brought before the Supreme Court for review.

In its original opinion the Circuit Court defined an interurban passenger as one whose passage starts at a point within the city for a destination outside of the city limits or vice versa. Based upon this definition of an interurban passenger, it found that interurban service was rendered wherever an inter-

urban passenger was carried. In this it seems to have followed the reasoning adopted by the Wisconsin Supreme Court in previous similar cases which have come before it.

In the present case, however, the State Supreme Court decided to define passenger street car service and passenger interurban service upon a basis of difference in service rather than upon a basis of the origin and destination of the cars. In defining urban and interurban service the court held as follows:

Urban surface street car passenger service is the transportation of passengers in suitable cars over the streets of a city operated so as to permit them to enter and leave the cars at reasonable intervals. The initial point from which the car or passenger comes or the point to which they are destined is immaterial. The criterion is the character of the service rendered by the car while on the city streets. If that is an ordinary or reasonable street car service as to fitness of car, rate of speed and frequency of stops for passengers to enter and leave, then while on the city streets such service is street car service though the car may come from or enter interurban service on the same trip.

The court, therefore, concluded:

The operation upon an urban surface street railway by the owner of the franchise thereof of cars reasonably suitable for street car service, and which give street car service in such manner as the railroad commission may prescribe, or, in the absence of regulations by the commission, give reasonable street car service, does not subject the adjacent property within the city limits to an additional servitude though such cars may start from or be destined for points outside the city limits or be used in strictly interurban service outside of the city limits; and the operation of such cars within the city limits does not require any franchise additional to the urban surface street car franchises.

As was pointed out above, the judgment of the Circuit Court, in so far as it involved the interurban controversy, was reversed and the case was remanded for further trial. This will probably be held within a month from the date of the court ruling.

Service Improvement Sought

Notice has been served on the International Railway and the Buffalo & Lackawanna Traction Company by the City Council of Buffalo, N. Y., that an action will be started to revoke their franchises unless they comply with the city ordinances regulating service and franchise obligations. Among the more important franchise obligations which neither company is complying with is establishment of half hour owl service and ten-minute service throughout the day on all lines. During the war both companies were allowed to curtail unprofitable service.

The matter was brought up in the Council meeting by Frank C. Perkins, the Socialist member of the board, and was adopted, without a vote in opposition.

The City Council has given the two companies no specific date upon which they must start to give service as required by their franchises, but the Corporation Counsel has been authorized to bring suit against the companies to revoke their franchises if proper service is not started within a reasonable period of time.

Seattle Fare Advanced

After Considerable Bickering Emergency Measure Is Put Through Making Rate 8½ Cents

By a vote of five to two, the City Council has passed an emergency ordinance providing for the increase of fares on the Seattle Municipal Railway from 6½ cents to 8½ cents, effective in thirty days, or on Jan. 8. Mayor Hugh M. Caldwell has approved the measure.

In the meantime, the payroll for the period ended Dec. 10 was taken care of by payment from the bond interest fund of \$250,000. The payroll was \$139,000. Payment from this fund prevented the treasurer's office putting the lines on a warrant basis, with a subsequent discount of the warrants from 10 to 15 per cent by the local banks. The situation had become a critical one, with the payroll due, and no funds with which to meet it. Representatives of the union had stated that some of the railway employees had determined not to appear for work unless the warrants could be cashed without discount.

It is possible that the next payroll will be taken care of in a similar manner, although it is considered likely that with the passage of the new fare ordinance, the city treasurer will honor the city's demands, on the assumption that the lines will shortly be on a paying basis.

Persons who bought railway tokens in anticipation of an increase in fare will fail to profit, as the Council has included a provision in the ordinance whereby a new set of tokens will be manufactured. The old tokens will be convertible at the rate of four for three of the new ones.

In order to match the fares on the municipal railway the Seattle & Rainier Valley Railway has filed a new 8½-cent fare schedule with the Public Service Commission, to become effective on Jan. 1. The proposed 8½-cent fare is effective only within the city limits of Seattle. Transfers to and from the Seattle municipal system are abolished except on cash fare. This is fixed at 10 cents. Under the present schedule, transfers are issued with token fares for the payment of 2 cents additional.

A Small Railway—A Big Job

A transportation stunt performed by the Holyoke (Mass.) Street Railway has only recently come to light though four months have elapsed since its accomplishment. The American Writing Paper Company desired to hold an outing at Riverside Park, about 15 miles from Holyoke, for its employees. At the request of that company the Holyoke Street Railway arranged to transport 6,000 people from Holyoke to the park and return. This entire number was transported from the center of Holyoke and landed in the park within 2½ hours. The first 1,000 arrived there fifty-seven minutes after leaving Holyoke. The job required

forty-five fifteen-bench open cars and fifteen semi-convertible cars. With the assistance of the transportation committee of the American Writing Paper Company the crowds were loaded and unloaded with military precision at the rate of 1,000 every ten minutes. On a system operating regularly only about twenty-five cars the handling of the crowd was a real feat in mass transportation. The 6,000 people were handled without interfering with the regular service and without accident of any kind to equipment or passengers. In the words of the American Writing Paper Company the performance was regarded as "a transportation masterpiece" by those who had the good fortune to witness it.

Chamber of Commerce Wants Jitneys Regulated

The special committee appointed by the board of directors of the Chamber of Commerce of Providence, R. I., to investigate the conditions of the jitney service in that city and to ascertain if such service should be regulated, and if so the extent and character of such regulations, has submitted a report recommending that steps be taken to regulate the buses. The report is as follows:

Your committee organized shortly after its appointment and discussed the situation. It was agreed that every member of the committee should independently investigate and report his conclusions at a meeting to be held at the call of the chairman. As a result of this investigation your committee finds:

1. That great necessity exists for the regulation of the jitney service so called in order to protect the safety and convenience of the traveling public of the city of Providence.
2. That such regulations should be made by ordinances or special laws to be passed by the city of Providence.
3. That such ordinances or special laws should provide:
 - (a) That every person, company or corporation operating a motor vehicle for the transportation of passengers for hire should first file with the City Treasurer a bond with sufficient surety or sureties, based in amount upon the seating capacity of the service of such individual or company to pay all damages to person or property because of the negligent act of the principal named in said bond or his agents, employees or drivers.
 - (b) That every person operating a jitney as so called should be more than twenty-one years of age and should be obliged to take out a chauffeur's license to be issued only to those who demonstrate their qualifications for the position of driver.
 - (c) That routes should be established and a time schedule fixed on which the jitney service on such routes should be compelled to operate.
 - (d) That the enforcement of said ordinances be made a part of the duty of the Police Commissioners of the city of Providence.

Your committee finds that the jitney service as at present operated is extremely dangerous and believes that the public should be safeguarded by the above regulations and others that may be found to be necessary for the same purpose.

By unanimous instruction of the board of directors of the Chamber of Commerce, Clarence A. Cotton, general secretary of the chamber, has transmitted to the City Council a copy of the report of the special committee making recommendations with regard to the condition of the jitney service in Providence. The recommendations contained in the report met with the unanimous approval of the members of the board.

Street Collection in Newark

The Public Service Railway of New Jersey has put into effect a prepaid fare plan to facilitate the handling of passengers at congested points in Newark during the evening rush hour. Agents of the company are stationed at safety isles along Broad Street, in front of railroad stations and at busy points in Market Street. They accept the fare from passengers, issue receipts, and the passengers hand these receipts to conductors in lieu of money. The plan eliminates the handling of money by the conductor, except for transfers, and cars are filled in much shorter time than formerly.

The plan has worked successfully at the company's terminals in Weehawken and Camden. Each receipt will be stamped with the date of its issuance and cannot be used on any other day. If a passenger is unable for any reason

even though the temporary restraining order against the city is still in force.

Councilmen who favor complete prohibition of jitney operation have made no forecast as to what action may be taken by the City Council. In his report, Corporation Counsel Meier informs the Council that if it desires jitneys to continue operation unregulated during the time the appeal to the Supreme Court is pending, it may permit such unregulated operation by refraining from further legislation. On the other hand, if the jitneys are to be regulated, or refused permission to operate at all, there is no legal impediment to the repeal of the present ordinance, and the enactment of an ordinance containing such provisions as may be deemed proper in the premises.

"Readiness to Serve" Rates Suggested

Introduction of the "readiness to serve" principle in connection with the fixing of electric railway rates was suggested by City Attorney P. T. Peterson of Lincoln, Neb., in a brief filed recently with the State Railway Commission. Mr. Peterson took action to oppose an increase in fare by the Lincoln Traction Company from 7 cents to 8 cents, with a 5-cent charge for each transfer. The railway recently petitioned the commission to allow the higher fare as an emergency measure. Hearing on the application began before the commission on Nov. 18.

Mr. Peterson contends that a reduced rate should be allowed by establishing a fare zone with a radius of 1 mile measured from the center of the city. He believes that serious consideration should be given to the matter of a "readiness to serve" charge. This is mentioned in connection with the use of automobiles by persons who seldom use the electric cars. Mr. Peterson asserts that the laboring man who uses railway service every day ought not to have his burden increased in order that the automobile user may have a street car ready on rainy days or days when his machine is in the repair shop. Such a service charge may be worked out, he claims, on a basis of a monthly ticket, to be sold at a reduced price.

Would Raise Zone Rates

The Cortland County Traction Company, Cortland, N. Y., on Nov. 30 asked the Public Service Commission, Second District, for authority to charge a cash fare of 7 cents, and a 6½ cent ticket fare in each of its zones and to increase the school fare rate from 3 to 4 cents without changes in transfer privileges. The fare is now 5 cents in each zone. Transportation revenues for the past nine months, the company shows, are \$83,687. Its operating expenses and taxes amounted to \$84,510, showing a deficit in operating expenses and taxes over revenues of \$823. The fixed charges amount to \$13,288, and the total capital used in the operation of the road on which the company is entitled to a return is \$587,791.

To Street Car Riders

Pay Fares, Get a Receipt and Save Time

BEGINNING DEC. 10

At heavy traffic points, such as Tube Station, Railroad Stations and Safety Isles

To save time and speed up service during Evening Rush, from 4 to 6:15 Daily

Agents will receive fares before passengers board cars.

Receipts will be issued.

Conductors will accept Receipts in lieu of cash fares.

Change-making delays avoided.

The Get-a-Receipt Plan is working fine at Weehawken and Camden Ferry Terminals

With your co-operation it will SAVE TIME FOR YOU.

Try it, beginning Friday, on your way home.

Receipts good only on date of issue. Unused receipts are redeemable.

Public Service Railway

"AD" EXPLAINING COLLECTION PLAN

to use the receipt after purchasing it he can redeem it at the Public Service terminal. In announcing the new plan the railway used the above advertisement in the Newark papers.

Can Legislate Against Buses

According to an opinion submitted by Walter F. Meier, Corporation Counsel, to the City Council of Seattle, Wash., that body now has the right to pass new legislation barring jitney buses from the streets entirely. The report states that the fact that the Superior Court has disposed of the suit against the city by the jitney bus interests clears the way for any action the Council might wish to take, the appeal of the jitneys to the Supreme Court not constituting a legal bar to further legislation regulating or abolishing the buses,

Transportation News Notes

Fare Increase Denied.—An application of the South New Orleans Light & Traction Company, Algiers, La., for permission to raise its fare from five cents to 8 cents, has been denied by the police jury of Jefferson parish. The company serves the towns of Algiers and Gretna. The railway's employees recently went on strike for an increase in pay.

Traffic Survey at St. Paul.—The city of St. Paul is planning a comprehensive scheme of expansion for a period of at least ten years ahead. As the zoning system is developed in that city and new districts are made new transportation facilities will be provided. The board planning these improvements will spend \$2,000 on a survey of the local transportation requirements.

"Trolley Topics" Revived.—The publication of *Trolley Topics* was resumed on Dec. 15. Hereafter it will appear on the first and the fifteenth of each month. This publication, devoted to the interests of Louisville Railway's employees, makes an appeal for a friendly interest and co-operation "so that a better understanding of our mutual problems may be reached, to the end that the best service may be rendered the public."

Ten-Cent Fare in Sharon.—The Shemango Valley Traction Company, a subsidiary of the Pennsylvania-Ohio Electric Company, Youngstown, Ohio, put into effect on Dec. 12 a new schedule of fares as filed with the Public Service Commission of Pennsylvania on Nov. 12. Under the new schedule the cash fare is increased from 7 cents to 10 cents and the ticket rate from six tickets for 40 cents to six tickets for 50 cents, with no charge for a transfer. The lines of the company serve the city of Sharon and the boroughs of Farrell, Wheatland, Sharpsville and West Middlesex, all in Mercer County, Pennsylvania.

Unable to Increase Service.—Preston S. Arkwright, president of the Georgia Railway & Power Company, Atlanta, Ga., has filed with the State Railroad Commission the company's plans for improvements in service required by the commission when it granted the company an increase in fare on its Atlanta lines to 7 cents. At the same time Mr. Arkwright asked that the commission's requirement of a flat increase of 20 per cent in service be modified considerably, stating that the railway is not able to provide the additional equipment required. He further pointed out that the number of passengers hauled by the company was gradually decreasing.

Will Continue 7-Cent Fare.—The Missouri Public Service Commission has granted the request of the United Railways of St. Louis that it be allowed to charge 7 cents for an additional six months. The extension of time will commence Dec. 31, 1920. The ruling applies to lines in St. Louis County and the line to St. Charles as well as to the St. Louis city lines. Rolla Wells, the receiver, in his petition asked that the company be permitted to charge the 7-cent rate until the commission completes a valuation of the company's property. James L. Harrop, chief engineer for the commission, has made the valuation, it is said, but it is being analyzed by company and city engineers. C. E. Smith, consulting engineer of the city of St. Louis, has stated he expects the valuation will finally be settled in court, which will probably require three years.

Will Give Cars "Once Over."—Plans have been mapped out by the International Railway, Buffalo, N. Y., for the systematic overhauling of its equipment. Kenneth R. Lewis, formerly general car inspector of the Hudson & Manhattan Railroad, New York, now superintendent of equipment of the International, has charge of the job. Herbert T. Tulley, president of the International, states that there was no systematic plan for caring for the equipment for some time prior to the time the new management came into control under Thomas E. Mitten. "We have given each car a date for being completely overhauled," said Mr. Tulley. "It will take about two weeks to go through the process. Every car will be inspected as to sills, frames, trucks, wheels and motors and repairs will be made wherever necessary. Cars then will go to the scrub rooms where they will be thoroughly cleaned and then to the paint shops for repainting."

More Time Desired to Install Cars.—Rolla Wells, receiver for the United Railways, St. Louis, Mo., has asked the Public Service Commission to extend until the latter part of next March, the time within which the company must put in service fifty new trail cars. On May 20 last the commission ordered the railway to put the first of fifty new trailer cars in service by the last of November and to continue to put the cars in service at the rate of two each working day until the full quota was in service. Thomas E. Francis, appearing for the receiver, said that the contract to construct the cars was let July 14. A fire on Oct. 11 partly destroyed the plant of company which was building the cars together with a number of cars which were almost completed. Mr. Wells has asked the commission, in addition to extending the time of delivery, to permit the cars to be placed in service at the rate of two a week instead of two a day thereafter.

Jitneys Cause Big Loss.—The Springfield (Mo.) Traction Company is experiencing a serious inroad upon its revenue by unfair jitney bus competition, according to a recent statement by E. C. Deal, general manager of the

company. Cash fares for November of this year, he says, fell 54,581 below the same month last year and about the same slump is being experienced up to date this month; in fact a decrease in riding has been noticeable for about six months. This is due to the operation of buses which, the company claims, are improperly routed and thereby are securing business along the car lines while other parts of town suffer for the want of local transportation facilities. The company claims that this unfair jitney bus competition, together with the large wage increase of last June, has reduced the net earnings until the company is in a precarious situation and must take immediate steps to find relief, it being necessary that this relief be realized not later than January 1.

Express Service Pays Well.—Development of the electric express business in the industrial and agricultural territory covered by the Reading Transit & Light Company, Reading, Pa., has proceeded so favorably during the last few years that it has been found necessary to increase the terminal facilities of the Reading Division for this service. Improvements recently completed at the company's property at the foot of Third Street, Reading, at a cost of approximately \$5,000, are such that this terminal will be able to take care of increasing business for the next ten years. Nine large double-truck cars and one single-truck car are now used daily to carry on the express business of the Reading Division. In 1917 the equipment consisted of one single-truck car and one combination passenger and express car. Electric freight and express service was put into operation on Oct. 15 on the Lebanon Division of the company. Two trips are made daily between Lebanon and Myerstown, and two between Lebanon and Palmyra. It is planned to extend this service.

City Fare on Interurbans Increased.—Passengers on interurban cars riding into the Public Square of Cleveland, Ohio, will have to pay 10 cents for their ride inside the city limits. This is as a result of the Cleveland City Council authorizing a 10-cent rate of fare to be charged these riders. The Council was told by Street Railway Commissioner Sanders that operation of the interurban cars inside the city limits of Cleveland has been costing the Cleveland Railway \$100,000 a year. Several years ago the interurbans obtained passage of an ordinance making it unnecessary for their cars to stop to let off passengers within the city limits. Traffic on the interurban lines, particularly to Akron, Elyria, Lorain and other points west and south of the city is very heavy, and Cleveland Railway officials expect the higher fare to increase the company's receipts very appreciably unless an unexpectedly large number of interurban riders change to the city cars at the city limits. All fares collected on the interurban cars inside the city limits go to the Cleveland Railway.

Personal Mention

Foster Hannaford to Leave Traction Field

Foster Hannaford has tendered his resignation as general manager of the Twin City Rapid Transit Company, Minneapolis, Minn., to take effect on Jan. 1, 1921. On that date Mr. Hannaford will assume the duties of vice-president of the firm of Noyes Brothers & Cutler, a wholesale drug company of St. Paul. Mr. Hannaford's successor with the Twin City Rapid Transit System has not yet been appointed.

Mr. Hannaford is a native of St. Paul. Following his graduation from the Sheffield Scientific School, Yale University, he was employed for two years in the Westinghouse shops in East Pittsburgh, Pa. He then went abroad to round out his technical education, spending a year at the University of Karlsruhe, Germany. Upon his return to the United States he spent a year as superintendent of substations of the Illinois Traction System. He was then appointed chief engineer of the McKinley power station in St. Louis. Later he went to Galesburg, Ill., as operating engineer of the Galesburg Railway, Light & Power Company. He was subsequently made general superintendent of the company. In 1916 he was appointed superintendent of the St. Paul City Railway. Three years ago he became general manager of the Twin City Rapid Transit Company.

New Honor for Mr. May

I. A. May, comptroller of the Connecticut Company, New Haven, Conn., and president of the New England Street Railway Club, has been appointed by Governor Holcomb to be a member of the State Board of Accountancy for a term of three years, succeeding George L. Vannais.

An accountant by profession, Mr. May has earned for himself a reputation as one of the leading authorities on the subject of electric railway accounting. His manual, "Street Railway Accounting," is regarded as the standard on the subject of which it treats.

Because of his extensive knowledge of the subject Mr. May has been president of the Connecticut Society of Accountants, ex-president American Electric Railway Accountants' Association and comptroller for the Connecticut Company. He received a C. P. A. degree from the state in 1915.

Mr. Shoup Heads Oil Company

Paul Shoup, president of the Pacific Electric Railway, Los Angeles, Cal., and vice-president of the Southern Pacific Company, has been elected president of the Pacific Oil Company, which

has been formed to take over California oil properties of the Southern Pacific. Because of the extensive nature of the Southern Pacific's oil holdings, it was recently decided to segregate the oil and railway properties and to develop the former independently.

Mr. Rolston in Iowa

Resigns as Superintendent of Power, Kansas City Railways, to Join Sioux City Company

William E. Rolston will on Jan. 1 become superintendent of power of the Sioux City (Iowa) Service Company. For the past year Mr. Rolston has served as superintendent of power of the Kansas City (Mo.) Railways, and has been in charge of the extensive



W. E. ROLSTON

reconstruction program of that company's power plant. The department now headed by Mr. Rolston will be combined with the electrical distribution department, and all matters, both generation and distribution, will be handled directly under the supervision of R. W. Bailey, assistant general manager for the Kansas properties, who has jurisdiction over electrical distribution.

Before joining the Kansas City Railways in December, 1919, Mr. Rolston was superintendent of power and equipment of the Chicago, Lake Shore & South Bend Railway, Michigan City, Ind. He was graduated from the Armour Institute of Technology in 1898. Three years later he joined the Dayton & Troy Electric Railway. During his connection with that company, which lasted five years, he served first as chief engineer of power plant and later as superintendent. In 1906 he became superintendent of power and shops of the Canton-Akron Railway, Akron, Ohio, now included in the system of

the Northern Ohio Traction & Light Company.

In the following year Mr. Rolston was appointed superintendent of power and shops of the Cleveland, Southwestern & Columbus Railway, continuing in that position until 1911. He then became general superintendent of the Des Moines (Iowa) City Railway. Later in the same year he was made superintendent of the Inter Urban Railway, Des Moines, in addition to his connection with the city lines. In 1912 Mr. Rolston resigned from these companies to accept the position of superintendent of power and equipment of the Chicago, Lake Shore & South Bend, continuing in that capacity until his appointment at Kansas City.

C. M. Harris Joins Maryland Interurban

C. M. Harris, manager of the railroad shop section, industrial department, Westinghouse Electric & Manufacturing Company, has been appointed vice-president of the Hagerstown & Frederick Railway, Frederick, Md. In addition to operating more than ninety miles of interurban line this company controls and manages several central station properties.

During the past four years Mr. Harris has been in charge of all industrial engineering and commercial sales for the Westinghouse Company, including all steam and electric roads in the United States. Most recently he has assisted in the survey made by the Westinghouse company for the electrification of the main line of the Baltimore & Ohio Railroad between Keiser and Grafton.

Mr. Harris was graduated from Pennsylvania State College in 1901. Shortly thereafter he entered the employ of the Pennsylvania Railroad in the motive power department at Wells-ville, Ohio. Leaving the Pennsylvania in the following year, he joined the Baltimore & Ohio as assistant engineer in the motive power department at Baltimore, Md. Two years later he was appointed assistant master mechanic, Mount Clair shops, Baltimore, and in 1906 he was promoted to assistant general superintendent of the motive power department. In 1907 Mr. Harris was appointed mechanical superintendent with charge over all mechanical and electrical work in connection with the building of the union terminal, Washington, D. C.

Mr. Harter Resigns

Russell Harter, assistant to A. C. Blinn, vice-president and general manager of the Northern Ohio Traction & Light Company, Akron, Ohio, has resigned to become vice-president and general manager of the Babcock Ohio Company with headquarters in Cleveland. Mr. Harter entered the employ of the N. O. T. & L. Company as a stenographer in July, 1911. He was later made purchasing agent. Two years ago he was appointed assistant to the general manager.

Board Members Well Qualified

**Appointees to Toledo Board of Control Have Public's Confidence—
All Active in Civic Affairs—H. C. Truesdall, Chairman**

A banker, a manufacturer and an engineer make up the board of control recently appointed by Mayor Cornell Schreiber of Toledo, Ohio, to supervise the carrying out of the new service-at-cost agreement under which the city's traction system is to be operated. Fitness for their work rather than any consideration of a political nature was the chief factor governing their selection. To preserve the non-partisan character of the board it is provided that, while the basic term of the members shall be six years, the first two appointees shall serve for two and six years respectively. Henry C. Truesdall, William W. Knight and David H. Goodwillie, the present members, have already distinguished themselves for their service to the community, and may be said to have the undivided support of the public. Their selection for the important task of bridging the transition from private to quasi-public operation has the approval of the commission which drafted the service-at-cost ordinance and has been well received by the people at large. Operation under the new plan will probably begin Feb. 1.

HENRY C. TRUESDALL is chairman of the board. Mr. Truesdall was appointed for the two-year term. He was born at Monroeville, Ohio, where he attended public school. His higher education was secured at Oberlin College, from which he was graduated with the class of 1894. He later took a law course at the Univer-

olis, Ind. He secured his early education in St. Louis, Mo., to which city his parents moved from Indianapolis. After attending Smith Academy in St. Louis, he matriculated at the Sheffield Scientific School, in Yale University, from which he was graduated in 1899 with the degree of Bachelor of Science. Going to Toledo he entered business

David H. Goodwillie, appointed for the six-year term, has had considerable experience in public positions.

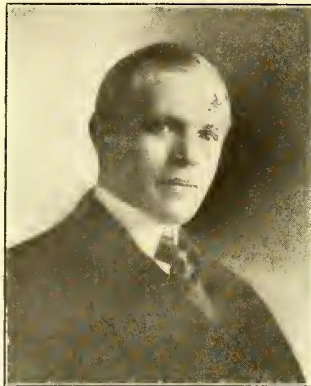
Mr. Goodwillie is a native of Oak Park, Ill. He was graduated from Cornell University as a mechanical engineer with the class of 1908. During the next two years he was assistant sanitary engineer with the American Steel & Wire Company, Chicago. In 1910 he went to Toledo to take charge of the construction of the city filtration plant, and during part of that year and the next he was superintendent of filtration. He was later made superintendent of waterworks for the city. Until 1916 he had an office as a private engineer and was employed on a number of industrial projects in the Toledo district.

On Jan. 1, 1916, Mr. Goodwillie assumed the position of Director of Public Service in the first cabinet of Mayor Schreiber. He served in this capacity until September, 1920, when he took a position as an engineer with the Ford Plate Glass Company at Rossford, a suburb of Toledo.

During his term of office as Director



H. C. TRUESDALL



W. W. KNIGHT



D. H. GOODWILLIE

sity of Cincinnati, graduating from the college of law of that institution in 1897. He removed to Toledo, where he began the practice of law in conjunction with the firm of Brown, Geddes, Schmettau & Williams. Later he entered the banking business, in which he has been actively engaged for the last six years.

At the present time Mr. Truesdall is president of the Toledo Clearing House Association, vice-president of the Northern National Bank and president of the Union Savings Bank & Trust Company. He is directly interested in several other commercial and industrial enterprises in the city of Toledo and has been an active member of the Chamber of Commerce. Mr. Truesdall was called into conference on several occasions by the Milner commission which drafted the cost-of-service ordinance for Toledo, and gave valuable financial advice to the commission.

William W. Knight, appointed for the four-year term, was elected secretary of the board at its organization meeting. Mr. Knight was born in Indianap-

olis, Ind. He secured his early education in St. Louis, Mo., to which city his parents moved from Indianapolis. After attending Smith Academy in St. Louis, he matriculated at the Sheffield Scientific School, in Yale University, from which he was graduated in 1899 with the degree of Bachelor of Science. Going to Toledo he entered business with the firm of Reynolds Brothers, grain merchants. He remained with that company for five years, and then entered the Bostwick-Braun Company as its secretary. This company is one of the largest dealers in wholesale and retail hardware in this part of the country. Mr. Knight is now the vice-president of the company. He is also a director of the First National Bank of Toledo and of the Rossford Savings Bank, Rossford, Ohio.

Mr. Knight became very popular during the war as chairman of the local Liberty Loan organization, which brought Toledo to its quota first in the list of metropolitan cities on the third, fourth and fifth loans. He was also a member of the commission appointed by Federal Judge John M. Killits to draw up a service-at-cost franchise for the settlement of the city's street railway problem. With Chairman W. L. Milner of the commission he devoted considerable time to the ordinance and is given much credit for the practical, business-like provisions of the franchise measure.

of Public Service he was named chairman of the committee to make a valuation of the railway property of the Toledo Railways & Light Company, and the committee's report is known as "the Goodwillie valuation."

Having finished the preliminary work of organization, the board has started business in earnest. The first important matter to come before it is the selection of a street railway commissioner. More than fifteen persons, many of them residents of other cities, have come forward as candidates for this position.

To aid the board in choosing a commissioner the board has called into consultation Prof. Henry E. Riggs, head of the civil engineering department of the University of Michigan, and has announced that additional applications will be received. Professor Riggs is one of the three men who served on the valuation board which fixed the price of the property of the Toledo Railways & Light Company before the ordinance was drawn by the cost of service commission.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Recession in Price of Cotton Waste

Demand Light, but Supply Is Not Large, with Many Textile Mills Closed—Trolley Cord Prices Firm

As a result of light demand and the persistent downward price trend of raw cotton, which at this writing is quoted at 14½ cents for spot, the expected price drop on cotton waste has materialized. In 100-lb. bales white cotton waste is quoted at 10½ to 14 cents per pound, depending upon grade, in New York at present. Colored cotton waste is worth from 7½ to 12 cents.

Demand continues very light, with some buying from steam railroads, but little or none from electric lines. The supply is not large because of the continued shutdown and curtailed production of many of the textile mills. Were it not for the slump in buying it seems that a considerable scarcity would be felt, but as it is the waste supply is adequate to meet present needs, with deliveries of reasonable quantities from stock.

Trolley and bell cord prices show a firmer tendency at present. Buying is very light with a good supply available. The market on trolley and bell cord has held at from 66 to 85 cents per pound the last two weeks, depending upon the grade and the manufacturer.

Independent Rail Producers Meet Corporation Price

Lackawanna, Bethlehem and Midvale Drop Price \$10 per Ton to \$47 for Open-Hearth Rails

Announcement of a drop in steel rail prices to the level of the United States Steel Corporation by several of the leading independent producers this week is expected to go a long way toward establishing equipment buying of railroads on a firm basis. The action of the Lackawanna Steel Company, which had been previously quoting \$57 a ton on standard T-rails, in reducing its price to \$47 per ton for open-hearth steel rails and \$45 per ton for bessemer has been followed by several other leading independent producers. The Bethlehem Steel Company, which recently fixed its price at \$57 per ton for open-hearth rails covering the first quarter of 1921, has fallen in line, as has also the Midvale Steel & Ordnance Company, it is stated. Other independents are expected to make similar price cuts soon, but with this reduction of \$10 per ton by three of the leading independents, it may safely be stated that the independent market for steel rails is now on a level with the Steel Corpo-

ration's price, which has all along held at \$45 per ton for bessemer and \$47 for open-hearth rails. These prices were those mutually suggested by representatives of the government and of the steel interests in March, 1919.

The largest rail inquiry now on the market is from the Pennsylvania Railroad for 200,000 tons. Half of this will go to the corporation, it is expected, and the remainder to the independents now that the price question has been settled. The new price level, following statements that independent steel companies could not produce rails under \$57 per ton with profit, has been influenced to some extent, it is thought, by the determination of producers to make substantial wage cuts soon.

Window Glass Stocks Good at Present

With End of Present Production Season Coming in January Popular Sizes May Be Hard to Obtain

The car-window glass market is firm, although buying is somewhat limited. At the same time production is lower than it was in the fall and without doubt it will be still lower by the time the present period of manufacturing is at an end—about Jan. 15, 1921. Between then and the starting of the first period of 1921 blowing, about March 1, it is probable that stocks will be pretty well depleted, especially those of the popular sizes, and these will be hard to obtain. At the present time shipments of reasonable quantities of ordinary sizes and grades may be had from stock to three weeks' time.

There is little chance for any recession in price of car-window glass, especially in view of the demands made by the independent workers for a wage increase of 12 per cent. The meeting last week of the workers of hand-made manufacturing plants adjourned without reaching any decision, it is reported, and there will probably be little production turned out by them before March. This increase, were it granted, would provide sufficient reason for no reduction in price of glass.

Manufacturing is going on still to fill orders placed several months ago, so all present production cannot be turned to current requirements or to stock. A factor which might affect stocks appears from the direction of outside the country. It is probable, however, that only single-strength glass will be brought in, while it is double strength that more directly concerns traction companies. Conditions of gas fuel in Pennsylvania and West Virginia are an added detriment to high production.

Active Demand for Used Equipment

Cars, Trucks, Motors, Etc., Have Rapid Turnover—Locomotives and Express Cars Scarce

Dealers in used electric railway equipment report that a very active market exists for second-hand material at present. Many used-equipment dealers have got out of the electric railway end of the business in the recent past, it is true, but this seems to be due more to specialization along certain lines than to an absence of buying.

Important factors in the existing strong demand are the difference in cost and in the delivery period between new and old material. Financial embarrassment has caused many lines to enter the second-hand market rather than bear the greater cost of new material.

More supplies of all sorts are now available in the second-hand market following the extreme scarcity which developed during the war. One reason for this greater supply has been the standardization movement in equipment and another has been the growth of safety car operation, throwing more double-truck cars and equipment upon the market. Few really desirable cars remain there long, however, because a strong interest is shown in cars that can be equipped with safety appliances and converted to the one-man type. In fact the greater part of the buying in this market at present is said to be for one-man car operation. There is therefore an increasing number of the really old cars for sale, with a consequent decrease in buyers.

Railway motors have a rapid turnover, especially the good interpole types, and the supply is about as plentiful as that of cars. Used car trucks are very scarce and in strong demand. The supply of second-hand express cars is also greatly inadequate, while electric locomotives, in the face of the great demand in which they are held, are virtually unobtainable. So far as can be learned the number of second-hand locomotives available throughout the country recently could be counted on the fingers of one hand. A fair demand for rails has been felt on behalf of replacements, but the greatest volume of orders for used rails has come from the steam roads. Demand for power plant equipment, it is stated, has been steadily lessening with more material coming on the market.

Although a downward tendency to prices is seen in the second-hand equipment market there has been no

price change as yet. Prospects for increased business next year are generally thought to be bright. A better buying feeling with traction companies is said to be evident, and with increased revenue making itself felt in many cases there will be more buying of new cars and equipment, with more discarding of old supplies which will yet find a ready market.

Easier Prices on Track Bolts and Spikes

Back Orders Being Reduced and Deliveries Improve Under the Present Quietness of the Market

In line with the lower prices of steel bars which are quoted by independent producers, as the disparity between the U. S. Steel Corporation prices and those of independents further disappears the price of track bolts and spikes has eased off still more. Not all independent producers have fully met the corporation's level, as with the latter at a 2.35-cent base on steel bars it is reported that the base price of some producers is as high as 3.35 cents. The range of independents' prices on standard railroad spikes, $\frac{3}{8}$ in. x $5\frac{1}{2}$ in., is from 4 to 5 cents, and on track bolts from $5\frac{1}{2}$ to $6\frac{1}{2}$ cents, depending upon the quantity.

The U. S. Steel Corporation is reported to have accepted a large order for standard railroad spikes recently at 3.65 cents.

Demand continues to slacken, and with the present quietness of the market manufacturers are mostly working on old orders. These are being reduced, however, and deliveries continue to improve. In some cases orders can be filled from stock but not all producers have been able to accumulate surplus stocks as yet. In these instances deliveries range to a maximum length of six weeks on bolts and four weeks on spikes. Optimism seems to prevail regarding the expected railroad demand in 1921.

Tape Producers See Promising Year Ahead

Present Orders Are Light with Good Deliveries—Slight Reduction in Prices Is Expected Soon

Despite recent declines in tape purchases manufacturers of both friction and compound tape will undoubtedly close the year with a large gain in total business handled over 1919. Deliveries are now easy as in many other lines. An optimistic tone pervades the market with regard to next year's sales, even though inquiries and orders are at present running low. It is felt that the necessities of the coming year will require the placing of substantial orders during the course of the twelve-month period. Some of these commitments may be small and others large, but in the opinion of leading sales executives little reason for pessimism exists.

Some reduction in prices is expected

about Jan. 1, but it is hard to see how this can exceed 10 per cent in view of the continuing high cost of labor, fuel, transportation, whiting, sulphur and some other material. Sharp as have been reductions in cotton cost, these have been insufficient seriously to affect the manufacturing expense in friction-tape and rubber-tape production. Overhead costs continue at high levels and taxation burdens show small signs of material lightening. The outlook for immediate business is somewhat uncertain, but it is believed in manufacturing circles that easier prices will stimulate orders somewhat and that as soon as buyers realize the relations of various cost factors to current quotations better trade will be enjoyed.

Power Transformers Still on Long Delivery

Plants Working at Good Capacity and Stocks of High-Cost Materials Are Gradually Being Reduced

Although the demand for transformers is somewhat reduced as regards new orders in comparison with the business of last summer and spring, a substantial output is coming through the manufacturing plants. This class of apparatus appears less susceptible to trade fluctuations than many other products. In one of the larger transformer factories recently visited by a representative of the ELECTRIC RAILWAY JOURNAL practically full-time production was under way.

Raw material is coming into the factories at a better rate than for some time, although it is only within the past two or three weeks that conditions have been so good that output could be pushed without much fear of shortages disturbing production schedules. Even now no great excess of materials of all classes exists. Power transformers are not generally stocked, and deliveries here run from a normal of three to four months up to five or six months, depending largely upon the existence of back orders.

The future course of prices is not well defined as yet, although some of the materials entering into manufacture have been reduced. There are still stocks of raw materials to be worked up which were purchased in good faith at higher levels than prevail today, and there has been little tendency toward reduced labor costs in this field. Transformer manufacturers point out that at no time did prices follow the advance of raw-material costs to their peak, and the increases established were moderate in comparison with many commodities.

No very decided drop in quotations is anticipated for the immediate future. Much study is being given to the materials of transformer manufacture and the problem of obtaining insulating paper of a higher degree of dielectric strength is a live one among designing engineers. In some cases it has become necessary to purchase this material at prices comparable to the cost of the higher grades of writing paper.

Good Volume of Orders for Gear Cases

Deliveries, Though Long, Are Improving—Castings Still Scarce and Sheet Steel Stocks Are Kept Low

Although one or two manufacturers of gear cases report that demand is poor and electric railways are not trying to stock up, the majority of producers are making good sales. Many traction companies have taken the lesson of last winter to heart, it is stated, and are anticipating their needs for gear cases so far as is possible. Even where orders merely represent current needs the volume of buying is said to be a considerable total.

The need of advance orders for gear cases this winter is emphasized by prevailing long deliveries, though the latter situation is improving. Inability to obtain castings has been the chief difficulty in turning out the finished product. Foundries are now quoting better deliveries on castings but the supply is by no means favorable. Sheet steel is plentiful but some of the manufacturers of gear cases say they have purposely avoided stocking this material on the present declining market. Consequently the best delivery of the finished product that can be quoted ranges from forty-five to ninety days on malleable cases and thirty to seventy-five days on sheet steel cases. No orders have been canceled so far as could be learned and virtually no stocks of finished cases of any type exist with manufacturers.

A good volume of orders is yet expected to develop from lines that have only covered their present needs, and with the raw material supply improving and a constantly better attitude of labor evident it is hoped to reduce the time in which shipments can be made. Prices have held steady and among manufacturers there seems to be no indication of lower prices very soon, though sheet steel is lower. Malleable iron still costs the same.

Rolling Stock

Springfield (Mass.) Street Railway, in a fire on Dec. 12 which totally destroyed the carhouse on South Main Street, Palmer, lost four snow plows, three double-truck passenger cars and a work car. The loss is unofficially estimated at \$150,000.

Track and Roadway

Phoenix (Ariz.) Street Railway.—The Corporation Commission has granted a two-year extension of time to the Phoenix Street Railway to double track West Washington Street from Seventh to Seventeenth Avenue. The railway asked for a five-year extension, basing its claim on war-time conditions.

Interborough Rapid Transit Company, New York, N. Y.—The White Plains extension of the Interborough Rapid

Transit Company was opened on Dec. 13. Trains of the east side subway and the Third Avenue elevated will use the extension. Transit Construction Commissioner Delaney has pointed out that the opening of this branch provides a ride of 26.19 miles between the northerly terminal and Livonia and Pennsylvania Avenues in Brooklyn.

International Railway, Buffalo, New York.—Construction work soon will be started by the International Railway on the double-tracking of the River road line between the Buffalo city line at Riverside park and the new plant of the Dunlop Tire & Rubber Company, a distance of about 1.3 miles. The new line will serve large industries locating in the River road district which will employ more than 15,000 men before next spring. Permission to construct the line already has been obtained from the town board of Tonawanda and the village of Kenmore.

Tarrant County Traction Company, Fort Worth, Tex.—The traction committee of the Cleburne (Tex.) Chamber of Commerce has secured an agreement with the Tarrant County Traction Company, which operates the interurban between Fort Worth and Cleburne, for improved service on this line. The company will purchase new cars and overhaul the old ones. Several additional cars will be put on and the schedule will be speeded up.

Texas Electric Railway, Dallas, Tex.—J. F. Strickland, Dallas, Tex., president of the Texas Electric Railway, has been asked by residents of Cleburne and Hillsboro to build an interurban line connecting these two points. Such a link would connect the line of the Tarrant County Traction Company, extending from Fort Worth to Cleburne, with the line of the Texas Electric Railway. It is understood that such an extension was being planned when the war came on and caused such financial stringency that the project was abandoned for the time and has not been taken up until now.

Bamberger Electric Railroad, Salt Lake City, Utah.—The running time on the Bamberger Electric Railroad between Ogden and Salt Lake City will be considerably reduced with the completion of the double-tracking between those two cities. This work is now in progress and will be completed soon.

Grays Harbor Railway & Light Company, Aberdeen, Wash.—The action of the City Council in granting permission to the Grays Harbor Railway & Light Company the privilege of temporary planking rather than putting in permanent pavement between tracks on South Aberdeen street has brought a storm of protest from residents of that district. Permission was granted to the railway when representatives appeared before the City Council and stated that it would work a financial hardship to put in permanent paving at this time. Suggestions were made that the company apply for an increase in fare, or that jitneys now operating

be prohibited from running over the routes of the railway.

London, Ont.—The City Council of London will consider the question of the construction of a subway at Rectory Street and Engineer Mountain of the Dominion Railway Board will look into the question immediately.

Montreal (Que.) Tramways.—The Montreal Tramways Commission has instructed the Montreal Tramways to replace the track in two sections of St. Catherine Street between University Street and McGill College Avenue, which had been laid close to the sidewalk in a temporary arrangement.

Toronto, Ont.—Works Commissioner R. C. Harris has outlined the following improvement work for 1921: street railway on Bloor Street viaduct from Sherbourne Street to Broadview Avenue at a cost of \$185,000, civic railway installation of insulated negative feeder cable, Danforth line, to prevent electrolysis, at a cost of \$31,350.

Power Houses, Shops and Buildings

Monongahela Valley Traction Company, Fairmont, W. Va.—Ground has been broken for a new substation at Perry mines in Clarksburg, W. Va., by the Monongahela Valley Traction Company. The station will enable the company to operate three-car trains between this city and Fairmont, where two-car trains are now run.

Springfield (Mass.) Street Railway.—A carhouse of the Springfield Street Railway located in South Main Street, Palmer, was totally destroyed by fire on Dec. 12. Four snowplows, three double-truck passenger cars and a work car were among the contents burned. The cause of the fire is not known. The estimated loss is unofficially given at \$150,000.

Northern Ohio Traction & Light Company, Akron, Ohio.—A new freight house built by the Northern Ohio Traction & Light Company in Akron will be occupied Jan. 1. The new building is 120 by 140 ft., two stories high, of concrete and steel construction throughout. The company owns considerable additional frontage adjoining the building and it is the intention to construct additional warehouse and freight facilities at this point.

Interstate Public Service Company, Indianapolis, Ind.—Plans are being made by R. J. Custer, engineer of maintenance of way, at Columbus, Ind., for the Interstate Public Service Company for the construction of general shops and carhouse at Scottsburg, Ind. The new construction work will cost approximately \$300,000. All the buildings will be of brick and steel with steel sash and composition roofs. Contract will probably be awarded shortly after the first of the year.

Monongahela Valley Traction Company, Fairmont, W. Va.—Extensive im-

provements which will make it possible for the company to supply more electric power to its own lines in the Fairmont region and also to other concerns in that vicinity are being made by the Monongahela Valley Traction Company.

Trade Notes

The American Frog & Switch Company, Hamilton, Ohio, has opened a New York office at 149 Broadway in charge of Presley Hamilton and H. F. Whiteman.

The New York Car Wheel Company, Buffalo, N. Y., manufacturer of chilled iron wheels, will build a two-story addition, 34 ft. x 100 ft., to its plant at 15 Forest Avenue.

Frank O. Howard of the sales department of American Steel & Wire Company, North Works, Worcester, Mass., has been appointed general manager of the company's newly opened office at Atlanta, Ga.

The Jackson Railway Signal Company, Manasquan, N. J., has been incorporated with a capital stock of \$100,000 to manufacture railway signals and devices. The incorporators are George B. Jackson, J. H. Sickel and J. S. Van Schoick.

The Automatic Reclosing Circuit Breaker Company, Columbus, Ohio, announces the appointment of the W. D. Hamer Company, 508 Traction Terminal Building, Indianapolis, Ind., as its representative in Indiana and western Kentucky.

The Line Materials Company, South Milwaukee, Wis., manufacturer of electric transmission supplies, recently suffered an estimated loss of \$40,000 from fire in its assembling shop and office building. Two new concrete shop buildings that were recently erected will serve to keep operations from being curtailed.

G. D. Crain, Jr., 417 South Dearborn Street, Chicago, Ill., publisher, announces that "Crain's Market Data Book and Directory of Class, Trade and Technical Papers," which lists and gives the circulation, rates, type-page sizes, closing dates, etc., of all the business publications of the United States and Canada, is now on the press.

The Air Reduction Sales Company, manufacturer of welding and cutting apparatus, has completed a four-story brick extension with reinforced concrete floors to its plant in Jersey City, N. J. The addition is necessary to provide for increased production of the Airco "A" welding and "D" cutting torches.

New Advertising Literature

Condulets.—Crouse-Hinds Company, Syracuse, N. Y., is distributing bulletin 1000R, on condulets, fixture joint and extensions, effective Nov. 26, 1920.