

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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The Federal Commission Has Produced a Constructive Report

MOST important, probably, in the ultimate effect of the report of the Federal Electric Railways Commission will be the general sentiment of the report that the problem of bringing the local transportation utilities to a position of greatest usefulness is one for the joint solution by the utilities themselves and the public. Quite definitely and, we believe, most fairly, the commission points out the obligations, duties and opportunities of both the railways and the organized public.

The report has lost some of its effect on account of the time which has been allowed to elapse since the hearings were held and the subject was more alive in the public mind. But wherever sober-minded students of the question are really trying to adjust relations, legal, financial and social, so that the railways may function most properly, we believe this report will prove to be a valuable aid. The very fact that this is the combined and unanimous judgment of so representative a group of men, after considering the immense amount of testimony and data presented to them, gives the report well-deserved weight and commands respect.

The report may not be perfect, but it is essentially sound and it is constructive. On the whole it analyzes the situation fairly, and it performs the even more important service of pointing the way to better conditions. There are railway men, there are labor men, there are members of the public, the last chiefly uninformed or politicians, who will disagree strongly with some of the recommendations and object to some of the analytical statements. We are inclined to the belief, however, that the report is not only right but stronger for having these very recommendations and statements included, and, further, those who object will, in the abstract and if the pinching shoe is removed, agree to the principles which they are at first inclined to criticize.

If there is one point to which we ourselves, succumbing to the admitted human weakness, would call attention, it is what we believe to be too great a conservatism in the estimate of the financial needs of the industry. From studies made as late as 1918 it was said that history showed the industry to need \$500,000,000 to \$600,000,000 new capital for replacements, extensions and improvements in addition to refunding requirements which were approximately half as much. While the latter sum does not of course represent additional investment in the electric railway industry, it is none the less an essential capital requirement which must be obtained if the industry is to develop. The commission states that it makes a "conservative estimate" when it gives its figures of \$175,000,000 to \$200,000,000 and our remarks are merely to emphasize how "conservative" these figures are.

Most of the principles discussed are not new to railway men, but the clearness and carefulness with which

recommendations are made or conclusions drawn are worth special notice. We would call attention to I, the essentiality of rail transportation; VI, the combined duty of furnishing adequate economic service by the railways and of allowing a reasonable return on a fair value by the public; VIII, the necessity for the removal of public antagonism (which we take to mean, as well, elimination of politically inspired persecution), encouragement of public co-operation and insurance of integrity of investments; XI, the recognition of the unregulated jitney competition and the necessity of providing regulatory provisions equivalent to those to which railways are subject; XII, the right of labor to satisfactory living conditions and collective bargaining, but the duty of labor to co-operate; the necessity for arbitration or other lawful means of settling disputes and the intolerableness of strikes and lockouts; XVIII, the recognition and recommendation of the service-at-cost franchise, based on fair valuation as "one means of solving a very difficult problem," and XX and XXI, the great desirability of properly regulated utilities rather than a resort to municipal ownership.

It is interesting and instructive to note in connection with the last subject that, although the commission in its letter states that "owing to the divergent representation of its personnel this unanimous report of the commission necessarily represents decided concessions by some of its individual members," it says in discussing government ownership that "each member of this commission believes that credit can be secured and private operation maintained under proper public supervision."

THERE are one or two points in the analytical discussion which deserve special attention. One of these is that, while what the commission says is true regarding the strength of the industry in having a market which pays cash as it goes, and in having a monopoly, nevertheless, this is also a weakness, for there is no possibility of "storing" the manufactured product. If the transportation is not sold as produced its cost is a dead loss. Another subject to which considerable attention is well given is the suggestion that extensions should be financed, at least in part, by assessments on property benefited. While the commission quotes sewers and pavements as examples, we would also mention water, and frequently the first cost, sometimes later amortized, of extensions to electric light and power, water, telephone, gas, etc. And finally the commission points out the close relation between public health and public economy—the social element, in other words—and transportation.

The national importance of the subject is well emphasized, but, even though there were some suggestions during the hearings that the national government might take a hand in the game, it is evident from the President's letter that the solution must come through local developments, as is probably necessary.

How can the report become really effective? is the next question. As we see it, the advice of the President should be followed; namely, get the facts to those interested, and these facts are most fairly set forth in the report itself. As we have said above, the report becomes a valuable aid. But railway men cannot, on that account, sit back and expect the situation to clear up automatically. The report emphasizes the duties of the railways themselves, but at the same time gives them most effective assistance.

Finally, we believe that the statement that "The electric railway problem admits of a satisfactory solution once the elements that compose it are made known and the principles of ordinary economic and business common sense are applied"—a statement already eagerly grasped by the daily press—can well be used by railway men and others interested to urge upon their fellows that men of good business judgment be elected to political office. For, as the report so ably points out, much devolves on the organized public, and we need sensible men in office to perform the work of the public.

Economic Conditions Increasingly Favor Electrification of Steam Railroads

IT IS now some time since any important announcement regarding steam railroad electrification has been made. This has been due to the condition of the industry, not to lack of interest on the part of railroad managers and engineers. A sound 25 per cent investment possesses no attraction for the moneyless individual and an offer of a means of increasing track capacity at small cost or of reducing fuel consumption falls upon deaf railroad ears when the treasury is empty. But now that the railroads are to have a square deal as to rates conditions will be changed and they can be reasonably expected to enter upon a constructive electrification program in due course.

Our view of this matter was indicated in an editorial in the Aug. 7 issue, written soon after the decision of the Interstate Commerce Commission to increase freight and passenger rates had been announced. The point made was that with the higher rates railway income and especially railway credit should so improve as to make judicious electrification possible. The reasons for ultimate electrification are so many and potent, however, that the forward-looking railway men and the makers of equipment who see large markets for their products in this field can afford to be patient.

Of course, the steam railroad properties are very much run down and are short of needed steam equipment, hence much of the available money at first will have to go to supply the deficiency. At the same time, the possibility of electrical operation, either by locomotive or multiple-unit cars, brings a new element into heavy traction, permitting some things to be done that could not be done at all before and making economies possible along other lines. Hence the sooner the job of electrifying the steam roads is tackled the better.

As we see it, the electrification proposition divides itself into three phases: namely, a first, in which electric power is applied in places where there is no possible competition with steam; a second, in which the electric locomotive or multiple-unit train is admittedly superior, and a third, in which there is competition, which will become keener as time goes on. As examples respectively of these phases it is only necessary to cite

the Grand Central Terminal in New York City, the Pennsylvania Railroad Broad Street Terminal in Philadelphia, the Norfolk & Western or the Butte, Anaconda & Pacific, and the Chicago, Milwaukee & St. Paul electrifications. These and other examples which will automatically occur to the mind are harbingers of the electric age to come.

Credit and Transportation Are Partners

IT IS about time for harvests and crop movements. Crop movements necessitate adequate transportation facilities and a large volume of credit is needed to finance crop marketing.

Since last November the Federal Reserve Banks have limited loans and tried to reduce the outstanding credit volume, but with little effect. For the past year the railroads have been devoting their attention to the imperative transportation demands, also with little effect, because of lack of credit and equipment.

The outstanding credit in July exceeded that at the close of 1919 instead of being lowered, and the financial men say this was largely due to inadequate transportation facilities, which obstructed free movements of commodities.

To an unusual degree crops will have to be held by the producers this year, this because of lack of cars and because of an 8 or 9 per cent money rate on time loans.

It seems to us self-evident that the transportation system and the banking system are mutually dependent. Give the railroads and railways credit and transportation facilities will soon be made adequate and the credit volume of industry reduced.

The intelligent method to reduce credit volume is to insure rapid commodity movement; the foolish method is to reduce production and the volume of business. Which is this country trying to apply?

Progress in Rail Joint Construction

THE subject of rail joints never seems to lack interest on the part of maintenance engineers. This is largely due, no doubt, to the fact that in many instances the joints are so obviously present that they cannot be overlooked. However, a study of conditions on any road will generally indicate that those joints which are still "among those present" are not in the class of modern joints. The term "modern" has to be defined here and we shall define it as covering the period of the last ten years.

Modern rail joints are the product of a long and costly process of evolution and we cannot say that they have reached perfection. Nevertheless, the study and experiment which have been devoted to them in the past decade have led to marked progress in that direction. Among other features, the progress which has been made in the several forms of welded joints for steel work is particularly striking, and it may safely be said that the welded joint has come to stay. Just what particular type of weld will ultimately reign supreme as the acme of perfection cannot be predicted, principally because of the element of time required to prove the ultimate worth of any joint.

The general acceptance of the welded joint as the proper type to be used for street work marks a very

important step in the progress of the art of track construction. With this question apparently settled, the next step will probably involve the gradual elimination of one or two of the types of welds now in use and, perhaps, the general adoption of one or more others which have some vogue today. It is quite possible that we may continue to have more than one type of welds to select from as the needs of the work indicate.

It is to be hoped that in our search for perfection in welded joints we shall not be too hasty in the extensive adoption of types which must still be classed as in the experimental stage. Some of the older types of welded joints which are now enjoying a great degree of success are the result of many expensive experimental installations undertaken without definite information as to performance over a period of years under service. The cost to the railway companies of the information thus gained is incalculable. The information contained in the article on rail joints in another part of this issue and covering the details of progress in several older types of welded joints should at least serve to caution engineers against too extensive experimentation with newer types until more is known as to service results extending over five years or more with the older types.

Electric Locomotives Prove Sturdy Under Strenuous Circumstances

AFTER several years of uneventful but eminently satisfactory service on the Rocky Mountain section of the Milwaukee electrification, three of the ten General Electric locomotives which were some months ago transferred to the Pacific Coast section, from passenger to freight duty, were soon thereafter given some jolts which severely tested their ruggedness. The story was told in last week's issue of this paper. Within a few weeks of each other two wrecks occurred in which these locomotives figured, but for neither of these were they in any way responsible. Minimizing the risk of repetition of the accidents will consist simply in increasing the preventive measures against man-failure and landslides, dangers which are necessarily incident to the railroad business.

The most remarkable thing about these wrecks is the way in which all three locomotives came through the ordeal. On the runaway train the main stress was on the motor armatures, geared as they were for a reasonable freight train speed. As the centrifugal forces vary as the square of the speed this inadvertent overspeed test involved forces which may be assumed at four times the normal value. Under these forces only one armature burst. The bars of several commutators "started," but the motor damage, as well as that in other parts of the machine, was insignificant compared with the wreckage as a whole. And the way this locomotive "hugged" the track was most remarkable of all.

This accident furnishes an ocular demonstration of the forces which are present when heavy trains are operating on steep grades. That of Beverly Hill is 2.2 per cent. Allowing 8 lb. per ton for friction, each ton on this grade produces a force of 36 lb. along the track, or a force of 100,800 lb. for a train weighing 2,800 tons, about the weight of the ill-fated wrecked train in question. It is easy to imagine what damage such a force, acting unrestrained upon even so ponderous a mass, could inflict. It inflicted it, all right, but of course the track curves must be credited with much of the damage.

And then, those locomotives that rolled down the bank; they proved themselves rugged even more surely. Locomotives must be designed for overspeed but hardly for overturn, at least not to this extent. The cabs were of course badly damaged, necessitating rebuilding, with straightening of some plates and replacing of others. There were also some minor breakages; but on the whole the damage was smaller than would be imagined possible and the reasonableness of the actual salvaging cost surprised the experts. That electric locomotives can be successfully salvaged after rolling down an embankment was proved years ago when four Great Northern machines were unceremoniously upset in this manner by an avalanche near the Cascade tunnel within a hundred miles of the scene of the Milwaukee accident. It is idle to speculate on the cost of salvaging Mallets under the same circumstances, but one cannot help but give this speculation a passing thought.

The Millennium Is Not Yet

WE RISE to remark that the statement that the motor bus will prove a panacea for all transportation ills can now at least be questioned. The news, as noted in this issue, of the strike of nearly 1,000 motor bus drivers in California indicates that labor will still be a factor in any system of transportation.

The Public, Too, Was Represented

SUPPOSE a judge in a case at law, after gravely hearing each side, should call the opposing attorneys to him and proceed to decide the case not on its merits, but on the basis of the minimum which each side would be willing to accept. Suppose that this was his general practice in deciding suits. How long would such a judge hold his place?

Yet it has been freely said that many of the wage awards of the past two years have been more than all the facts, if ascertained, would warrant, and that the figures arrived at have too often been mere compromises to which the third arbitrator would agree, have been dictated by political expediency, or have been forced grants, either as one necessary step in obtaining higher fares or as a means of preventing unbearable strikes or other serious troubles.

But in the Cincinnati case, mentioned last week, if we are correctly informed, no suggestion of a compromise or a forced solution received consideration. Upon assumption that the third arbitrator largely controls the spirit of an arbitration, real credit is due Prof. Alonzo Tuttle for his attitude and action in the case. And, further, it appears that, judging from the method of his appointment, the public was also represented in this arbitration. It is to be hoped that this arbitration is but the forerunner of others on the same policy.

As to the actual figures, we have no proof that 59 cents is the correct answer, but we presume it will be sure to be so when the record of the case is studied. The fact that a rate of 75 cents or 67 cents or 52 cents is in effect in some other city has no real relation to the rate in Cincinnati. What is important is that the decision should be as nearly right as possible. It is better for every one concerned to have a figure which can be substantiated than to have one based on false conclusions, only to have readjustments to make later.

Federal Commission Report

Hearings Held Last Year by Federal Electric Railways Commission Result in Constructive Report Submitted

July 28, 1920, to President Wilson —

Full Text of Report Is Given



FEDERAL ELECTRIC RAILWAYS COMMISSION

From left to right, W. D. Mahon, C. W. Beall, Philip H. Gadsden, Charles E. Elmquist (chairman), Charlton Ogburn (secretary, is standing), Edwin F. Sweet, Royal Meeker, Louis B. Wehle. George L. Baker was absent when this view was taken.

HONORABLE WOODROW WILSON,
President.

SIR: The Federal Electric Railways Commission begs leave to present the following report.

This commission was appointed by you in response to a suggestion outlining the need of such a commission in the following letter from two members of your Cabinet, the Secretary of Commerce and the Secretary of Labor:

Washington, D. C., May 15, 1919.

DEAR MR. PRESIDENT:

The electric railway problem to which your attention has been called on several occasions has recently assumed such serious national proportions as to warrant the prompt attention of the federal government. Already fifty or more urban systems, representing a considerable percentage of the total electric railway mileage of the country, are in the hands of receivers. The communities affected are among the most important—New York, Providence, Buffalo, New Orleans, Denver, St. Louis, Birmingham, Montgomery, Pittsburgh, Memphis, Ft. Wayne, Des Moines, St. Paul, Spokane, Chattanooga.

Other large systems are on the verge of insolvency, for the industry as a whole is virtually bankrupt. The continued shrinkage in the value of hundreds of millions of

electric railway securities held by savings banks, national banks, life insurance companies and by the public at large threatens to embarrass the nation's financial operations. Furthermore, the withdrawal of this industry's buying power, which is said to rank third in magnitude, involves the unsettlement of collateral industries, naturally entailing labor dislocation that will affect hundreds of thousands of employees.

The return to normal conditions is being hampered and the efforts of the government to avert strained conditions in finance, labor and commerce are being less fruitful of satisfactory results than would be expected, if some solution of the electric railway problem were in view.

What the solution is may, we believe, be evolved by a thorough investigation of general franchise and operating conditions in their relation to rates, including service-at-cost plans, state and municipal taxation, local paving requirements, and internal economies that may be effected.

We therefore propose and recommend the appointment by you of a federal board or commission, whose duty it shall be to study and report upon the entire problem, in order that the State and municipal authorities and others concerned may have the benefit of full information and of any conclusions or recommendations that may be formulated. Such a study will, in our opinion, exert a helpful and constructive force in this critical period of the industry's existence, and will aid in the readjustment. If

you would make such an appointment before June 30, your contingency fund could be used to defray the expenses, which would be about \$10,000.

The National Association of State Commissioners has always invited federal aid in this matter and the recent conference of governors and mayors adopted a resolution recommending federal consideration of the problem of preventing the financial disaster threatening this industry.

We propose that such a commission shall be made up of one representative of each of the following groups:

Treasury Department or War Finance Corporation, Department of Commerce, Department of Labor, National Association of State Commissioners, American Cities League of Mayors, Amalgamated Association of Street & Electric Railway Employees, American Electric Railway Association, Investment Bankers' Association of America.

We respectfully urge your authorization for such a commission, to be followed by your formal proclamation upon the selection of personnel.

Cordially yours,

(Signed) WILLIAM C. REDFIELD,
Secretary of Commerce.

(Signed) W. B. WILSON,
Secretary of Labor.

The commission appointed by you on the 31st day of May, 1919, consisted of the following members, who were to serve and have served thereon without compensation.

CHARLES E. ELMQUIST, *president and general solicitor of the National Association of Railway & Utilities Commissioners.*

EDWIN F. SWEET, *Assistant Secretary of Commerce, representing the Department of Commerce.*

PHILIP H. GADSDEN, *representing the American Electric Railway Association.*

ROYAL MEEKER, *Commissioner of Labor Statistics, Department of Labor, representing that Department.*

LOUIS B. WEHLE, *general counsel of the War Finance Corporation, representing the Treasury Department.*

CHARLES W. BEALL, *of Harris, Forbes & Company, New York, bankers, representing the Investment Bankers' Association of America.*

WILLIAM D. MAHON, *president of Amalgamated Association of Street & Electric Railway Employees of America, representing that association.*

GEORGE L. BAKER, *Mayor of Portland, Oregon, representing the American Cities' League of Mayors.*

The commission met on June 4, 1919, in Washington, D. C., and organized by electing Charles E. Elmquist as chairman and Edwin F. Sweet as vice-chairman, and subsequently appointed Charlton Ogburn as its executive secretary. At its first meeting the commission announced that it would attempt to determine the general principles which should govern the regulation, operation and service of electric railways, but that the commission was without authority to hear and determine specific local controversies, and that it would not undertake in any way to encroach upon the functions of state commissions or of municipal authorities; that the purpose of the commission was rather to investigate and study the conditions of the electric railway industry, including franchises, rates, taxation and assessments, economies of operation, public relations, regulation, etc.

The commission gathered its testimony mainly in two ways: First, by public hearings, at which ninety-five witnesses testified in person and twenty-one others sent prepared statements; second, by a series of questionnaires sent to every city in which there is a street or interurban railway, addressed to the electric railways, the mayors, chambers of commerce and the central labor

unions, and also to all of the state public utility commissions.

The first public hearing was held in New York on June 19, 1919. The next hearing was held in Washington on July 15, lasting two weeks, during which time the witnesses on behalf of the electric railways presented evidence under the direction of the Committee of One Hundred of the American Electric Railway Association. The next hearing was in Washington beginning Aug. 11, and lasted one week, testimony being offered on behalf of the public, chiefly by representatives of the municipalities and all state public utility commissions. At the last hearing held in Washington beginning Sept. 29, and lasting one week, testimony was offered by further witnesses representing the public and by witnesses on behalf of labor, represented by the Amalgamated Association of Street and Electric Railway Employees of America. All of these hearings ran through day and night sessions beginning at 10 a.m. and usually continuing until 10 or 11 p.m., and totaling one month.

Among the witnesses were ex-President William H. Taft, Secretary of War Newton D. Baker, leading bankers, railway managers, economists, mayors, public utility experts and state public utility commissioners.

The testimony taken embraced 6,195 pages of type-written transcript.

Three separate questionnaires were later sent out. The first was general, dealing with all phases of the situation. The last two were special, seeking traffic figures, month by month, for the past three years; that is, as to the number of revenue passengers, amount of passenger revenue, fare charges, and any occurrences affecting traffic, such as strikes, influenza epidemic, and the like.

At the conclusion of the final public hearing, the commission engaged the services of Dr. Delos F. Wilcox to aid in analyzing the testimony gathered and to make suggestions to the commission with reference to its report. Dr. Wilcox made a very comprehensive analysis of the evidence, containing 823 pages of matter. The commission regrets that it cannot publish this analysis with the proceedings, since it presents a complete and masterful study of the whole electric railway problem. Printed with the evidence, however, is a summary of the Wilcox report, prepared by him. The answers to the questionnaires resulted in bringing to the attention of the commission a great mass of information. All the evidence, exhibits, analysis of Dr. Wilcox, and tabulated summaries of information found in the answers to the questionnaires have been considered by this commission.

The final meeting of the commission was held in Washington July 22 to 27, 1920, inclusive, for the purpose of formulating this report.

Owing to the divergent representation of its personnel, this unanimous report of the commission necessarily represents decided concessions by some of its individual members.

A complete report of the testimony will be printed, together with this report, and will be placed in the Congressional Library in Washington and other leading libraries in the country, with all regulatory commissions, and with the mayors of the leading cities of the United States.

For convenience, we wish before proceeding to our discussion to state our principal conclusions and recommendations, which are as follows:

SECTION I

Conclusions and Recommendations

I. The electric railway furnishing transportation upon rails is an essential public utility, and should have the sympathetic understanding and co-operation of the public if it is to continue to perform a useful public service.

II. The electric railway has been, and will continue to be, a public utility, subject to public control as to the extent and character of the service it renders, and as to the rates it charges for such service.

III. It is of the highest importance that both the total cost of the service and the cost to the individuals who use it shall be kept as low as possible without injustice to those who take part in producing it.

IV. The electric railway industry as it now exists is without financial credit and is not properly performing its public function.

V. This condition is the result of early financial mismanagement and economic causes, accentuated by existing high price levels of labor and materials, and of the failure of the uniform unit fare of five cents, prescribed either by statute or by local franchise ordinances or contracts to provide the necessary revenues to pay operating costs and to maintain the property upon a reasonable basis.

VI. The industry can be restored to a normal basis only by the introduction of economies in operation, improving its tracks, equipment and service, and securing a reasonable return upon the fair value of its property used in the public service when honestly and efficiently managed.

VII. The electric railways must expand to meet the growing needs of their communities; therefore, the first essential is to restore credit in order to obtain necessary new capital for the extension and improvement of service.

VIII. Restoration of credit involves a readjustment of relations which will remove public antagonism, provide public co-operation, and insure to the investor the integrity of his investment and a fair rate of return thereon.

IX. Effective public co-operation should be exercised by eliminating, in so far as it is practicable, special assessments for sprinkling,

paving, and for the construction and maintenance of bridges which are used by the public for highway purposes.

X. Extensions into new territory resulting in special benefits to the property in that vicinity should be paid for by assessments on such property in proportion to the benefits received, and that the amount of such assessments should not be added to the physical value of the corporate property.

XI. The great increase in the use of private automobiles, the jitney and motor buses, has introduced a serious, although not a fatal, competition to the electric railway. These forms of public motor conveyance when operated as public carriers should properly be subject to equivalent regulatory provisions.

XII. The full co-operation of labor is essential to the highest prosperity and the usefulness of the industry. The employees engaged in this occupation should have a living wage and humane hours of labor and working conditions. They should have the right to deal collectively with their employers, through committees or representatives of their own selection. All labor disputes should be settled voluntarily or by arbitration, and the award of such a board should be final and binding upon both parties. It is intolerable that the transportation service of a city should be subject to occasional paralysis, whether by strikes or by lockouts.

XIII. A private industry should not be subsidized by public funds, unless it is imperatively necessary for the preservation of an essential service, and then only as an emergency measure.

XIV. Unless the usefulness of the electric railways is to be sacrificed, public control must be flexible enough to enable them to secure sufficient revenues to pay the entire cost of the service rendered, including the necessary cost of both capital and labor.

XV. There can be no satisfactory solution of the electric railway problem which does not include the fair valuation of the property employed in the public service, and, where that is done, the companies should voluntarily reduce any excessive capitalization to the basis of such value.

XVI. There is no insuperable objection to a large, wide-awake city having exclusive jurisdiction over the rates and services of public utilities.

XVII. The necessity for scientific and successful regulation of systems, whether large or small, and especially those which operate through several cities and villages and in rural territory, leads to the conclusion that local regulation should generally be subject to the superior authority of the state, whether as a matter of original jurisdiction or through the medium of appeal.

XVIII. Cost-of-service contracts are in the experimental stage, but, where tried, they seem to have secured a fair return upon capital, established credit, and effected reasonably satisfactory public service. Such contracts may safely be entered into where the public right eventually to acquire the property is safeguarded.

XIX. The right of the public to own and operate public utilities should be recognized, and legal obstacles in the way of its exercise should be removed.

XX. While eventually it might become expedient for the public to own and operate electric railways, there is nothing in the experience thus far obtained in this country which will justify the assertion that it will result in better or cheaper service than privately operated utilities could afford if properly regulated.

XXI. Public ownership and operation of local transportation systems, whether or not it be considered ultimately desirable, is now, because of constitutional and statutory prohibitions, financial and legal obstacles, the present degree of responsibility of our local governments, and the state of public opinion, practicable in so few instances, that private ownership and operation must as a general rule be continued for an extended period.

XXII. If the reforms incident to public regulation which we suggest in this report should not result in making private ownership satisfactory to the public, such reforms should at least enable public ownership to be established upon a just and equitable basis.

SECTION II

The Street Railway Is an Essential Industry

THE electric railway industry at present is a factor of essential importance in the urban life and, to a scarcely less extent, in interurban relations of the country.

The experience of seventy-five years, the unanimous opinion of expert witnesses and of those who are students of transportation problems, and the assumption of the necessity for tracks by inventors working to improve the methods of street transportation, alike demonstrate the fundamental and permanently essential nature of the railway and, to the present time, of the electric railway—as the most nearly adequate, reliable and satisfactory system available for transporting the maximum number of people through the streets of our cities with the least interference with the use of these streets for other purposes of public ways.

The Bureau of Census reports for the year 1917 show the net capitalization as of December 31, 1917, to be \$4,889,962,096, which makes this industry one-fourth as important as the steam railroads of the country in point of capitalization. The total mileage in 1917 was 44,835. The net capitalization per mile of track is \$109,065. The total revenues for 1917 from railway operations were approximately \$650,000,000.

These statistics do not include the electrified portions of steam railroads engaged in suburban service. Approximately 40 per cent of the mileage is suburban in character.

The number of people with whom the electric railways come into daily contact is shown by the fact that in the year 1917 they carried a total of 11,304,660,462 revenue passengers and 3,202,254,111 transfer and free passengers, as compared with a total of 1,066,638,474 revenue passengers carried by the steam roads.

In spite of the immense development

of the automobile industry the demand for electric railway transportation has increased at a rapid rate. It is estimated that on December 31, 1917 there were 4,643,481 passenger automobiles and that two-thirds of the development of that industry was subsequent to 1912, but the number of revenue passengers carried by the electric railways was approximately 1,800,000,000 more in 1917 than in 1912. During the year ended June 30, 1919, the total number of revenue passengers carried by the local transportation lines of New York City was 2,079,942,604 as compared with 1,402,417,642 carried during the year ended June 30, 1909, an increase of more than 48 per cent in ten years. On the basis of the estimated population served the number of revenue rides per capita in New York City in 1909 was 304 and in 1919, 370, an increase of nearly 25 per cent in the riding habit.

In this connection Henry G. Bradley, president of the Stone & Webster Corporation, stated in a letter dated October 1, 1919, as follows:

It would appear that something has been and is still stimulating the street railway business; possibly the automobiles themselves have helped in this direction. People may be acquiring to a greater extent than ever before the riding habit and may be more and more inclined to move about and spend less time in their own home or with their own neighbors. The moving picture is probably also a factor in the situation, but whatever may be the cause, the facts seem pretty clear that the demand for transportation service is still growing apace. This fact, I think, is generally not understood; in fact, I am free to confess that we, ourselves, were surprised to see the extent of the increased demand for service.

In 1917 the number of employees were 294,826 and it is estimated that the total number of people who were

directly and conveniently accessible to electric railway service is about 50,000,000 at the present time. The electric railways have overflowed municipal boundaries and now include a network of interurban lines in many portions of the country, but the fact still remains that the industry is primarily a street railway with its principal function the transportation of passengers within the limits of municipalities.

While the electric railway industry is essentially local it has certain national characteristics. Its difficulties cannot be regarded simply as the isolated problem of a local system repeated hundreds of times all over the country in varied forms and degrees, each problem being independent of all of the others.

On the contrary, although a local traction system may be separated by hundreds of miles from its nearest neighbor, it is in other ways inseparably connected with all of the others. As a purchaser in the equipment markets of other states it competes with other companies.

Its demands for labor and its scales of wages are necessarily felt at once by traction systems everywhere. In procuring its capital its officers have been generally compelled to market its securities to a large extent in other states, among investors who are particularly interested in such classes of investment. The close industrial and financial interdependence of the hundreds of physically unrelated local traction systems, the millions of dollars of capital placed by thousands of investors in plants which manufacture electric traction equipment and the five millions of dollars of electric traction bonds and stocks to be found scattered all over the country in banks, insurance company reserves and in private investment, translate the many local problems into a national problem.

SECTION III

Financial Condition of the Electric Railway Industry

THE investigation demonstrates that the financial condition of the electric railway industry is acute, and that, to a very great extent, it is not properly performing its public functions.

The record in this case shows that on May 31, 1919, there were sixty-two companies, having a mileage of 5,912, in receivership, that sixty companies had dismantled and junked altogether 534 miles of railway, and that thirty-eight companies together had abandoned 257 miles of track. Since that date and up

to July 1, 1920, there have been fifty-six additional companies, having a mileage of 1,906, which have been thrown into receivership.

The capitalization of the industry according to the 1917 census report is represented by \$3,058,377,167 in bonds and \$2,473,846,651 of stock. For the year 1917 the net income of operating companies was \$56,450,930, representing an average rate of return of 2.81 per cent upon the capital stock. In 1918, the evidence shows the net income was reduced to \$20,183,413, which rep-

resents a return of only 1 per cent. As a whole, there has been some improvement in the industry since the commencement of these hearings, due to the fact that there has been an increase in the car-riding habit since demobilization, and in a great many instances the fare has been increased beyond 5 cents. In spite of this slight improvement, however, the condition of the industry at the present time is serious. A great many companies are unable properly to maintain their track and equipment and to perform efficient public service, to

secure funds with which to purchase new equipment, to build necessary improvements and extensions, or to refund maturing obligations.

A large number of factors have contributed to the present plight of the electric railway industry. These may be mentioned:

(a) They were not conservatively financed in their early years, and have not since made good their overcapitalization, except to a limited extent, otherwise than through the process of bankruptcy and reorganization. In the early days the promoters of electric railway properties believed that long term franchises with a 5-cent fare would be permanently profitable. Large sums of money were required to develop the business. In many cases the promoters issued bonus stock to represent their hopes and expectations. This bonus stock did not represent money, service or property, and added nothing to the value of the plant. As a result of this practice, there are many cases where the existing capitalization exceeds the investment in the plant or the value thereof.

(b) Neglect to amortize this excess capitalization.

(c) Failure to amortize the normal accrued depreciation.

(d) Payment of unearned dividends and neglect of ordinary maintenance.

(e) Overbuilding into unprofitable territory or to promote real estate enterprises, involved sometimes with political improprieties.

(f) A uniform 5-cent fare, which established a constant rate to apply during variable cost periods. This contract fare has been a source of irritation, resulting in litigation. During normal times many communities sought to have the fare reduced below the contract price.

The railway companies insisted upon adhering to the contract, and they were sustained by the courts. During the recent high-cost period many companies have applied for an increase in fare to enable them to meet operating expenses and fixed charges. In many cases communities undertook to prevent the increase beyond the contract rate. Under the decisions of the Supreme Court of the United States and of the highest courts of a number of states, it is now established that a franchise provision naming a certain rate of fare creates no right of any car rider in such fare which cannot be properly changed by appropriate legislation and substituted by a higher charge.

As indicative of the fact that the 5-cent fare has not been adequate during the war period, we need only to call attention to the fact that on July 1, 1920, increased fares have been allowed in over 500 selected cities. 10-cent fares have been allowed in sixty-nine; 9-cent fares in two cities; 8-cent in 30 cities;

7-cent with 1-cent charge for transfer, in 26 cities; 7-cent zones in 6 cities; 7-cent in 145 cities; 6-cent zones with 2-cent transfer charge, in 10 cities; 6-cent for two zones with 2-cent per zone thereafter, in 13 cities; 6 cents for each two zones in 4 cities; 6 cents cash fare in some cases in 149 cities; 5 cent zones and elimination of reduced rate tickets in 50 cities.

Boston has a 10-cent fare. Chicago, Washington, Cincinnati, Kansas City, Youngstown and other large cities are on an 8 cent basis.

It would seem that so long as the railways depend upon earning power, and earning power depends upon passenger revenue, the fixed uniform fare is a broken reed for the industry or for the community to lean upon. Perhaps the general sentiment of the electric railways is best expressed by the evidence before this commission of Gen. Guy E. Tripp, as follows:

We were all living in a fool's paradise in the street railway business when we suddenly, woke up—when the war woke us up—to find that no business which cannot increase its revenues under any conditions can live or is sound.

Conversely, it may be said that no community should bind itself by contract or otherwise to continue after normal conditions have been restored a rate which might be found reasonable during this abnormal period.

(g) Limited franchises which impair credit and toward the expiration of the franchise result in neglect of the maintenance of the property.

(h) Special taxation and franchise obligations, having particular reference to street paving, street sprinkling, construction and maintenance of bridges used by the general public, general taxation, and so forth.

The American Electric Railway Association introduced a chart which showed that the total amount of taxes levied against the properties in 1917 amounting to \$45,756,695, of which taxes on real and personal property was \$21,804,619, and on earnings, capital and other taxes \$23,952,076, representing 10.11 per cent of the operating expenses. In 1902 the ratio of taxes to operating expenses was 9.19 per cent. It is thus seen that there is only a small increase in the ratio of expense for this item since last year.

For the period from 1913 to 1918 the expenditures for all taxes including paving and other imports, has ranged from \$60,000,000 to \$65,000,000, corresponding to ten per cent of the operating revenues. The ratio varies very materially among the different plants.

The evidence on behalf of the companies therefore shows that on the basis of the 5-cent fare, the taxes represent about one-half of a cent in the nickel which the car rider has been paying, and that they thus contribute materially to the necessity for fare increases.

The argument has been made with

considerable force that the car rider should be required to pay for service alone; that he should not, through his carfare, be required to pay for supporting the city's schools, its alms houses and other city institutions. It is contended that the company should be required to pay in taxes to the city only such an amount as would reimburse the city for its actual cost due to the presence of the street railway; and that such a plan of taxation alone would be consistent with the idea that the carfare should be based upon the real cost of rendering the actual service of transportation.

Although there is much force in this idea, and it should be borne in mind by all who are interested in street railway problems, we do not think the time is ripe for recommending its general adoption. The heavy taxation to which the companies are now subject came into being during the period of their prosperity and at a time when they were still essentially private concerns, relatively free from regulation. It was natural that their properties should be taxed in no less degree than the properties of other private corporations.

When a company comes to subject itself to such a comprehensive regulation as renders its property in effect a public instrumentality then tax exemption begins to be in order. This course has indeed been followed in Cleveland, where as an incident to the passing of the properties under the Taylor plan of municipal regulation they came to be exempted in large measure from taxation. To the extent that it may become possible in any community under similar conditions to exempt street railway property from taxation, the rider's carfare will come more nearly to represent the actual cost of rendering the service of transportation—in itself a desirable result. But it would seem that the status of the company as a public agency should be well assured before such exemption should be attempted.

(i) AUTOMOBILE AND JITNEY COMPETITION—For several years prior to the war, and to an increasing extent throughout the war period and up to the present time, the automobile has proven to be a serious competitor of the electric railways rendering local transportation service.

Jitneys and automobile buses operating as common carriers have been able in some cases, through the absence of sufficient public regulation, to engage in unfair and destructive competition with the electric railways for the most profitable part of urban passenger traffic. Strong as this competition has been, however, the electric railway industry as a whole has shown a very substantial increase in the riding habit. The operation of jitney buses as common carriers is much more restricted than the operation of private automobiles, but the jitneys have had a definite and intensive effect upon the street railway situation in particular communities, for the reason that they have

engaged in direct and in some respects destructive competition with the street cars as public carriers. The experience of numerous communities, even before the extraordinary conditions growing out of the war, made it clear that unrestricted jitney operation though more or less temporary and precarious in character, threatens the service, credit and solvency of the street railways.

(j) **HOLDING COMPANIES AND BANKER CONTROL**—About 75 per cent of the public utilities of the country are held, in whole or in part, by so-called "holding companies," which are responsible for their operation. This financing is done in large part through the securities of the parent company, which securities are supported by the securities of the various operating companies. This frequently gives an element of strength to the securities of the parent company which a single localized operating company could not in all cases present. If it were not for the supporting strength of these parent companies, many of the individual operating companies would have gone under before Jan. 1, 1918.

Through these holding companies the electric railways threaten to become a banker-controlled industry. Those who have the ultimate say in matters of street railway policy from the point of view of investors have been dependent for their profits and their power upon the volume of securities outstanding and the frequency with which these securities have been exchanged or refunded. Holding companies in many instances have been responsible for overcapitalization, and have insisted upon drawing from the underlying companies every possible cent that could be secured in order to make a showing on these inflated securities. Hon. Joseph B. Eastman, at present a member of the Interstate Commerce Commission, discussed the question as follows:

In the third place a factor of weakness I think was the control of the companies in many instances by holding companies organized in the form of voluntary associations, or to use a more technical term, express trusts. Although the stock and bonds of the street railway companies themselves were issued under public supervision, these voluntary associations which corralled all their stock were subject to no regulation whatever and issued shares upon an inflated basis, and that had the result of accentuating the desire to draw every possible drop of income out of the underlying companies that could be secured in order to support earnings upon the inflated shares of these voluntary associations.

Through this system of financing and management, the utilities have been largely controlled by persons living distant from the community affected by a particular electric railway, whose prime consideration has been to secure a return upon the property. This "absentee" management and control has not been successful in bringing about

the proper spirit of co-operation between the local managers, employees, and the public. Since the electric railway companies come into immediate daily contact with large numbers of people, it is of the utmost importance that the industry should gain and hold the respect, confidence and good-will of its patrons. If the local public should invest its money in the stocks and bonds of its local utilities there would be an improvement in the relations now existing between the corporation and the public.

(k) **USE OF REGULATORY POWER TO COMPEL MORE AND BETTER SERVICE**—Through the exercise of this power the companies have been required in many instances to improve their standards of service and equipment; to equip cars with vestibules for the protection of the motormen and to give better heating, lighting and ventilation for the comfort and convenience of the passengers. They have also been obliged to install safety devices and make stops at frequent intervals. The exercise of the regulatory power of states and municipalities has undoubtedly added to the cost of the service.

(l) **UNDERLYING COMPANIES AND LEASED LINES**—Consolidations have been brought about through the unification of a number of separate corporations which owned and maintained lines of track within the same city. In many cases consolidations were made upon the condition that these companies should be guaranteed a certain rate of return or fixed sum, which represented a high percentage yield upon the investment. The returns thus secured have been a frequent source of irritation, induced by a feeling that these underlying companies are being paid more than a reasonable return upon the value of their property. Your commission believes that excessive payments to the underlying company by the operating company have greatly diminished the net operating revenue and that there can be no satisfactory solution of the street railway problem in such communities until the system has been valued as a whole and the accounts so kept that the public may know that the rate of fare paid yields no more than a fair return upon the value of such property.

(m) **INCREASING DEMANDS OF LABOR**—The wages of street railway labor prior to the war were generally insufficient from the viewpoint of the living wage, and the increases in wages that have taken place since the beginning of the war period have not on the average been as great as the increase in the cost of living.

At the time of our entry into the war the average wages of motormen and conductors for companies of 100 miles and over were approximately 31.5 cents per hour. Since the war there has been a rapid increase in the wages of employees. The National War Labor Board by its awards in the year 1918

established the normal wages for this class of service in different cities varying from 38 cents to 48 cents per hour, increasing wages 23½ per cent. The awards of the board mark the beginning of the rapidly increasing wages in this class of employment. An exhibit filed by the Amalgamated Association of Street & Electric Railway Employees of America shows the wages for conductors in the principal cities of the United States and Canada as of Jan. 1, 1920. For convenience the exhibit is published as an exhibit attached to this report.*

Since that date new contracts have been agreed to which substantially increase the wages in a number of cities.

(n) **THE WAR AND THE DOLLAR**—The conditions which have been here enumerated tended to break down the credit and stability of the electric railway industry. The increases in prices of labor and materials entering into the construction, maintenance and operation of electric railways during the war period have corresponded with the increases in the prices of general commodities and in the wages of labor in all industries. Operating costs became so high that in many cases the revenues were not sufficient to pay even the current expenses of operation. Material and equipment prices reached abnormal heights. The increases over 1915 in railway motors and car equipment show 87 per cent; locomotives, 87 per cent; rotary converters, 75 per cent; transformers, 70 per cent; switchboards, 100 per cent; motor generator sets, 95 per cent; turbines, 100 per cent; pig iron, 106 per cent; steel plates, 141 per cent; copper, 58 per cent; steel castings, 220 per cent; coke, 33 per cent; coal, approximately 100 per cent; asbestos material (which is largely used), 560 per cent; other insulating materials, 125 per cent; magnetic sheet steel, 280 per cent; labor, from 85 per cent to 90 per cent.

(o) **COST OF NEW MONEY**—The destruction of capital incident to the world war and the unprecedented demand of the government and industries for money resulted in largely increasing the interest rate for loans. More attractive loans are now absorbing money available for investment, leaving the electric railways where, even with credit restored, they would have to compete in the money market with prosperous and unregulated enterprises.

These factors, and more particularly the increase in wages, fuel, material and supplies during and since the war period have brought the electric railway industry to the point where in many instances it may be forced to abandon public service, and in most cases to a point where it will be unable to secure new capital to enable it to refund maturing obligations, secure new equipment, and to make necessary extensions and improvements, unless some solution of the situation can be found.

*See page 411

SECTION IV

Emergency Relief

THE evidence in this case shows that the state regulating commissions, and in a large number of cases the local tribunals, have recognized that it has been necessary to grant emergency relief to secure to the communities the service of the electric railways.

With commendable initiative and oftentimes against a hostile public sentiment the regulating officers have granted temporary increases in the fares without undertaking to determine the value of the plants or with-

out making a long and exhaustive investigation.

Very little if any criticism was made to us against state regulating commissions for their treatment of these utilities during the war period. The most serious difficulties were met with in communities where the charge was fixed by franchises and the state authorities were without jurisdiction to regulate fares.

During a war or other abnormal periods, it would seem to be the duty of the state and municipal offi-

cers to deal promptly with petitions for increased fares, and to afford such relief as will enable the street railway to serve the public and maintain its track and equipment in proper operating condition.

The public always pays for a run-down plant, either through inferior service or higher charges. The first essential is service to the public. Due recognition of this fact will secure to the investor a safe return upon his investment and to the public uninterrupted operation.

SECTION V

Credit and Co-operation Are the Co-ordinate Needs of the Electric Railways

IT IS clear from this record that the two serious needs in the electric railway situation today are its need of credit and its need of co-operation between the public and the utility.

Credit will enable the electric railways to rehabilitate themselves, to adjust their capital accounts and to meet the prices of normal replacements which are now upon higher price levels. The co-operation of labor will enable them to render continuous and popular service, to effect operating economies, and to get into their treasuries the full amount of revenue collected from the riding public. First-class credit and the full co-operation of their employees, if properly utilized in rendering adequate public service, would give the electric railways a well-nigh impregnable position in their relations to the public and tend to disarm and overcome the prevailing antagonism against them. With capital and labor performing their respective parts freely and well, restrictive regulation would be unpopular, and the demand for substitution of public ownership and operation for private management would shrink into relative insignificance.

The test of private ownership and management lies in the solution of these two problems of credit and co-operation. These problems must be solved, and if no solution of them is practicable under present ownership and control, then the only course open is the complete transformation of the electric railway industry into a governmental business. Each member of this commission believes that credit can be secured and private operation maintained under the proper public supervision.

Unless the confidence of the investor

in the securities of companies furnishing this essential public service be restored, the public itself must in some way assume the burden of supplying the funds that are necessary for their continuance.

To a degree unknown to private business enterprises, which to a certain extent are able to finance capital expenditures from earnings, the electric railways are dependent upon new investment—new capital—for the extension, improvement and betterment of the service which they perform. Communities need and are constantly demanding additional local transportation facilities. They require large sums of money, which can come only from those with savings to invest. When the flow of new capital ceases, when the confidence of the investor in the ability of the enterprise to safeguard the integrity of the investment and to insure a fair return thereon ceases, new capital is unobtainable and the utility can no longer serve the purpose for which it was created.

This condition is now present. Lack of confidence in electric railway investment exists today to a degree which has caused a partial paralysis, is working havoc with the finance of the companies, and is depriving the public of the service to an alarming extent.

For rehabilitation and improvements and extensions which are vitally needed to meet the requirements of every growing community, new capital at once and in large amounts is imperatively required, and until the force of circumstances convinces those with capital at their disposal that investment in electric railway securities affords safety and a fair return, it cannot be obtained.

So far as the requirements in nor-

mal times are concerned, certain characteristics of the electric railways and certain conditions under which they operate tend to make their credit almost unlimited. In the first place, they have enjoyed a monopoly of the most convenient form of local transportation during a period of rapid industrial development and of rapid increase in urban population. They have a continuous and immediate market for their "goods." They sell transportation as it is produced. While electric railway traffic fluctuates somewhat from year to year according to the number of passengers and the prosperity that prevails, and fluctuates somewhat from season to season, from week to week, and from day to day, these fluctuations are relatively unimportant. The business of transportation goes on every day in the year. Under normal conditions the credit of the electric railway business is its relatively small need for "fluid" or working capital. In this respect it occupies a position more independent than that of any other utility or any other ordinary private industry. It does a cash business. Almost 100 per cent of its revenues are collected in advance, through the sale of tickets or at the time the service is rendered, from the collection of fares in the cars. Money flows into its coffers day by day in a relatively even stream. Before it pays the wages of its employees, the salaries of its officers, the claims resulting from injuries and damages, the rentals for the use of property, the interest and dividends on its investment, or its taxes, it has already collected from its patrons in cash full compensation for the service rendered. It does not send out bills.

The increase in revenues of the electric railways is a product of three

lines of expansion. These are the increase in urban population, the increase in the riding habit, and the increase in the rate of fare. The gross operating revenues of the electric railways grew from \$247,000,000 in 1902 into \$650,000,000 in 1917, an increase of 163 per cent.

For a number of years, particularly during the first decade of the century, there was a strong tendency toward fare reductions in many urban communities, but the evidence shows that for the country at large the total amount of electric railway operating revenues increased by a much greater percentage than the number of revenue passengers during the fifteen years ended with 1917. Since the latter date there has been a strong upward tendency in street railway fares. Statistics covering 75 per cent of the electric railway traffic of the country indicate an increase of nearly 14 per cent in the average fare paid from 1917 to 1919, and an increase of about 22 per cent in passenger earnings during this two-year period.

Without a doubt the enjoyment by the electric railway industry of a steady inflow of revenue of rapidly increasing volume assured by the most fundamental conditions of modern life and the strongly developed habits of the people is extremely favorable to credit. In what other industry could investment be made with greater assurance of security and continued earning power? The tracks for the most part are in the public streets where everybody can see them. The operation of the cars is most conspicuous. It would be hard to find another industry where the investment is completely visible to all and so freely observed by the entire population. If publicity of operation is a guaranty against the waste and disappearance of capital, then the position of the electric railway, where everybody can observe it every day, is surely conducive to the development and retention of credit. From this viewpoint how different is a street railway investment from an investment in mining stock or in the fruit lands of the far West, or even in manufacturing enterprises in one's home city? The capital stock of electric railways does not require to be refunded, and under sound financial and regulating policies the proportion of stocks to bonds outstanding would undoubtedly be much greater than is shown to have been the case. Under such conditions refunding difficulties would be almost negligible.

The record is not clear as to the amount of new money which may be required year by year, but a very conservative estimate places the figures at between \$175,000,000 and \$200,000,000 per annum, to be used in replacements, refunding obligations, extensions, and improvements.

For the purpose of restoring credit, it seems to be the general impression of all witnesses that the first necessity is for the industry to put into effect such economies of operation as will

enable it to give good service at the lowest cost. Generally speaking, this can be done by the elimination of dead-heads and other free service, the abandonment of non-profitable lines, and, where practicable, the substitution of one-man cars for heavier equipment, the modification of special taxes or provisions for paving, snow removal, street cleaning, tools, contributions toward the cost of public highways, bridges, etc., reduction of such rentals and power rates as may on investigation prove excessive, the co-operation with the public in developing faster schedules and installing skip-stops at convenient places, rerouting of cars, the use of trailer cars, keeping street-car tracks clear of traffic and other congestion due to parking of motor cars on curbs, and the regulation of vehicular traffic. Much can also be done toward reducing the cost of operation by developing the proper spirit of co-operation with employees. All of the matters herein suggested properly come under the head of good management and regulation, and in some cases would entail legislation, but in our judgment they do not wholly solve the street car problem or invite needed capital into the industry.

During the past two years efforts have been made to meet the difficulty by increasing fares. In many cases this has helped to tide them over a difficult period, but it has not stimulated the confidence of the investor in the integrity of the industry. New capital is not flowing in that direction.

An effort has also been made in a number of communities to increase the short-haul riding habit as well as the revenues by the introduction of the zone system for fares. This system has proven generally successful in some of the European countries but it has met with varying success in the United States.

Fundamentally the theory of the zone system is logical. It is that a passenger pays for what he gets. Under the present flat fare charge the short-haul rider is paying for a service given to the long-haul rider.

The original failure of the electric railways to vary their rates of fare for transportation service based upon the length of the ride, as services in all other lines of business are sold, is, in our judgment, one of the contributing factors to their present financial condition. The electric railway industry is the only public utility which as an industry has consistently adhered to a flat fare basis. Steam and suburban roads charge on a distance basis. Gas, power, electric and water power companies generally make their rates upon a measured basis, subject to a minimum charge per month, and the telephone companies grade all toll messages on a mileage basis, while observing in most cases a flat rate per month for local service. Whether or not, under present conditions, it would be to the interest of a community to introduce a zone system of fares, instead of the present flat fare system, is a question

which we think should be decided by the community itself, having reference to the social problems involved.

Labor on Street Railways

THE labor policies of the electric street railways will in the future be of great importance as an element in the restoration and the permanent maintenance of their credit. The full co-operation of labor is essential to the highest prosperity and usefulness of the industry. This is particularly true because in the case of the street railways the employees who immediately handle the service come into direct contact with the people who consume that service.

The evidence before this commission shows that in the past the suspensions of service due either to strikes or lockouts have been costly to both the employees and to the operating company, but the loss occasioned to those two groups has been secondary to the damage wrought to the public interest. The conditions which recurrently bring about such interruptions of service should be treated at their roots. The employees engaged in this occupation should have a living wage and humane hours of labor and working conditions. They should have the right to deal collectively with their employers through committees or representatives of their own selection. In all contracts and working agreements made between them and the employing companies, there should be arbitration provisions under which all labor disputes which cannot be voluntarily settled shall be submitted to boards of arbitration composed of disinterested persons. The award of such a board of arbitration should be final and binding upon both parties to the controversy; for it is intolerable that the transportation service of a city should be subject to occasional paralysis, whether by strikes or by lockouts. It would seem that public authorities could well interest themselves in the formulation of such plans and rules for the arbitration of labor disputes under these contracts as will secure justice to both parties and as will assure continuity of service in so far as that may be possible of achievement.

But the full co-operation of labor in the street railway industry will not have been brought about alone by the recognition of the right of collective bargaining which we have just been urging. Such recognition is but a foundation for full co-operation. The actual work of insuring it must come from the employees themselves to whom the right of collective bargaining is thus given. For that right carries with it a duty.

It would seem to be the duty of the organization which bargains for the individual worker to interest itself actively and unremittingly in his delivering to the company his best strength and intelligence.

This commission thinks that where the street railway worker has the right

of collective bargaining, the public has a right to expect that the organization or association representing him will not only procure his wage but will also continuously stimulate his whole-hearted constructive co-operation with the company and his effective service to the public.

Valuation

IT IS the law that utilities are entitled to a fair return upon the fair value of their property used in public service at the time of the inquiry. The methods for finding fair value are in dispute. No permanent solution of the electric railway question can be found in the absence of a finding of value for rate-making purposes. This applies to commission form of regulation, cost-of-service contracts, or public ownership and operation.

The public should know what it is paying for, and this question cannot be settled without knowing what the property is worth.

Although some evidence was introduced before this commission on the subject of valuation, the commission discouraged the introduction of testimony upon this question, mainly because such testimony, no matter over how many weeks or months it might have extended, would have been but a fragmentary duplication of material already available in the official records of the Interstate Commerce Commission.

Pursuant to an amendment of the act to regulate commerce, approved March 1, 1913, which amendment is known as the "valuation act," the Interstate Commerce Commission has during the past seven years been engaged in valuing the steam railroads, telegraph and long-distance telephone companies in the United States. In connection with this work it has carried on a most extensive investigation into the subject of valuation for rate-making purposes, in the course of which investigation the carriers have been represented by a conference committee of fifty, assisted by able lawyers, accountants and engineers, while the public has been represented by the State Public Utility Commissioners, their counsel, and by the general counsel of the Interstate Commerce Commission. Every theory and principle of valuation has been fully and ably discussed, argued and briefed.

On July 31, 1918, the Interstate Commerce Commission submitted its report in Valuation Docket 2, Texas Midland Railway. This report contains a full discussion of the different theories of valuation considered, the method employed by the commission in assembling all the essential data, and discussion of the requirements of the Valuation Act and the findings of the commission upon most of the disputed questions. Subsequent decisions were made in the case of the Winston-Salem Southbound, Alabama, Birmingham & Atlantic and Kansas City Southern Railroads. We are informed that decisions affecting many of the other rail-

roads will be made during the present year.

The first requirement of the valuation act is for finding of original cost. The commission is reporting original cost as fully as it possibly can be obtained from the best available evidence in each particular case. In its valuation proceedings it has been earnestly contended that the cost of reproduction new as of the date of inquiry should be taken to be the value of the property. Others have contended with equal earnestness that the value of the property should be limited to the original cost, as this item represents the money which has been actually invested by the stockholders and bondholders in the property.

The rapid increase in the cost of labor, supplies and material during and subsequent to the war period seems to have served as a peculiarly vivid indication that the original cost is a primary factor in finding value for rate-making purposes.

In our opinion, the decisions of the Interstate Commerce Commission, based upon long experience and investigation, will in large measure settle the standards of valuation. For this reason we suggest that municipalities and states which may be engaged, by arbitration or otherwise, in fixing the values of electric railways, should familiarize themselves with the practice, experience and decisions of the Interstate Commerce Commission in these valuation cases.

The valuation, when once fixed as the basis for the financial return of the company, should logically come to affect the amount of capitalization. No matter what may be the plan of operation or of public regulation under which the company is working, if its financial credit is to be strengthened through just and stable arrangements with a friendly public, it should, in the judgment of this commission, voluntarily reduce any excessive capitalization to conform to such valuation as may have been determined upon.

Protection and Preservation of Records

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

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

The failure of a railway company

to preserve its records may in the end hurt its stockholders more than it may the public.

Automobile, Jitney and Motor Bus

THE automobile and jitney bus are facts. Jitney competition began about 1912, and was at first entirely unregulated. Even today in some places it continues without regulation of any kind, and in many places with only partial and inefficient regulation. In no instance, so far as this record shows, has this so-called "jitney" carriage of passengers been subjected to obligations as to the payment of taxes, maintenance of highways, character and extent of service, and financial responsibility for accidents, under which the electric railway business is being conducted. The portion of the street paved and maintained by the electric railway, and in winter cleared of snow at its own expense, is taken advantage of by the jitney competitor without compensation either to the company or to the municipality, and often to the serious injury of the street railway by interfering with the prompt and regular movements of its cars. The jitneys prefer to confine themselves almost exclusively to the short-haul traffic. It appears that in the city of Bridgeport the jitneys carry about 50 per cent of the passengers riding within 1½ miles of the center of the city; almost 69 per cent of the passengers riding between 1½ and 2 miles from the center; a fraction less than 45 per cent of those riding between 2 and 2½ miles from the center, and none riding more than 2½ miles from the center of the city.

The question is—from the point of view of the street railway service—what, if anything, is to be done about them? The public, through its governmental agencies, would not concern itself with the effects of this competition if it were not that local transportation is recognized to be an essential public service. So far as private automobiles are concerned, although they undoubtedly have their effect upon the extent to which people make use of the street cars, they are even now less important than human legs as a competitor of the electric railways, and it is not deemed to be consonant with the theory of American institutions and government that the free movement of private citizens by their own means of locomotion should be restricted in order to compel them to make use of public vehicles, whether the latter be operated by private agencies or directly by the government. All that could properly be done in this direction would be to compel the private vehicles using the public highways to pay license fees or taxes proportionate to the burdens they place upon the highways as compared with the burdens placed upon the highways by the street cars.

While there is some diversity of opinion as to the permanency of the electric railway industry in view of the improvements which are being made

in the use of gasoline and electric power machines, the opinion appears to be nearly unanimous that the electric railway operating on tracks is the most efficient means of furnishing local transportation service in the urban centers. The future of the gasoline public conveyance in urban transportation is entirely unreckonable. Great strides have been made and greater strides will doubtless yet be made in its use. Local public authority would indeed be exercising a dangerous power in unduly restricting the use of new inventions for public transportation at a time when in nearly every large city the physical task, even for an electric railway well equipped, of carrying the public in decent comfort, is becoming so formidable. If jitneys and automobile buses acting as common carriers were subject to regulation by state commissions and were required to procure a certificate of public convenience and necessity before establishing a route or undertaking to render public service, the motor vehicle would be prevented from entering into active competition with street car service unless the latter is shown to be wholly inadequate.

That street railway service and jitney service cannot permanently exist and pay their own way in competition with each other under any ordinary urban conditions seems to be well established by experience and by the conditions inherent in local transportation service, but the belief is general that the motor bus may properly be used to supplement the service rendered by the street cars. The motor bus may be used to render a sort of supplementary service, such as the service now rendered on Fifth Avenue and certain other high-grade residential streets in New York City by the Fifth Avenue Coach Company, or the buses may be operated on other independent routes merely as feeders to the street railway system to take care of traffic in partially developed territory in advance of the time when street railway tracks can be laid with reasonable assurance that the investment will be self-sustaining.

Undoubtedly the whole matter of the control or abolishment of jitney competition may be summed up in a few words. All transportation service is for the public. Jitneys and automobile buses cannot be repressed merely for the sake of compelling people to ride on the street cars, particularly if the car fares are higher than the jitney fares and the car service less convenient than the jitney service. However, it is clearly in the public interest that all common carriers engaged in local transportation service should be required to render adequate and safe service, and that local transportation facilities should be developed in the most economical and effective way from the point of view of the community. Unnecessary and destructive competition ought not to be permitted, and the community at large should conserve the established facility that still is and promises to continue for an indefinite

period the principal means of local transportation. The problem in a considerable measure is a local one, but in every case it should be solved with intelligent regard to the permanent interests and obligations of the community. If the street railways are to be allowed the benefits of even a qualified monopoly, they should be required to fulfill their obligations. They must render service that is adequate and convenient at rates that are attractive. The community can afford to go a long way to preserve street railway service, and the efficient regulation of jitney and motor bus competition will aid considerably in restoring the confidence of investors in the future of the electric railway industry and in increasing their gross and net revenues.

Depreciation

THE electric railways should adopt the policy of setting aside a depreciation fund with which to take care of replacements and thus preserve the integrity of their investment. It would have a very wholesome effect upon credit. Such has not been the practice in the past. Deferred maintenance has accumulated to an alarming extent during the war period.

Generally speaking, regulating commissions have the power to prescribe methods of accounting and to establish the amount of the depreciation fund. This practice should be observed, and its adoption will improve the situation of the industry and be greatly in the interest of the public welfare.

Extensions Should Be Paid for by Assessments on Outlying Property Benefited

YOUR commission would urge that in every community, where and to such extent as may be practicable, consideration be given to the advisability of requiring extensions and rapid transit systems of subway and elevated to be paid for, not out of new capital invested through the medium of bonds or stock, which means for all time an added burden upon the car rider, but from special taxes assessed against the owners of property in the district the value of which is enhanced by such extensions.

This would not be a new principle; it would be merely the application of an old principle. The American property owner has been accustomed to contributing out of the increase in value of his property to the cost of building streets and other public improvements. The principle is peculiarly applicable to improvements of city transportation systems because of the enormous increases in real estate values created when new extensions open up new territory or when the creation of rapid transit facilities make outlying territory more available.

The City Club of New York, in 1908,

a few years after the extension of the New York subway from 135th Street to 230th Street, in Manhattan, had been built at a cost of \$7,375,000, made an authoritative study of new real estate values created by that extension in the district lying between 135th Street and 230th Street. After deducting \$20,000,000 as a liberal estimate, based upon studies of parallel situations, of the natural increase in property values in that district which would have taken place without the subway extension, it was found that the increase in values clearly brought about by the subway extension was \$49,200,000, an amount upward of seven times the cost of the improvements. The property in the district enjoyed an increase in value of 104 per cent. If, by assessment, it had borne the entire cost of the extension in the district, it would have still retained a new profit on the value of the land of 89 per cent, or an aggregate of \$41,825,000 for the district. The Manhattan extension just referred to, together with the Bronx extension beyond 135th Street, cost \$13,075,000. These two extensions directly created, in a limited area lying near these extensions, new land values solely due to the extensions, of \$80,500,000.

Let it be borne in mind that the cost of the entire subway system from the Battery to 230th Street in Manhattan and to Bronx Park was about \$43,000,000.

In Philadelphia recent estimates of improvements in land values expected from rapid transit projects in contemplation have been equally enlightening: Similar results would be certainly obtained in many other cities by studies similar to that made by the City Club of New York.

Is it not in accordance with the laws of economic justice, then, that the landowner, as such, should share his benefit of increased land values with the public? Instead of the cost, \$7,375,000, of the Manhattan extension being borne by the owners of land in the newly served territory, it was capitalized and translated into an annual charge of \$350,000 or more, a burden which had to be borne out of the car fares and which today helps to intensify the financial predicament in which the company finds itself. If the public pays out of its fares for the cost of maintaining and operating the line which will bring the outlying land owner such enrichment, should the latter not share with the public out of that enrichment, depending upon the degree in which he is benefited, by paying for or by helping to pay for the initial cost of construction of the line? That such a solution is just is rather significantly shown by the fact that in a number of cities land owners in outlying districts have offered spontaneously to contribute large sums to the company to assist it in constructing certain extensions. The present predicament of the street railway companies is in many places partly due to overbuilding, a fault traceable to political or business pres-

asures exerted by speculators in suburban lands who had little or no financial responsibility in connection with the street railway extensions which they caused to be built for their immediate benefit. This action of the suburban land owners of certain cities, on the other hand, is a significant expression of enlightened self-interest and a sound, constructive recognition of a fundamental principle of justice. The establishment of that principle by law, whether by changes in city ordinances, state statutes or state constitution, should, in our opinion, not be delayed. This thought is especially recommended to the attention of a number of communities which are now facing the necessity of extensions or rapid transit improvements.

Three points in this connection should be briefly touched upon: First, the amount of the assessment on any owner would probably have to become fixed by an appraisal some time after the construction of the improvement, and the owner should be given the option of paying his assessment in installments over a course of years. Consequently, the actual first financing of the extension might have to be by the city. Second, it will doubtless be urged by some that such a system for building extensions would lead to municipal ownership. On the contrary, it seems to us that, if properly administered, it could, by reducing the acuteness of the fare question, serve with much force to offset the pressure for municipal ownership. Third, as to the problems incident to allowing a private company, for a nominal rent and in return for undertakings as to repair and maintenance, to take over or use public property, similar problems incident to similar arrangements have already been ably and effectively handled in Boston and a number of other cities under state or municipal regulation in connection with subways and other structures.

If objection to the employment of such principles in constructing extensions be made upon the ground that public officers and land owners along the line of the proposed extension are thus given the power to vote such extension, let it be remembered that the problem of extensions is not only a serious financial problem, but is also essentially and finally a long-range social problem. The development of a city's street railways should be guided primarily not by the fortuitous financial experiences of a small group of bankers or real estate operators. It should be guided by the foresight and vision of those who are officially responsible for planning the city's growth and life, in terms of its water supply, its light, its streets, its sewers, its schools, its parks, its playgrounds, its civic centers, its night amusements, its community life, its libraries, its hospitals. It should be guided by those whose public duty it is to be interested in the health and happiness of the average city toiler and his family of growing children.

The call for municipal ownership today does not all emanate from dissatisfaction with the service in a narrow sense as riding facilities. It is largely an expression of feeling on the part of many that the street railway, instead of helping to make conditions bearable, is contributing to making them unbearable; that it is not, with the functions and powers which it exercises, accomplishing what it might accomplish to reduce the abnormalities of city life. While areas within the city remain undeveloped and unserved by adequate transportation, toiling thousands find themselves dragged out miles further—not to green lawns and spaces, but to a repetition of the same ugly congestion that they know in the city. The time will come when employers and educators will be forced to take cognizance of the impairment in working efficiency caused by such inconveniences as are suffered by the traveling public today. The time is approaching when cities will find it necessary to extend their street railways, not on the basis of new property values or the earnings of any single line of rails, but on the basis primarily of what will be most consistent with the public health and public economy.

These motives are strongly at work underneath our situation today. The public's control over stock issues, service, routes, extensions, etc., is needed today not only in order that as part of a plan for restoring the credit of the street railways the community's interest may be protected by the guarantee of efficient management, but also because the city of today is taking a more conscious, constructive interest in the city of tomorrow. That interest can be recognized and cared for under private operation if the public authorities have the suggested control. If such control does not come into effective existence, then one of the strongest forces making for municipal ownership will continue to exert an increasing influence.

Your commission trusts that this principle of paying wholly or in part for the construction of extensions out of special taxation of benefited property will be seriously studied and adopted, where possible. It seems fundamentally sound. While its adoption presents legal difficulties, as has the adoption of many another newly recognized industrial-economic relation, it holds great promise for reducing the financial problems incident to public transportation.

Rate of Return

IT IS an axiom that property devoted to the public use should secure a fair rate of return. Where money is represented by bonds the return is a part of the contract and is not changed during the life of the contract. Where capital is represented by stock the rate of return may vary according to the operating or financial conditions, and naturally it should compare favorably with the income upon other classes of investment. The undisputed testimony

proves that the rate must be certain as well as reasonable to attract capital and that the absence of either of these essentials will frighten the investor away. It may be a lamentable fact, but it is nevertheless true, that most of the electric railways are obliged to go to markets outside of their territory to secure new capital; and under existing circumstances the investor is no longer willing to place his money in speculative properties. The experience during the war period has taught investors that a fixed franchise fare fails to meet the requirements of the industry and there is no dissent from the suggestion that such a fixed fare is a relic of a bygone age.

There are certain conspicuous examples of an adherence to a contract fare which may be referred to, but they do not affect our conclusion that the rate of fare must be subject to prompt revision according to the needs of the particular property.

The Regulation of Public Utilities

THE foundation stone of the relations between the communities and the companies must be the local authority under which they are permitted to conduct business. Since practically in all states the local government alone has the power to permit the use of highways by electric railways, the primary authority is the franchise grant or agreement containing the permit. Franchises are of varying terms and conditions. Until recently the franchises were generally limited to a certain number of years, but now it seems to be the settled conviction that such contracts are inherently imperfect. A reserve fund set aside during the term to take care of the property at the expiration of the franchise would result in increased charges for service; and, upon the other hand, the failure to take care of the investment in this way leaves the company at the will and caprice of the public. Instances have been referred to in this record where the railways are having difficulty in securing new franchises, while in some communities there seems to be a disposition to take over the property for junk values. Under these conditions it is natural for the company to neglect maintenance and give poor service. From the evidence it appears that there will be difficulty hereafter in securing new capital for properties that are governed by such franchises.

The undisputed testimony favors an indeterminate franchise by which the company is permitted to operate subject to the right of the public to take over the property by paying its value or agreed price. Such contracts protect both the investment against confiscation and the public against extortion by providing for payment of just compensation for the use of the property. The indeterminate franchise has been most thoroughly developed in the State of Wisconsin and it has been rec-

ognized in the District of Columbia, and the States of Indiana and Massachusetts. Its earlier adoption by other states and communities would have prevented many conflicts and misunderstandings. We believe that this form of franchise should receive the favorable consideration of the public.

Prior to 1907 the regulation of electric railways was principally confined to the municipalities. The history of this industry is replete with examples where municipal corruption has resulted from this control. The street railway is, however, an essential local institution and it cannot permanently prosper unless it has the confidence and co-operation of the public which it serves.

Since 1907 many states have taken over the control and regulation of this service and the communities within those states have been deprived of all jurisdiction. While the evidence shows that exclusive state control is preferable to exclusive municipal control, yet there appears to be a happy middle ground by which the municipalities may exercise control of the things that are peculiarly within their province and the state retain jurisdiction over all other matters and also exercise supervision over the action of the local tribunals. No general rule would fit all cases.

We have street railways which do not extend beyond the limits of a city; others where two or more systems operate in the same city, while frequently a single company operates in, through and between a large number of cities and villages. In New Jersey one system serves practically the whole state and the same condition exists in Connecticut. Manifestly no rule of thumb can apply to these different conditions. The tendency is to extend the mileage and service of street railways and to unite different companies under one management, and as our cities and villages grow and the rural country becomes more populous and prosperous these electric railways will extend their lines to meet the growing demands. Under such conditions, safety, efficiency and economy will be promoted by extending to a superior regulatory board the control of the practices, rules, regulations, security issues, the system of accounts and the charges to be paid for the service.

Effective local control is well-nigh impossible where a single company spreads out over an entire section of the state and this condition even constitutes a serious obstacle to municipal ownership. Where the street railway company operates wholly within one city there can be no insuperable objection to exclusive municipal control, when the people are ready and willing to exercise it. Secretary Baker testified upon this point as follows:

Because I think the responsibility for the management of its own affairs is the greatest educational influence that the city of Cleveland has. The fact that the people of the city had studied and grasped and solved an intricate and complicated problem like

the street railway problem has made them a more self-conscious and a stronger more virile people than they were before that problem was put up to them; and I should be sorry indeed to see the responsibility for their own affairs in as intimate and important matter as street railway service taken away and transferred to a state agency.

Cleveland has made a more intensive study of the electric railway problem than any other city in the country. Intelligent regulation cannot be secured without the assistance of expert operative, statistical and engineering departments and these are expensive items in any municipal budget.

In some respects uniformity is not only desirable but essential. This applies to the control of security issues, to accounting, the study and determination of depreciation and the control of such funds, fixing reasonable maintenance standards and their enforcement and the methods and principles to be employed in valuing properties, either for rate-making, capitalization, condemnation or purchase. In a general way the rules and principles which may be applied to the electric railway industry will be found available for other utilities such as telephone, electric light, heating, power, gas and water companies. In our judgment the state public service commissions should determine finally these matters, subject, of course, to an appeal to the courts where they err in judgment or transgress the law. Regulation by municipalities should be subject to an appeal to the state public service commission, thus bringing to bear upon the question involved the judgment of a body of men somewhat aloof from local influences. This would place the final authority in the state, and surely the communities, which are but subdivisions of the state, should prefer to submit their cause to a state tribunal in preference to a court, which rarely, if ever, has any regulating experience.

Theoretically, state control is removed from the influence of community prejudices. It certainly exercises its functions with a more judicial attitude and with greater equity to both the communities and the companies; probably it is in most instances more economical and more efficient, since the state can create a better and more comprehensive organization for regulation at less cost. State control obviates conflict of authority between communities that is bound to obtain when utilities operate beyond the limit of a single municipality. It makes unnecessary the erection of metropolitan or public utility districts in order to secure uniform regulation and it also results in a large saving to single communities which would otherwise be obliged to maintain its expert departments to perform this service.

The possibility of combining the best features of state and local regulation through a division of powers and duties was suggested by several witnesses and has been carefully considered by this

commission. It would seem to be desirable to leave to the communities, at least in the first instance, the determination of such questions as the assignment of streets upon which the railways may operate, questions involving speed, stops, schedules, rerouting of cars and service during peak hours and otherwise, the extension of tracks, rate of fare, and the securing of certain statistical information where such information does not directly interfere with the accounting rules which have been prescribed by the state. Under these conditions the cities would be compelled to take a direct interest in the transportation business, leading to a more wholesome co-operation between the public and the railway. We believe this principle is worth trying, because it places the initial regulating responsibility upon the community, thus leaving the way open for sympathetic understanding and co-operation between the public and the industry, without which the industry cannot survive, and yet places the final responsibility upon the state, which is best equipped to determine the questions involved in a sane, consistent and impartial manner.

In a number of states, commissions now have complete authority over all questions. There should be no change if the people are satisfied with that policy. It has unquestionably worked well in most of those states. We do, however, desire to emphasize our belief that any form of regulation will fail of its purpose if it does not secure public co-operation in the conduct of the utility. Our study of conditions as they exist in the principal cities of the country has shown that unless the local public is in sympathy with the purposes of the management and lends assistance in their achievement, neither efficient or economical service is possible. Co-operation cannot be obtained unless the public be informed as to all phases of the electric railway problem—financial, economical and operating—and will not be continued unless the process of information is continued. This psychological factor involves a continuing task of undoubted magnitude, but whatever the regulatory authority may be, and however great the difficulties, the duty involved must be performed if the relations of the public and these highly essential utilities are to be maintained upon a basis that will insure proper service.

The electric railway problem admits of a satisfactory solution once the elements that compose it are made known and the processes of ordinary economic and business common sense are applied. The duty of both the public authorities and those who control the electric railway enterprise of the country is plainly indicated. The time has come for a permanent and satisfactory settlement of the traction question. The interests of both the public and the companies lie so exactly parallel in almost every respect that there ought not to be any serious difficulty in arriving at a solution if both parties approach the subject in a proper spirit.

Service-at-Cost Plan

THE electric railways have responded to the improvements in the arts and sciences, and it may also be said that the science of regulation has fairly kept pace with the requirements of public service and the growth of the industry. Franchises have been the result of experiment. The contract fare established an unsound rate basis, and in some instances commissions were slow to reach conclusions in rate cases. Investors lost confidence in the electric railway business. It was thought that a contract must be evolved which would meet all the requirements of the industry as well as of the public. Thus came the cost-of-service contract. It has worked well in Cleveland during the most difficult period in the history of the industry. It seems to have worked fairly well in the other cities where it has been tried out, and to justify the following statement made by Secretary Baker:

I believe that any community in America will pay cheerfully and willingly whatever rate of fare is necessary to carry the people on their street railroads and to maintain good service in their communities, if they are sure that they are paying only proper operating expenses, proper maintenance, and a proper return on capital.

Practically all of the witnesses for the electric railway industry favored service-at-cost franchises. That service should be provided at cost is not a new principle in the regulation of public utilities. It is back of all public service commission regulation, and expresses the reaction from the original contractual relations between utilities and communities under which fares were fixed and limited, while return was not. The application of the term "service-at-cost" in recent working agreements between the electric railways and the cities of Cleveland, Cincinnati, Dallas, Montreal, and to a limited extent the city of Boston, does not clearly describe such agreements. They are, in effect, devices for automatically and quickly adjusting price to cost. It is, therefore, not so much the principle back of such plans as it is the method provided for carrying that principle out that concerns the commission in this phase of the traction problem. Without going into unnecessary detail, it will suffice to state that the main features of the contract are:

- (a) Fair valuation of the property;
- (b) Capitalization to conform thereto;
- (c) Agreed return upon capital;
- (d) Public control of capital issues, and, to a certain extent, over expenditures;
- (e) Public supervision over management, operation and service;
- (f) Automatic changes of rates to meet fluctuating economic conditions,

and to insure a proper return on the value;

(g) Private operation, subject to the right of the municipality to purchase the property at its value or upon an agreed price;

(h) Reduction of taxes and assessments.

The service-at-cost contract is still in its experimental stage, and naturally a number of criticisms have been made of it. These have been considered, but with the limited experience under this contract we believe that the criticisms are more theoretical than real. If these defects prove to be substantial and result in unduly increasing the cost of service, they can be removed by improved regulation, but if they cannot finally be avoided, then it would seem that the public has ample protection in the contract's purchase provisions.

Generally speaking, the main criticism of this form of contract is that it tends toward inefficiency and uneconomic operation; that it contains no provision for the control of strikes or uninterrupted service, and that labor and management may co-operatively increase the cost of operation to the point where the public may be unduly burdened.

From the point of view of credit restoration, the outstanding advantage of this contract is that rates are automatically adjusted to meet changing operating conditions. We are inclined to think that the assurance of an automatic adjustment of fare will do more than anything else to restore the confidence of the investor in these properties. Public confidence will be immeasurably strengthened through the valuation of the properties, because the figure that is established constitutes the basis of the return to the investor and fixes, at least, the minimum price which the public will be obliged to pay if, at some future time, it should decide to purchase and operate the property. When the value is thus fixed there can be no further dispute as to capitalization or excessive profits, because the people will know just what they are paying for. The controlling element in its favor is the restoration of public confidence in the corporation due to the removal of those elements of friction which have so frequently engaged the attention of the public. It might also be said that to a certain extent it removes the railway from the idea of speculative gain and places them upon a common-sense business basis where the people pay for the service they get and where the opportunity for large profits no longer exists, since economies and lower operating costs are reflected in reduced charges for service. When the contract is once established the opportunity for municipal corruption is reduced to the minimum.

We strongly recommend the principles of the service-at-cost contract, not as the only solution, but as one means of solving a very difficult problem.

In cases where the electric railways

operate in more than one municipality and between different municipalities, such service-at-cost contracts can properly, in our judgment, be made only with the public service commission, and in such cases the provisions of the contract should apply in any particular community to the system as a whole rather than to its individual parts.

Public Ownership and Operation

IT is urged by many that public regulation of the street railways has failed and that the properties should be taken over by the municipalities or the state. Dr. Delos F. Wilcox concluded his able and interesting analysis of the testimony given in this connection with that suggestion. Some members of the commission individually feel that eventually municipal ownership might prove generally desirable and that there may, perhaps, be communities in the United States in which on account of the responsibility of the local government and the acuteness of the present conditions municipal ownership should be resorted to. The experiences of Boston, San Francisco and Seattle are being watched with great interest, but they have not continued long enough to justify any conclusion as to the relative merits of public as against private operation. The commission is unanimous on this point: that there has not been sufficient experience with public ownership and operation of street railways in this country to enable us to recommend it as the permanent solution of this problem. In some of the foreign countries it has apparently worked well. We do not believe under present conditions that this method of operation would be successful in most of the cities of the United States today.

Aside from the serious question whether municipalities as at present organized can operate electric railways as efficiently and satisfactorily as private enterprises, our conviction upon this subject is based upon the great political difficulties which would have to be overcome, such as constitutional amendment, legislation and the fiscal burdens incident to the purchase by cities of great public utilities, and upon the further fact that in many sections of the country the lines of the railway extend through many cities and villages and into rural territory. It is assumed, however, that these latter difficulties could be mastered by a community thoroughly awakened to the necessity for such a change.

We are certain that much can be accomplished by private initiative, stimulated and aided by thorough public regulation; that the final solution could, in many communities, be found under private management, and that in any event the reforms which have been urged by the commission should be instituted, since these reforms would serve to place the relations between the street railway and the public upon a more just and equitable basis.

Conclusions

WE have conceived the scope of this inquiry to be to ascertain, first, the actual financial and service condition of the electric railways of the United States at the present time; second, the causes which have contributed to such conditions; third, what readjustments of the relations between the electric railways and the communities which they serve must be brought about in order to restore the

confidence of the public and to put the companies upon such a financial basis for the future as will enable them to render continuous and efficient service to their respective communities.

We have not entered into a minute discussion of the different franchise provisions throughout the country, nor have we undertaken to suggest any details which should be incorporated into any new contract, but have preferred

to confine ourselves to suggesting the broad outlines of such new relations.

The commission is not pessimistic as to the future. The electric railway problem admits of a satisfactory solution, once the elements that compose it are made known and the principles of ordinary economic and business common sense are applied.

The duty both of the public authorities and of those who control the electric railway enterprises of the country is plainly indicated. The time has come for stable and satisfactory settlements of traction difficulties.

The commission can go no further than to point out the principles upon which the readjustment should be based. The task is really that of the state and local authorities upon the one hand and of the companies upon the other. Failure to rehabilitate the industry and the service is possible only if those upon whom the responsibility rests fail to undertake the work or pursue it in a spirit that makes settlement impossible.

Respectfully submitted this 28th day of July, 1920.

(Signed) CHARLES E. ELMQUIST,
Chairman,
(Signed) EDWIN F. SWEET,
Vice-Chairman,

(Signed) P. H. GADSDEN,
(Signed) W. D. MAHON,
(Signed) ROYAL MEEKER,
(Signed) C. W. BEALL,
(Signed) LOUIS B. WEHLE,
(Signed) GEORGE L. BAKER

President Wilson has written the following letter to Chairman Elmquist, of the Federal Electric Railways Commission:

THE WHITE HOUSE
Washington Aug. 14, 1920.

My dear Mr. Elmquist:

Will you not accept for yourself and be good enough to extend to the other members of the commission my sincere thanks for the very able and valuable report upon the electric railway situation, which you have placed in my hands? I am appreciative of the self-sacrificing efforts of the commission members in so freely devoting their time to the task undertaken at my request, but I cannot but believe that the results achieved will prove to be full compensation for their efforts.

I very much hope that this report will receive the wide publicity which it deserves and that it will be closely studied by all local regulative authorities having to do with the affairs and interests of public service corporations.

Sincerely yours,
(Sgd.) WOODROW WILSON.

MR. CHARLES E. ELMQUIST,
Chairman,
Federal Electric Railways Commission.

HOURLY WAGE RATES (CENTS) OF CONDUCTORS AFFILIATED WITH THE AMALGAMATED ASSOCIATION OF STREET AND ELECTRIC RAILWAY EMPLOYEES IN PRINCIPAL CITIES OF UNITED STATES AND CANADA AS OF JANUARY, 1920

(Exhibit attached to Commission Report. See page 403)

NOTE—The wages given in this table are for regular conductors operating the ordinary type of equipment on city service. The wages of motormen were in most cases the same, but on the Chicago elevated lines the motormen received 67 cents per hour, and on the Boston elevated lines the motormen received 56 cents per hour for the first 3 months. 57 cents for the next 9 months and 62 cents thereafter

City	First Three Months	Second Three Months	Second Six Months	Second Year	Third Year	Fourth Year	Fifth Year	After Five Years
Cities in United States								
Brooklyn (Surface Lines)	54	54	55	{ 1st 6 mos.-55 } { 2nd 6 mos.-57 }	57	57	57	57
Brooklyn (Rapid Transit)	52	52	52	54	57	62	62	62
Staten Island, N. Y.	40	40	42½	{ 1st 6 mos.-42½ } { 2nd 6 mos.-45 }	45	45	45	45
Chicago (Surface)	62	62	62	62	62	62	62	62
Chicago (Elevated)	60	63	63	65	65	65	65	65
Boston (Surface)	50	55	55	60	60	60	60	60
Boston (Rapid transit) guards	53½	54	54	56	56	56	56	56
Newark, Hoboken, Jersey City, Paterson, Elizabeth, Camden, etc.	46	48	48	50	50	50	50	50
Detroit	50	55	55	60	60	60	60	60
Cleveland	55	58	58	60	60	60	60	60
Pittsburgh	49	52	52	54	54	54	54	54
St. Louis	50	50	50	55	60	60	60	60
New Haven, Hartford, Bridgeport, etc.	44	44	44	45	46	47	48	50
Fall River, Lynn, Lawrence, Lowell, etc.	46	49	49	51	51	51	51	51
Los Angeles	41	43	43	45	46	46	47	47
San Francisco	62½	62½	62½	62½	62½	62½	62½	62½
Buffalo	43	46	46	48	48	48	48	48
Rochester, Syracuse and Utica	41	43	43	45	45	45	45	45
Washington, D. C.	46	49	49	51	51	51	51	51
Providence	51	54	54	56	56	56	56	56
Cincinnati	43	46	46	48	48	48	48	48
New Orleans	38	40	40	42	42	42	42	42
Oakland	48	51	51	54	54	54	54	54
Richmond, Va.	37	37	37	38	39	40	42	42
Norfolk	43	45	45	47½	47½	47½	47½	47½
Seattle	59	59½	62½	65	65	65	65	65
Columbus, Ohio	41	43	43	45	45	45	45	45
Akron and Canton	43	43	43	45	48	48	48	48
Worcester	47	52	52	57	57	57	57	57
Louisville	41	43	43	45	45	45	45	45
Omaha	51	53	53	55	55	55	55	55
Denver	43	46	46	48	48	48	48	48
Portland, Ore.	58	60	60	62	62	62	62	62
Toledo	42	44	44	46	46	46	46	46
Atlanta	36	38	38	40	40	40	40	40
Youngstown	43	46	46	48	48	48	48	48
Springfield, Mass.*	\$4.23	\$4.68	\$4.68	\$5.13	\$5.13	\$5.13	\$5.13	\$5.13
Memphis	42	42	45	45	48	48	48	48
Spokane	46	46	47	48	50	53	53	53
Birmingham	40	40	40	45	50	50	50	50
Dayton	46	48	48	50	50	50	50	50
Jackson, Battle Creek, Kalamazoo and Lansing	40	40	40	42	42	42	42	42
Salt Lake City	39	39	1st 3 mos.-39 2nd 3 mos.-43	1st 9 mos.-43 last 3 mos.-47	47	47	47	47
Des Moines	51	54	54	57	57	57	57	57
Nashville	42	42	45	45	48	48	48	48
Scranton	46	48	48	50	50	50	50	50
Wilmington, Del.	51	53	53	55	55	55	55	55
Grand Rapids, Mich.	45	48	48	51	51	51	51	51
Erie	46	48	48	50	50	50	50	50
Schenectady	41	43	43	45	45	45	45	45
San Antonio	40	40	40	42	42	42	42	42
Portland, Me.	41	43	43	45	45	45	45	45
Trenton	46	48	48	50	50	50	50	50
Tacoma	50	50	55	55	60	60	60	60
Cities in Canada								
Montreal	37	37	37	40	44	48	48	48
Toronto	50	52½	52½	55	55	55	55	55
Vancouver and Victoria	45	45	50	{ 1st 6 mos.-53 } { 2nd 6 mos.-56 }	56	56	56	56
Winnipeg	39	39	41	44	47	47	47	47
Calgary	45	45	50	{ 1st 6 mos.-55 } { 2nd 6 mos.-60 }	60	60	60	60
Edmonton	35	35	37½	40	45	45	45	45
Ottawa	39	39	39	41	43	45	45	45
Halifax	38½	38½	40	41½	43½	43½	43½	43½
London	39	39	39	42	44	44	44	44

*Figures for Springfield, Mass., are per day.

The Survival of the Fitter

At Terre Haute, Ind., Jitney Buses Have Dropped from 200 to 43 and Have Been Forced to a 10-Cent Fare During a Period When the Trolley Cars Have More Than Doubled in Number and Stayed at 5 Cents in the Face of an Enormous Increase in Private Automobiles



TERRE HAUTE, WHERE THE SAFETY CAR HAS DEMONSTRATED THAT BUSINESS FOLLOWS SERVICE

IT IS one of the freaks of nomenclature that the general manager of an electric railway which is more than holding its own should bear the name of Walker! That name has not been a handicap with his public, as will appear from the following record of what E. M. Walker has done on the Terre Haute lines of the Terre Haute, Indianapolis & Eastern Traction Company because of his thorough introduction of safety car operation on the basis that "Business follows service."

Earlier articles in the ELECTRIC RAILWAY JOURNAL have recited how this service was introduced line by line after due publicity and how the people of Terre Haute showed their approval and appreciation by patronage even greater than the increase in service. The purpose of the present article, however, is somewhat wider in scope, as it is intended to review a period that might be called "The Rise and Fall of the Automobile as a Competitor." It tells the tale of three significant years: 1913, when neither the private machine nor the jitney had made any real inroads upon the trolley; 1918, when it was evident that old-style electric railway operation could not live against the automotive vehicles of public or private character; 1919, when it was demonstrated that modern electric railway service can annihilate jitney competition where both cover the same route and that such modern service is helped rather than hindered by the riding habit inculcated by automobile ownership.

Terre Haute is one of those cities where it is possible for people of moderate means to own and use an automobile without feeling the pinch of garage rental. So the use of the gas wagon has grown there just as

rapidly as in hundreds of other American communities. In 1913, when the population of the city alone was 60,000, there were but 900 machines; in 1918, 68,000 people owned fully 4,300 machines; in 1919, 72,000 people had 5,100 machines, and in the first six months of 1920, 75,000 people had 5,500 machines. This six-fold increase in seven years was matched in the non-city portion of Vigo County, where the number of automobiles rose from 300 in 1913 to 1,950 in 1920.

JITNEYS ARE NOW PRACTICALLY ON A HACKING BASIS

As if this lawful drain upon electric railway traffic were not enough, the company had to endure the unfair forays of the jitney, whose depredations began early in the World War. In 1913 this genus was unknown;

DIAGNOSIS OF JITNEY TRAFFIC, MARCH 4, 1920—PATIENT FAILING AND 10-CENT OXYGEN ORDERED AS A LAST HOPE

Weather—Rain, snow and cold, all day.

Periods observed:

6:45 a.m. to 8:10 a.m.....	25 license numbers
10:45 a.m. to 12:10 p.m.....	17 not observed in previous periods
4:30 p.m. to 6:00 p.m.....	1 not observed in previous periods

Total number observed..... 43

Routes—South Seventh
South Seventeenth
Twelve Points
East Locust

South Seventeenth and Twelve Points are in only partial competition with street car lines.

Number of jitneys observed on March 4	43
Number of jitneys observed with 1919 licenses	6
Number of jitneys observed with 1920 licenses	37

	South Seventh	South Seventeenth	Twelve Points	East Locust
Number operating all three periods.....	4	1	1	2
Number operating two out of three periods..	3	5	2	4
Number operating only one period.....	4	1	9	3
Number of jitney buses operating on two different routes in same period.....				1
Number of jitney buses operating one route in one period and another route the other two.....				

SERVICE BEGETS BUSINESS—SAFETY CAR OPERATION, COMPARED WITH ORIGINAL SAFETY CAR OPERATION A YEAR EARLIER, SHOWS THAT PATRONAGE CONTINUES TO OUTSTRIP ADDITIONAL SERVICE

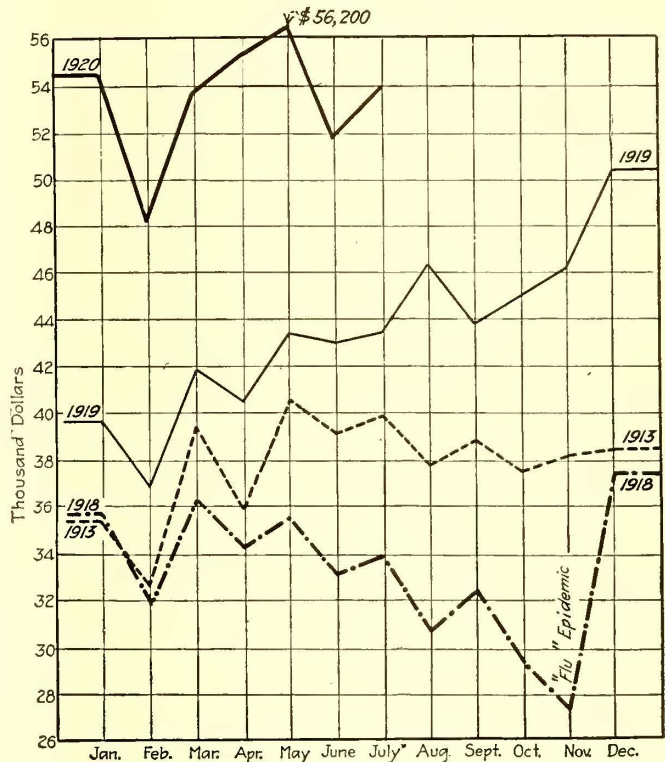
	South Seventh-Third	North Eighth	South Seventeenth
Gross earnings, 1919	\$6,370.45	\$1,906.55	\$852.75
Gross earnings, 1918	4,683.24	1,667.36	527.97
Increase over 1918	\$1,687.21	\$231.19	\$324.78
Increase over 1918, per cent.	36	14	61
Two-man car headway in 1918, min.	10	8	10
One-man car headway in 1919, min.	8	7	6
Increase in service, per cent.	20	12½	50

by 1918 there were 200 making the trolley's life miserable. It was not until December, 1918, that the company began to install safety cars upon the general basis of cutting ten-minute headways down to eight, seven, six minutes or less. By the end of 1919 the number of jitneys had dropped to 125, and when 1920 rolled around not more than forty-three busmen were found willing to keep up the fight, and only thirty-seven of these men had "1920" licenses. Full surrender came April 1, 1920, with the announcement that on that date and thereafter the jitney fare would be 10 cents. Strictly speaking, this will reduce (or is it promote?) the jitney to a hack- ing basis, because quite a portion of the present service already is along trackless streets and therefore not in actual competition with the street cars.

FROM DARKNESS TO LIGHT ON THE ELECTRIC RAILWAY

The year 1913 had been one of the best, if not the best, years in the history of the Terre Haute system. With six tickets for 25 cents and no competitor except the human leg, a population of 60,000 had taken 9,507,018 revenue rides, or 11,978,801 rides in all, making the respective numbers of rides per inhabitant per annum 160 and 199.5. By the year 1918 the population had risen to 68,000, but travel had dropped so badly that the respective riding indices were only 120 and 157. Reference to the graphs of the three years will show that from March, 1918, onward there was a most discouraging sag in traffic, accentuated still further by the influenza epidemic around October, but with a sharp upward turn in November, which was kept and improved upon through the inauguration of some safety car service in December. Throughout the year 1919 the com-

pany kept on replacing long-headway, old-car service with short-headway, new-car service, until the end of the year saw every route in the city equipped at least in part. At first, Mr. Walker had held the opinion that thirty to thirty-five safety cars would be enough, bearing in mind that some of the twenty-eight old cars once regularly operated could be used to help during rush hours. The response of the public proved so gratifying, however, that the first thirty new cars hardly sufficed to half equip the system. An additional twenty-five were ordered, and even this number was not enough. Consequently, the company ordered ten more, which, with the first safety car, gives a total of sixty-six new cars, against the twenty-nine old cars which Mr.



CITY RAILWAY EARNINGS TO THE NEAREST \$100 BY MONTHS FOR 1913, 1918, 1919 AND FIRST THREE MONTHS OF 1920, TERRE HAUTE, IND.

Walker found in service upon his advent in the latter part of 1917.

The heartening response of the Terre Haute public to rapidly improving service is indicated by the fact that during 1919, with a population of 72,000, the riding climbed up to 10,351,042 revenue passengers and 13,264,430 total passengers, equivalent to riding indices of 145 and 184 respectively. Significant of still better results to come was the fact that the original safety car routes of December, 1918, showed gains of 14 per cent, 36 per cent and 61 per cent respectively when checked up a year later—safety car against safety car. One may prophesy that when the sixty-six cars are available to give 100 per cent safety car service the trolley car riding habit of Terre Haute will be better than it would have been had there been no private automobiles and jitneys at all to interfere with the business of the old-style operation.

An interesting sidelight on the development at Terre Haute has been the local financing of the later purchases of cars. In a period when electric railway credit had ebbed to its lowest point, the company had little diffi-

VITAL STATISTICS OF THE SIGNIFICANT YEARS, SHOWING THE CONCURRENT INCREASE OF PRIVATE AUTOMOBILE AND ELECTRIC RAILWAY TRAFFIC DURING 1919 AND EARLY 1920

	1913	1918	1919	1920 (6 Mos.)
Population	60,000	68,000	72,000	75,000
Number of autos owned in city	900	4,300	5,100	5,500
Number of autos owned in Vigo County outside of city	300	1,500	1,700	1,950
Miles of city track	30	30	30	30
Revenue passengers carried	9,507,018	8,160,492	10,351,042	6,389,040
Employees carried	309,515	259,139	302,662	184,738
Complimentary passengers carried	66,896	39,694	7,299	189
Total passengers carried	2,095,372	2,200,114	2,603,427	1,392,880
Gross revenue, city lines	\$452,736	\$394,824	\$518,627	\$319,452
Jitney buses in operation	0	200	125	43
Car-miles, safety cars	0	77,572	1,428,380	1,288,882
Car-miles, non-safety cars	1,968,400	1,717,597	1,036,802	208,382
Total car-miles	1,968,400	1,795,169	2,465,182	1,497,264
Kw.-hr. per car-mile	3.87	3.52	2.67	2.29
Earnings per car-mile, all city cars	0.2300	0.2109	0.2103	0.2133
Earnings per car-mile safety cars	0	0.2100	0.2110	0.2190
Safety cars operated	0	18(Dec.)	28	50
Non-safety cars operated	29	15	15	3
Total cars operated	29	33	43	53
Rate of fare	5c.	5c.	5c.	5c.
Tickets	25 for \$1 6 for 25c.	25 for \$1 6 for 25c.	None	None
Transfers	Yes	Yes	Yes	Yes

*Includes interurban cars at the average rate of 300 miles daily, on city track.

culty in proving to the home folks that it had found a way to keep going. A second important point is that the company began installation of these money-saving and traffic-creating vehicles at a time when it had to ask no other increase in fare than the abolition of the cut-rate tickets as of Nov. 1, 1918. It has therefore had the advantage of operating under the happy conditions of a single-coin fare and a favorable public sentiment. There was a time, one may be sure, when the "Green Bugs" had many would-be squashers, but today there is a noticeable smirk of satisfaction on the face of every Terre Haute citizen who sees one of the numerous delegations that visit his burg to see how it's done!

Ole Hanson Discredits Municipal Ownership

Seattle Took Over the Traction Lines to Eliminate Politics, but Experience Shows That Lines Were Thereby Put Into Politics

THE famous ex-Mayor of Seattle, Wash., Ole Hanson, recently appeared before the Chicago Association of Commerce and spoke freely of the experience which has been had in Seattle subsequent to the purchase of the local traction lines by the municipalities. The views of Mr. Hanson, based on actual experience, were of particular interest to the citizens of Chicago, for Mayor William Hale Thompson and his political machine are trying by every means possible to bring about an end to the control of the local utilities by the Illinois Public Utilities Commission and to establish municipal ownership and a 5-cent street car fare.

Mr. Hanson's speech follows in part:

In discussing municipal ownership and operation of public utilities I do so only from the light of experience. I have cast theories into the discard. The stern facts, unpleasant as they may be to many, are illuminating, I think, to those who seek the truth.

I will tell you about our street car line. For years we had had the usual fight between the private corporation and the city government. Both were unquestionably to blame, and, because of their equality of wrongdoing, both had red entries in the ledger, when, by co-operation and understanding, both the citizens and the company would have been better off.

The war was on. I believed with others that the company was making money—plenty of it. Were not the cars crowded; didn't I have to stand? Were they not carrying more and more people daily? Yes, but when we "experted" the books we found that it was costing them more to operate every day, and that the more business they had the greater the loss. The government demanded better transportation for the shipyard workers, extensions, new equipment, etc. The company said: "We have just refunded a \$12,000,000 bond issue and we paid 9½ per cent and do not know where we can get any more money."

After due consideration, the city of Seattle offered the company \$15,000,000 for the car lines, houses, real estate, etc. The company accepted. Even then the city government did not close the deal, but submitted the proposition in plain words to the voters of Seattle. Every one was for it. It was a war measure and recognized as such. The Chamber of Commerce, the Central Labor Council, the building owners and every organization in Seattle approved the deal. The people voted and the vote stood over 4 to 1. After some months of legal quibbling, the council O. K.'d the deal. On April 1, 1919, we took over the physical operation of the lines.

THINGS GO WELL FOR A TIME

We had a superintendent of public utilities who was fearless, brave and honest. He inaugurated skip stops, one-man cars, and we had better transportation. We carried more passengers; we raised the pay of the workmen and, by careful, efficient business methods, success seemed cer-

tain. Then my health and poverty compelled me to resign. But a splendid man was chosen in my stead. He retained the same superintendent, but election day came nearer and nearer and, as three of our Council had to be re-elected, a change in vote was duly recorded in the Council chambers. Improvements which would have saved money were blocked; extensions which should never have been made for years were made at once; everything the lobby of special interest citizens wanted they got.

The superintendent pleaded and cajoled and begged, but the Council, which had voted to buy the car lines, were influenced by political considerations and progress was checked.

Then three candidates for Mayor filed and, to my surprise, the street car line became the dominant issue. The candidate who promised each section the most in service, extensions, etc., received the most cheers. The candidate who agreed to turn the management of the street cars over to a man without either courage or ability, but who would never fire a man or punish him, received the support of the car men and their friends.

Instead of taking the utilities out of politics they became the football of politics. When the votes were counted, the greatest promiser was elected. He fired the competent superintendent and appointed a political friend, and we realized what we were up against.

The first month the city operated the cars, April, 1919, it cost for operation 23 cents to run a car one mile. In the month of April one year thereafter it cost 31 cents to run a street car one mile. The average speed was greatly reduced. We had just been able to get by on a 5-cent fare. The fare today is 10 cents for a single ride—four tickets for a quarter. The present Mayor advocated at the beginning of his term the taxing of the citizens to pay for the car line. Verily, municipal ownership meant more than we thought.

POLITICS FATAL—PRIVATE OPERATION BETTER

In my best judgment, municipal ownership and operation of transportation lines, or any other utility where great numbers of men are employed, will never be really successful unless the great mass of people decide that brains are worth money, and that the men in charge are trained, competent, high-class men who can earn as well as receive as good compensation from the cities as they get in private employment. The spoils system must be abolished and the street car operated for efficiency and service and not for feathering some demagogue's political nest. The people themselves must agree that the car rider must pay for his ride and not the taxpayers, who, often, under some guise or other, are made to carry a part of the load. The employees of the city must be subject to the direction of the city officials and not of any outside body on the face of the earth. The employees must be paid a fair wage, and it should not be greater than the wage paid for similar employment in private life.

However, after due consideration, I am of the opinion that, under proper and just supervision by commissioners that are fair, the private company can furnish transportation at less cost than the average city government. Politics apparently cannot be kept out of the business of our municipalities, and politics is fatal to success.

I believe absolutely that the car rider must pay for his ride and not the taxpayer. I believe the capital invested in public utilities must be allowed to earn a fair and sure return on its investment. It is not true that the company's interest and the city's interest are opposed. Sometimes the corporations and sometimes the politicians have fostered this opposition, but it is wrong fundamentally.

Chicago is but at the beginning of its career as a city. Hate and strife will simply check Chicago's growth, hamper its future and delay its arrival at its sure destination of being the largest city in the world. The city's business is your business. The public utilities intrude upon every hour of your life. Any waste or unnecessary expense is simply loss to your city, to yourselves.

A commission has been appointed by the Warsaw government, according to a statement in the *Tramway and Railway World*, London, to gather information on the present position of the Polish railways and on electrically operated systems in other countries. The commission will then report to what extent it may be desirable to undertake the electrification of the Polish Railways.

Progress in Rail Joint Construction

Recent Developments in Rail Joint Construction Make This Subject of Particular Interest and a Review of the Progress Made Should Be of Benefit

BY R. C. CRAM

Engineer of Surface Roadway Brooklyn (N. Y.) Rapid Transit Company

BOLTED joints as well as the several types of welded joints have been given much careful study and experiment during the past few years and an attempt will be made to outline the progress made. In a general way, the form followed is that given in the progress report on rail joints presented in 1910 by the committee on way matters of the American Electric Railway Engineering Association (Proc. 1910, page 58).

The 1910 report gives the elements necessary to obtain a perfect rail joint, as follows:

1. The joint should prevent independent motion of the rail ends during the life of the rails. 2. The joint should be mechanically strong and should be such that the rail at the joint will be equal in strength and stiffness to the rail itself. 3. In the application of any joint it is essential that the top surfaces of the rail lie in the same plane.*

It is to be noted that any joint that is suitable for paved tracks, the application of which does not result in continuous rails, will also be suitable for use in open track.†

The 1910 way committee report commented particularly upon the channel bar splice plate as used for girder rail joints and noted the tendency of these to buckle under loads applied in drawing up the bolts. A change in design was suggested in the proposal that the plates be made slightly concave to the web with the idea that the plates would flatten out and become practically vertical when the bolts were tight. This has been tried in a few designs such as that for the L.S. Co., section 95-400, but it is believed that the scheme has proven somewhat impractical, since it places too much dependence upon the strength of the bolts. The later, and what is considered the better, practice is to provide plates of greater thickness along their center lines and having a "bridge" shape providing ample clearance for concealed bonds, together with greatly increased bearing surfaces, such as the joints for the 7-in. and 9-in. grooved girder and 7-in. plain girder rails of the Engineering Association (see Engineering Manual, Wm 5a; Wm 4b; Wm 6a). Experience with the Engineering Association joints of the plain bolted type for 7-in. grooved girder rails has indicated that these joints are a vast improvement over any previous designs for simple mechanical joints and it is the writer's belief that the "bridge" type of plate is now being used quite extensively for bolted joints in grooved girder rail work.

Along this line, attention is called to the "recommended design" for similar "bridge" type of plates for the Engineering Association's recommended design of 7-in. 80-lb. and 7-in. 91-lb. plain girder rails, as found in the Engineering Manual, Wm 6a. The writer understands that these plates have never been rolled, but they have great merit, and it is hoped that the companies will take up their use with these rails so that information may be developed as to their value as compared with the manufacturers' design now in use.

*The writer would add to this that the same thing may be said with respect to the rail bases, particularly where a base-support type of splice bar is to be used.

†To this the writer would add a fourth item as follows: 4. The joint should have a conductance at least equal to that of the rail section to which it is applied.

It is quite certain that better results would be secured with plain bolted joints for girder rails if the splice bars and bolts were heat-treated and the subject should have further attention. As noted hereafter in remarks upon joints for open tracks, it is also quite certain that proper tests would clearly demonstrate that long, heavy 12-bolt joints are no more efficient than shorter heat-treated 8-bolt joints for deep girder rails. Some companies insist upon using 8-bolt joints for 7-in. grooved girder rails. Here again it may be remarked that heat-treated splice bars with single-row 6-hole drilling are probably just as efficient, and marked savings in joint costs can be had through a careful study of these features.

It is hardly necessary to repeat that it is the general practice to lay rails butt-tight in paved street work, no matter what kind of joint is used. The bugaboo of expansion under such conditions has long since been banished. But where bolted joints are used in pavements, attention is called to the suggestion of the 1910 committee on way matters to the effect that the holes in the rails for bolted joints should be only $\frac{1}{8}$ in. larger than the diameter of the bolt to be used. It is thought that current practice now goes even farther and requires the holes in the rails to be $\frac{1}{8}$ in. less than the diameter of the bolt, and that the hole shall be reamed during application of the plate to the diameter of the bolt, securing a reamed tight fit, all of which tends to prevent future play.

OPPOSITE VERSUS STAGGERED JOINTS

There is an increasing tendency toward placing joints opposite each other in paved track construction. This is particularly true where cast welds and other forms of welded joints are used. With cast welds it is very desirable so to place them in order to lessen the rocking motion imparted to cars by "staggered" joints where some of the joints are "cocked" up above the general level of the adjacent rails.

The "opposite" method permits shop punching of tie-rod holes. It is only necessary to pair the rails for length in order to have the shop-punched holes come opposite in the street. Damaged railheads are often found opposite "staggered" joints, where the latter become defective. Such damage lessens the relaying value of these rails.

The chief disadvantage that may be ascribed to "opposite" joints is the fear that in event of both joints becoming defective there would be more trouble from noise and derailment. However, this is not a serious matter because of the marked improvements in all forms of joints and "opposite" welded joints are known to have been in service more than twenty years without causing such troubles from their failures.

Where bolted joints of the base-supported type are used it is necessary, if the "staggered" method is followed, to install tie plates of a thickness equal to that of the base flanges of the joints on the ties opposite the

joints. Otherwise the rails will not lie in the same plane unless the ties are adzed to receive the base flanges of the joints. Either scheme is expensive and the "opposite" method obviates these difficulties.

Observation of special trackwork has also indicated that "opposite" joints in the curved rails and other parts are not objectionable provided the joints are of proper design and carefully installed with bolts of high tensile strength.

The statement made in the 1910 way committee report can be repeated as follows: "It appears that tracks in paved streets should be laid with 'opposite' joints."

Some form of bar which provides greater strength than the ordinary angle bar is believed to be necessary, and patented joints such as the 100 per cent, the Duquesne, the Bonzano, the Continuous, the Weber, the Wolhaupter, the Superior and the Abbot are widely used. The patents on several of these joints have expired.

The tendency toward the use of heat-treated bolts of high tensile strength is also recognized and good practice now requires their use. Such bolts are included in the recommended specifications of the American Electric Railway Engineering Association for material for use in the manufacture of special trackwork (Eng. Man. Ws 4b). It is also to be noted that the use of heat-treated angle bars is increasing. The Pennsylvania Railroad has conducted an important series of tests to ascertain the relative stiffness of its standard joints under transverse load with the view to increasing the stiffness either by change in design or by heat treatment. The results showed that

while ordinary rail joints have a lower elastic limit than the unbroken rail, joints made with bars of suitable design and heat treated have elastic limits higher than the continuous rail. The complete report, in Appendix G attached to the report of the committee on rail of the American Railway Engineering Association, Proceedings, 1919, Vol. 20, page 561, is worth study by electric railway engineers.

The principal points brought out are: (1) Plain angle bars properly designed and heat treated have an efficiency, at lower cost, equal to continuous joints and slightly greater than Bonzano joints untreated; (2) heat-treated plain bars should only be used with heat-treated bolts; (3) heat-treated bars should only be purchased under specifications and inspection which will insure that the treatment has produced in the bars the properties which are essential in order to secure results equal to those found in the tests; (4) it appears that there is nothing to be gained in strength under transverse loading by using a 6-hole instead of a 4-hole joint;

(5) no loss in efficiency is to be expected from a reduction in the length of the splice bar to 18½ in.

As these tests were made on joints for 100-lb. standard section rail there may be some difference in results from similar tests of joints for 80-lb. rails, which are extensively used by electric railways, but it is probable that proportionately similar results would be found in similar tests.

This is certainly a matter which could well be investigated by the American Electric Railway Engineering Association.

FEW WELDED JOINTS IN OPEN TRACKS

The use of welded joints in open tracks has not been very extensive. The reason for this is principally that there are difficulties in providing for expansion and contraction. Some lack of facility in repair of failures has also been feared. It is probable that the benefits accru-

ing from a continuous rail in tracks of electric railways, where the rails carry the return circuit and where the costs for joint bonding are high, have not been thought sufficient to offset the greater cost for maintenance of bolted joints. It may be a surprise to some engineers to learn that a long stretch in one of the tracks of a four-track high-speed electric railway system in New York City has been in operation with electric bar-weld joints since construction in 1907. The tracks are in open cut. There have been few joint failures and no troubles have developed from the use of the necessary expansion joints. The rails are 80-lb. A. S. C. E., and the joints will no

doubt outlive the rail. The results of this test should tend to overcome the dislike which way engineers have for continuous rails in such situations.

SPECIAL FORMS OF BOLTED JOINTS GIVE GOOD RESULTS

The riveted joint is considered as a special form of bolted joint. Where such joints are designed as simple structural splices, without providing either head or base support, they have failed signally. On the other hand, when proper plates have been provided, of sufficient thickness to withstand the tendency toward buckling under riveting pressure and with broad bearing under the rail head and upon the base, they have given fairly good results. Riveted joints were used in Cleveland as long ago as 1892.

The idea of embodying a combination riveted-welded joint was originated by C. H. Clark in Cleveland, Ohio, and the joint has since been successfully used in Baltimore and other cities. The original scheme consisted in

Some Conclusions by Mr. Cram

1. The importance of rail joints and their direct influence on roadway structures cannot be overestimated, as the effect, both directly and indirectly, on the service, maintenance, public relations and reputations in the community can too often be traced largely to shortcomings in the design, application or serviceability of the rail joints employed by the railway company.

2. It has often happened that a particular type of rail joint has been employed on important track structure without proper consideration being given to the exact qualifications a joint must possess in order to meet the service required. Consequently, the lack of such qualifications, in the type of joint finally adopted, has resulted disastrously for want of reliable engineering knowledge.

3. The importance of thorough grinding of all rail joints of whatever type to a true head surface cannot be emphasized too strongly. Way engineers should be permitted to have a sufficient number of grinding machines to permit joint grinding immediately after installation.

4. Way engineers have been devoting time and money to the development of too many specialties in rail joints. An attempt should now be made to combine their experiences in some practical way which will result in a satisfactory solution of the joint problem.

5. A most business-like way of accomplishing this task would include the performance of a series of carefully planned tests, including physical and chemical analysis and a scientific examination of every type of joint and welding process in current use in the industry. This should be done by the American Electric Railway Engineering Association and in co-operation with an unbiased authority such as the United States Bureau of Standards.

riveting regular channel-bar plates to the rail ends and then thermit welding the base of the rail and lower portion of the plates. This weld was intended to give the joint sufficient permanent conductance and provide a strut directly at the joint to prevent any vertical movement of the rail ends.

The cost of the equipment and tools required when calculated to include all items was found to be such as to make the cost of the joints higher than many others. Here the arc welder was employed to reduce the initial cost of such joints, which resulted in arc welding of a portion of the edges of the plates to the head and base of the rails. This obviated the use of the thermit welding and reduced the cost of the joint considerably.

Through the efforts of H. B. Nichols, the Philadelphia Rapid Transit Company was successful in perfecting a composite joint, which for many years has been extensively employed on that system. This joint is composed of specially shaped plates well riveted to the sides and the bases of the rails. The voids between plates and sides are filled with spelter or similar metal to assure a reliable, uniform support to the head and to produce a permanent electrical contact. This joint has proven quite successful in the hands of the originator and his immediate successors, although it is believed its scope will be confined to Philadelphia, because the installation of joints of this type requires heavy apparatus of a costly nature and entails handling and maintenance problems of considerable importance, which are sufficient cause for other railways to avoid their use.

In recent years when continuous joints have been used in paved streets the practice of using machine-fitted bolts with them has increased. The rails and splice plates are drilled with circular holes fractionally smaller in diameter than the diameter of the machine bolts. The plates are held in place by drift pins while the holes are reamed to bolt diameter; the bolts are then driven home, and thoroughly tightened under car traffic.

CAST WELDS PROPERLY MADE ARE SATISFACTORY

There must be a reason why some railways continue to use the cast-weld type of joint, and those engineers who continue to use it claim that the results now obtained from this joint are equal to and in some cases better than those obtained by any other welding process, when based upon accurate statistics covering percentage of failure. The average annual percentage of failures for more than 15,000 joints upon one property is 0.004 per cent, with joints from one to eleven years old and an average age of four years. Furthermore, the electrical conductance test of these joints covering four successive years shows no appreciable change. This is a very important item in connection with any form of joint, and the one which continues to give high conductance throughout its life merits careful consideration.

The good results now obtained are largely due to extreme care in installation, the betterment of mold design and an appreciation of the fact that the metal must be brought up to such a height as to secure a thorough bearing under the rail heads. The failure to appreciate the last-named point has been the cause of more failures than any other one factor, and it may be noted that the overlooking of the same point with other forms of weld has contributed to their failures also in no little degree.

There have been claims made from time to time that the cast welding process injures the metal in the rail heads, tending to soften it through the sudden applica-

tion of the hot metal. These claims were apparently based on the dishing or cupping which sometimes develops in the receiving rail head. However, most of this dishing has proven to be the result of either the failure to grind the heads to a true surface or to insufficient grinding. It has also been due at times to failure to keep the joint butt-tight during the welding, thus leaving a slight but often non-apparent "open joint" in the weld. This will usually cause cupping in any kind of a joint. Its effect is increased with the cast weld due to the anvil effect of the mass of metal which tends to resist the blows from the car wheels, increasing the force or effect of the blow, upon the head metal.

The writer understands that recent tests made by R. W. Hunt & Company, for the Twin City Rapid Transit Company, clearly indicate that the heat does not cause a softening of the rail heads.

The use of the thermit type of welded joint has increased of late. Since the report of the way committee on the thermit process of rail welding, in 1910, very radical changes have been made in that process of welding and in 1912 an entirely new method was perfected known as the "thermit insert" weld. It was necessary to make a radical change because experience proved that the first thermit weld, brought out in 1903 and 1904, in which only the base and flange of the rail were welded, was not of sufficient strength due to the fact that the head was not welded. The next development, made in 1908, was to cast-weld the entire rail section with thermit steel, including the head. This, however, developed another weakness due to the melting of the head of the rail and the softening of it at that point. The result was that a number of these welds showed bad indications of cupping. In 1912, however, the thermit insert weld was perfected. In this the base and flange are cast welded with thermit steel, as is also the head of the rail on the outside of the head. The head along the gage line, however, is not melted, but is compressed on an insert cut from rail steel and inserted between the heads of the rails before welding, the rails being spaced $\frac{3}{8}$ in. apart for this purpose. The high temperature, combined with the tremendous compression caused by the expansion of adjacent rails against the insert, serves to butt-weld this insert firmly to each side of the head of the rail, so that the final result is a weld of the entire section. This is then ground to form and is ready for service. The thermit insert weld was first installed in 1912, but was not used on an extensive scale until 1918.

The improvement brought about in this joint in addition to the butt-weld of the insert comprises the following very important points: (1) The amount of thermit required to make the weld has been reduced to practically half that previously required, due to the preheating of the addition to the thermit charge, the addition being packed in a sheet iron container and heated red hot at the time the rail is being preheated preliminary to welding; (2) a new method for luting molds has been perfected by which runouts have been practically eliminated. Asbestos strips soaked in molasses are placed around the rails just inside of the mold box. These are compressed between the mold and the rail and form a very effective luting. Powdered fireclay is then blown in under air pressure and, being caught by the molasses, tends to seal any small holes which might still remain. Should there be a break in the asbestos, making a runout possible, it can immediately be detected

during the fireclay test as the fireclay can be seen blowing out at that point. Such a defect can readily be sealed with the fireclay luting on the outside.

It is understood that no changes in method are contemplated this year except in certain apparatus. A smaller preheater is now being developed and possibly a small rail grinder will be put on the market.

ELECTRIC BAR-WELD JOINTS HAVE DEMONSTRATED THEIR GREAT STRENGTH

The 1910 report states that the weakness shown by the cast-weld, which is designated as "slip," also occurs to a degree in the electric weld. It is now believed that there were very few instances where the failure of electrically welded joints was due to a failure of the central weld. With the plain bar joint what may have appeared to be a "split" or failure of the central weld was in the great majority of cases caused by the loosening of shims due to excessive undercutting of the rail ends in the first instance, which prevented a firm bearing from being obtained over the entire rail ends and causing the bearing to take place only at the very top of the rail.

As the surface of the rail wore off under traffic this bearing finally became so slight that the shims did not remain in place, leaving an opening between the adjacent rails which caused a "pound" on the receiving rail and finally fractured the web of the receiving rail above the central weld. A failure of this kind, when viewed from the street surface, would give the impression that the central weld had failed, whereas the fact was that the web was split horizontally above the central weld of the receiving rail, but the central weld itself was as firm as ever.

In addition to the above many joints have been noted on which the receiving rail was very badly pounded and dished, but the central weld was still perfect. To overcome this difficulty the head support joint was brought out, in which spelter was poured into a space between the welded bars and the under side of the rail head. Experience proved, however, that while this was a step in the right direction it did not entirely overcome the trouble, owing to the gradual flowing out of the spelter from between the bar and the rail head as the head wore thin, and fractured rail webs on the receiving rail were still too numerous. The chock joint was then adopted. In this a drop-forged chock, several shapes of which are made to conform to various shapes of rails, is welded to the under side of the head of both rails and to the back of the head at the same time that the central weld on the bars is made. This really welds a portion of the abutting rails together and effectually overcomes any tendency of movement on the part of the receiving rail independent of the running off rail.

The chock type of joint is being used at the present time on nearly all girder rails and it is claimed that there have been no failures due to the receiving rail going down. It is claimed that there have been very few failures of the chock joint due to rail breakage, although on joints first installed there were some failures from chocks which had not been properly welded due to inexperience of the operators on this form of weld, and most of the failures were due to the parting of the chock from the rails without any fracturing of the rails.

The failure in bar-weld joints due to fracture of the rail at the end of the bars is not so much due to deterior-

ation of the steel caused by the welding process as it is to the concentration of all of the stress on a small area of cross section of the web of the rail. When such joints withstand a tension of more than 400,000 lb. it shows how slight must be the deterioration which actually takes place in the metal due to the welding process. There is no other process of welding that will show the high tensile strength per square inch produced by the process of resistance welding and holding under pressure while the weld cools. The trouble is that in the bar joint the weld is applied to the weakest member of the rail, the web.

TRUE BUTT-WELD MADE BY NEW PROCESS APPLYING OLD PRINCIPLE

A new process of butt welding of joints has recently been put on the market by the company which has long exploited the electric bar-weld process. It is, in some respects, a reversion to the earliest form of butt weld as originated by Elihu Thomson and it is being produced under the Jacobs patents. In this process a true butt weld is made between the adjacent rail ends and no additional metal is introduced at the joints. It produces a truly continuous rail, eliminating the joint entirely.

The rails are first placed with the ends about $\frac{1}{2}$ in. apart, being held by a clamp with hydraulic rams for forcing the rails together after a welding heat has been reached. The rail-ends are surrounded by a clay mold, leaving a rectangular receptacle of which the rail ends form part of the side surfaces. The terminals of a 30 to 50-kw. generator are clamped to each rail, but no current will flow as long as the rails are not in contact. A melted flux is then poured into the mold, which provides a path for the current from rail to rail. The resistance of the flux causes it to heat very rapidly so that in a few minutes a temperature of 2,800 to 3,000 deg. is obtained, and the rail ends, being in contact with this hot material, are heated to a welding heat, at which time the rails are forced together through the flux and their entire ends are welded to each other. Grinding the burr off the head, groove and tram completes the process. In case a joint should break it is a simple process to grind off the burr on the under side of the head and tram, and on the top of the flange on each side, and to put on a pair of joint plates, without the necessity of cutting off a piece of rail, which is generally necessary for the repair of any other form of welded joint.

It is possible by the use of two independent clamps, one on each rail, to set one joint while the joint on the opposite rail is being welded, and a joint can be made in from 20 to 30 minutes. The actual time for the current to be on a weld is from 8 to 10 minutes. In Pittsburgh last December twenty-six joints were made by this process under very unfavorable weather conditions. One parted through the weld during the winter, but this failure was attributed to insufficient pressure due to trouble with the hydraulic pump caused by the cold weather.

The principal advantage claimed for this process is that the whole of the rail ends are uniformly brought to a welding heat due to the circulation of the hot flux over them, so that a homogeneous weld is produced over the whole rail section. However, the process is not available for joint repairs, owing to the need for drawing the rails together during the welding. In repair work the pavement prevents this.

The electric arc-weld joint is a new type of welded joint which came into use about 1913. Its use is an outgrowth from the use of arc-welding apparatus originally designed for the building up of cupped joints and hard centers in special trackwork. The universal use of welding apparatus for the latter purpose offers a comparatively cheap and convenient method of joint welding and, as a result, there are several such joints which have been installed with an insufficient knowledge of the proper methods and regardless of consequences.

Arc-weld joints are made up in two general forms, although there have been numerous modifications of these by individual railway companies by way of experiment. In one form, plates of special shapes are welded to the sides of the rail webs around their entire periphery. The plates are staggered in position so that the welding lines of one plate do not come opposite those of the other, preventing burning through. One form of this general type brings up the outside plate to a bearing for the support of the rail head, while other styles of plates of this type have a bearing on the bases only.

In the other general form, rectangular plates quite similar to plain joint plates are arc-welded along their top and bottom edges to the heads and bases of the rails. The structure thus formed is a box girder with a central rib (the rail web). In both forms the plates are held in place before welding by bolts or clamps. Both general types of joints have been used for repair of defective joints as well as for joints on new rails.

In the box type the web of the rail tends to prevent the adjustment of the members to the condition created by the welding. The plates are in a highly heated state, while the rails remain comparatively cool. Shrinkage stresses thus produced are often sufficient to draw up the rail bases at the edges, resulting finally in a fracture, either through the rail near the joint or in the weld itself. The web-plate type is subject to conditions which are more or less similar and an examination of several installations of arc-welded joints of both types reveals defective conditions which are very unsatisfactory. Many failures have occurred in the rails at or near the ends of the plates. Welded seams first crack and then give way, and once the failure is complete the entire joint usually has to be cut out.

It is understood that practically all of the failures in the web-plate type have been due to one of the following conditions: Failure to regulate current, resulting in either burning or melting instead of welding the electrode; attempt to weld rail covered with rust, cement or other foreign substances; use of wrong grades of welding steel; use of second quality rail very high in carbon; application of joints to rail ends already crystallized by pounding of car wheels and failure of operator to direct the arc jointly between the two members, resulting in failure to make a perfect weld.

Several schemes have been tried, or are being tried, for overcoming and reducing these difficulties. Some have failed, while others have not yet had time to prove their worth.

ESSENTIALS FOR SUCCESS OF ARC-WELD TYPE OF JOINT

There is considerable apprehension as to the results which will ultimately be obtained from attempts to apply this process to high carbon steel rails. The arc-weld method is the one which requires the nearest approach to theoretically correct principles and its success will

be based upon an accurate application of electric energy correctly measured by thoroughly skilled operators. The skill of the operator, however, is an essential to the success of any joint process.

The working conditions, materials to be welded and the welding material proper must be carefully considered. The use of special welding-quality steel plates of proper design, and of suitable welding rods and other materials composed and manufactured especially for this purpose, are very essential factors in producing even an approach to good results. There are altogether too many cases of promiscuous use of joints of this type where the conditions, materials and apparatus are neither known nor correctly used, while really skilled operators are exceedingly rare. These factors lead to doubts on the writer's part as to ultimate results which will be obtained from this type of joint when accurately compared with other types of welded joints.

It is thought that the subject of arc-weld joints is one which will bear very careful investigation and that the general application of such joints should not be taken up too hastily. However, the ease with which this type of joint may be installed by skilled operators, the simplicity of the apparatus proper and the economic features are so attractive that it is earnestly hoped that a successful solution of the difficulties attending the process may be found.

Make Anthracite from Bituminous

THE burning of raw bituminous coal is uneconomical, as the market for coal-tar products has made the volatile portion more valuable for other purposes. George Esherick, Jr., in a recent paper presented before the Kentucky Mining Institute indicates a process that will convert bituminous coal into a fuel resembling anthracite. The requirements of such a fuel are that it be smokeless, easily burned and cheap.

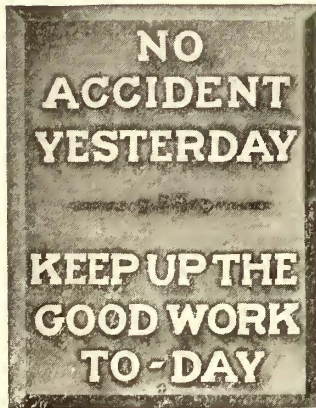
The process is as follows: Raw coal is crushed and fed continuously into low temperature horizontal retorts by means of paddles. The volatile products, i.e., tar, gas and ammoniacal liquor, are treated as in coke-oven practice. The residue which is continuously discharged from each retort is softer than coke, contains 8 to 10 per cent of volatile matter and burns readily. It could be used directly in a power plant as fuel under boilers, but is not in a condition to market for general use. In the next step of the process this semi-coke is ground, mixed with pitch, fluxed and passed through a briquet press. The raw briquets are then carried to inclined retorts and again distilled, dumped and quenched.

The yields of "carbocoal," as it is called, and the various byproducts depend on the coal used. A coal of the following typical analysis, moisture 3 per cent, volatile matter 35 per cent, fixed carbon 55 per cent and ash 7 per cent, will yield, per ton, carbocoal, 1,400 lb.; tar, 30 gal.; gas, 9,000 cu.ft.; ammonium sulphate, 20 lb.; light oil from gas, 2 gal.


The carbocoal has a B.t.u. content of about 13,000 and burns with a clean light ash. It has been used with success in several plants and a large plant for its production is now being erected at Clinchfield, Va.

Such attempts as these are preferable from a conservation standpoint, Mr. Esherick thinks, to attempts to pulverize or change raw coal without first extracting the byproducts. Power producers will watch the development of the process with interest.


Some Reasons for Success of "No Accident" Week in Allentown



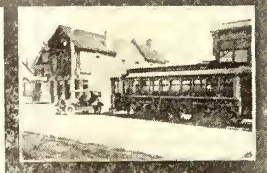
THREE BIG RISKS



RAILROAD CROSSINGS-- STOP! LOOK! LISTEN!



Be Careful When You Pass a Street Car Going Round a Curve--



Blind Corners Cause Many Accidents-- Slow Up or Stop When Approaching a Street Intersection

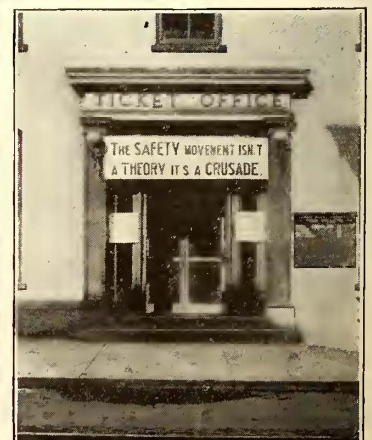
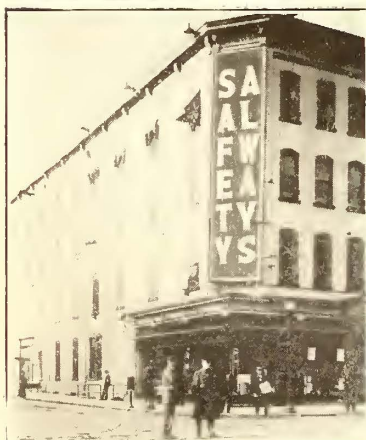
The Rear End of the Car Has a Dangerous Side Swing-- It May Catch You

THINK SAFETY

National Safety Council
Chicago, Illinois



The Lehigh Valley Transit Company helped make the "no accident" week in the Lehigh Valley a success. The illustrations show some of the publicity used in the drive, which was described in the July 10 issue of the ELECTRIC RAILWAY JOURNAL.



Encouraging Thrift

Alert Management of Philadelphia Rapid Transit Shows Men How to Spend Intelligently and Save —Budget Book Furnished with Instructions

THE Philadelphia Rapid Transit Company has been doing some excellent educational work among the employees of the company with reference to the proper division of income into the various items of expenses and saving.

A family budget book is furnished to every employee of the company and, in addition to supplying

the type of expenditure of the average family of P. R. T. employees.

The budget is based on the average family of five persons, consisting of husband, wife and three children.

Employees of the company have been urged to sign the slip authorizing the co-operative association of the Philadelphia Rapid Transit Company to deduct from \$1 to \$10 a week from their pay envelopes for saving. The money is placed in the company saving fund. Interest at 5 per cent, compounded annually, is paid. The little table in the back of the booklet shows that a

HOUSEHOLD BUDGET AND EXPENSE RECORD

The making of a budget consists of dividing your income into exact sums to cover your detailed expenses. The management of any household may be put on a good business basis by keeping a budget and a record of expense.

The real way to save money is to set aside a certain amount of every pay before you start to spend your money. If you wait to save what is left over, you may find you have spent it all. Make your savings just as much a part of your budget as your food or rent.

The very best way to get something ahead is to make an order on the treasurer for a certain amount to be deducted from your pay and deposited in the Co-operative Welfare Association Saving Fund where it will be earning interest, compounded annually. The figures on inside back cover of this book show you how fast interest compounded piles up over a period of years.

The inclination to spend from day to day as necessity arises is at first very hard to overcome, but when you get the habit of making a budget and keeping an expense account, there is a big satisfaction in being able to see at a glance just where you stand.

With the aid of this budget system you no longer trust to memory and wonder afterward where the money has gone. It will be found that the cash on hand which makes next week's income bigger, will grow under constant watching. Should you find it difficult to make headway, the Welfare Department offers you expert help.

GEO. W. JACKEL, President,
Co-operative Welfare Association Saving Fund.

KEEPING YOUR FAMILY BUDGET

Make up your budget for the total household income. Under "Budget" write the amounts you decide to spend for each of the items. By using the columns "Under" and "Over" you can tell when you are spending more than your budget allowance for any item and this will guide you in planning for the next week.

EXPENSE RECORD—Jot down each day on a slip of paper or on a calendar pad the amounts spent for

1. FOOD—everything you eat.
2. SHELTER—rent, building and loan payments, interest on mortgage, taxes on house and repairs on house. Put house furnishings under item 6.
3. CLOTHING—everything you wear.
4. HEAT AND LIGHT—coal, wood, gas, electricity, or kerosene, for heating and cooking.
5. SAVINGS—Co-operative Saving Fund and other savings.
6. OTHER EXPENSES—Everything else you spend.

WEEKLY SUMMARY—Every day write the daily totals in the proper columns under "Summary for Week."

MONTHLY SUMMARY—Every week write the weekly totals in the proper columns under "Summary for Month" opposite the weekly sheet. Also copy in the weekly totals for the previous weeks in that month and you will then know how you stand to date.

YEARLY SUMMARY—Every month write the monthly totals on the "Summary for Year" at back of book.

CASH ACCOUNT—Don't be discouraged if your cash does not always balance to the last penny. Do the best you can and strive to do better.

TYPICAL BUDGET

These costs will help you to fix your own family budget. The principal items of family expense are based on the experience of 11,000 families, recently obtained by United States Government, and check very closely with average family budget of P. R. T. employees.

	%	\$35.00 PER WEEK			\$40.00 PER WEEK			\$45.00 PER WEEK			\$50.00 PER WEEK		
		Week	Month	Year	Week	Month	Year	Week	Month	Year	Week	Month	Year
WAGES		\$35.00	\$151.88	\$1,820.00	\$40.00	\$173.33	\$2,080.00	\$45.00	\$195.00	\$2,340.00	\$50.00	\$216.66	\$2,600.00
EXPENSES	% of Wages												
1. Food	32-42	\$14.00	\$60.88	\$728.00	\$14.40	\$62.40	\$748.80	\$15.55	\$69.13	\$829.40	\$17.50	\$75.84	\$910.00
2. Shelter	15-17	5.50	24.27	291.20	5.40	22.74	272.80	7.20	31.70	374.40	8.00	34.66	416.00
3. Clothing	12-13	4.55	19.71	236.50	5.20	22.83	274.00	5.55	25.35	304.20	5.60	25.17	308.00
4. Heat and Light	4-5	1.40	6.07	72.80	1.50	6.93	83.20	1.80	7.80	93.60	2.00	8.57	102.80
5. SAVINGS	8-16	4.00	17.33	208.00	6.00	26.00	312.00	7.00	30.32	364.00	8.00	34.66	416.00
6. Other Expenses	10-18	5.45	23.82	285.37	5.40	23.73	284.80	7.20	31.20	374.40	8.00	34.66	416.00
Total		\$35.00	\$151.88	\$1,820.00	\$40.00	\$173.33	\$2,080.00	\$45.00	\$195.00	\$2,340.00	\$50.00	\$216.66	\$2,600.00

WHEN YOU GET AN INCREASE IN PAY DON'T START IN TO SEE HOW FAST YOU CAN SPEND IT. SAVE IT. NEVER HAVING HAD IT TO SPEND YOU WON'T MISS IT.

SUMMARY FOR WEEK ENDING

ACCOUNT NUMBER	ITEMS	EXPENSES							BUDGET		
		Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.	TOTAL	TOTAL	UNDER
1	Food										
2	Shelter										
3	Clothing										
4	Heat and Light										
5	SAVINGS										
6	Other Expenses										
Total											

Enter the week's totals on the Monthly Summary on opposite page

Cash on hand from last week		Enter here any remarks or notes you would like to keep about the week's expenditures.
Wages		
Other Income		
Total		
Total Spent		
Balance on hand		

SUMMARY FOR MONTH ENDING

Enter the totals for four or five weeks depending upon the number of weekly pays in the month.

	EXPENSES						BUDGET			
	FOOD	SHELTER	CLOTH-ING	HEAT & LIGHT	SAVINGS	OTHER EXPENSES	TOTAL	TOTAL	UNDER	OVER
1st Week ending										
2nd " "										
3rd " "										
4th " "										
5th " "										
Total										

SUMMARY FOR YEAR ENDING

	EXPENSES					BUDGET				
	FOOD	SHELTER	CLOTH-ING	HEAT & LIGHT	SAVINGS	OTHER EXPENSES	TOTAL	TOTAL	UNDER	OVER
1st Month ending										
2nd " "										
3rd " "										
4th " "										
5th " "										
6th " "										
7th " "										
8th " "										
9th " "										
10th " "										
11th " "										
12th " "										
Total										

End of Book

PAGES WHICH MAKE UP THE BUDGET BOOK FURNISHED TO ITS EMPLOYEES BY THE PHILADELPHIA RAPID TRANSIT COMPANY. PAGES 4 AND 5 ARE REPEATED ENOUGH TIMES TO MAKE UP THE ENTIRE YEAR

blanks upon which expenditures may be listed and analyzed, this book gives hints on how to save and typical budget divisions for various wages which might be received by the employees.

The accompanying illustration shows the details of the budget book with the pages indicated by numbers, 4 and 5 being repeated in sufficient number to make up the entire year.

The principal items in the "typical budget" are based on the actual experience of 11,000 families as reported by the United States Census Bureau and check closely

man saving \$1 a week for thirty-five years under this plan will have \$4,814.07 at the end of that time, and one saving \$10 a week would have ten times that amount, which placed at 5 per cent interest would give him \$962.80 a year income in interest.

The response to this effort of the management of the company is most gratifying. In July out of 10,000 employees nearly 7,200 were depositors in the co-operative welfare saving fund and their yearly savings amounted to \$980,752. This money is invested in car trust certificates of the company.

Comparative Power Sources

THE United States Geological Survey has just published the kilowatt-hour output of public utility plants for the first five months of 1920. The figures are based on returns from about 3,000 plants, including central stations, electric railways and certain other plants that contribute to the public supply. The total capacity of the plants reporting is about 90 per cent of the plants listed. The average daily production for the

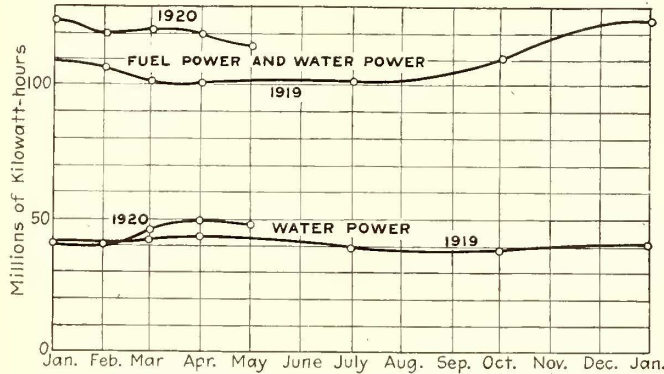


CHART SHOWING AVERAGE DAILY PRODUCTION OF KILOWATT-HOURS BY PUBLIC UTILITY PLANTS IN THE UNITED STATES, 1919 AND 1920

five months was as follows: January, 124,700,000; February, 119,000,000; March, 120,800,000; April, 119,300,000, and May, 114,600,000.

The proportion of monthly totals produced by water power is 33, 33, 38, 41 and 42 per cent respectively.

The mean daily output for 1920 was 119,860,000 kw.-hr. and in 1919 for the corresponding period was 102,680,000, and thus represents an increase of 16.7 per cent. The total fuel consumption in 1920 was: Coal,

15,933,213 short tons; petroleum, 5,292,206 barrels; gas, 7,914,114,000 cu.ft.

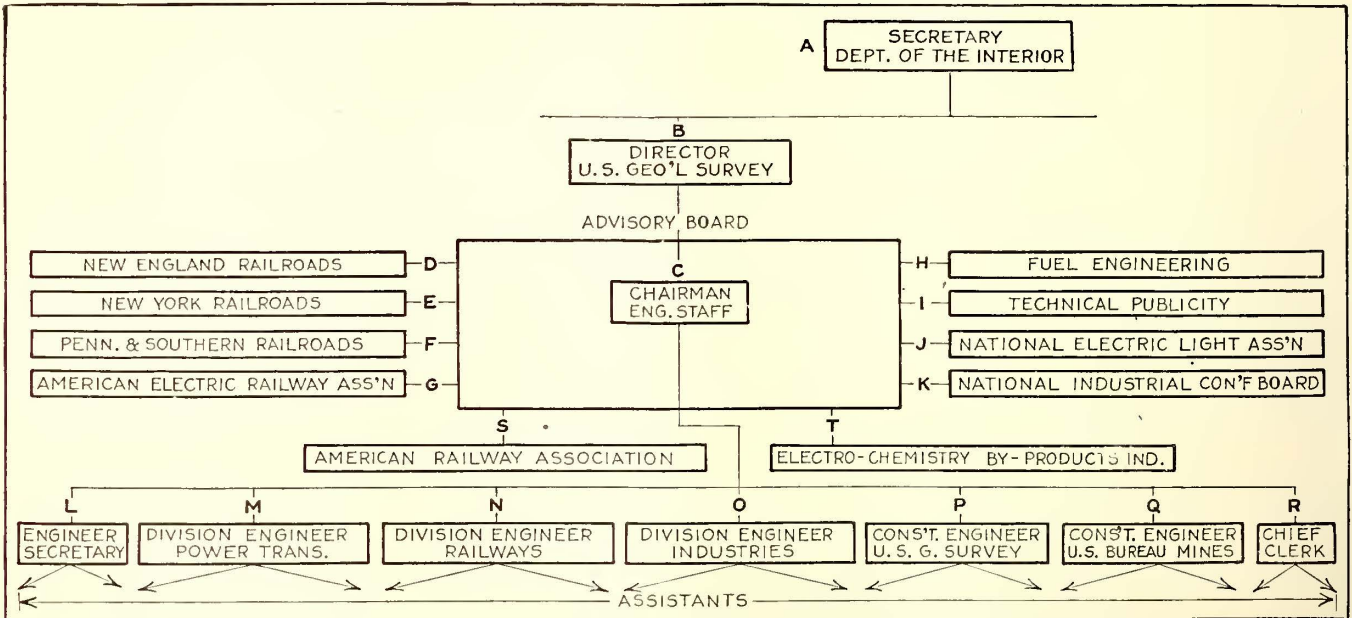
It is interesting to note that Montana, Washington and California produced 40 per cent of the kw.-hours produced by water power during the five months and if New York's water power production is also considered the four states produced 50 per cent of the total energy generated from water powers.

Super-Power Survey Staff Organized

THE chart below shows the organization for the super-power survey between Boston and Washington as announced by W. S. Murray, chairman of the engineering staff. The advisory board consists of all interests directly connected with the super-power survey. The seven engineering assistants will be occupied in collecting and preparing field data.

As the object of the investigation is to allocate the wastes in labor, fuel and other materials used in power production and in transportation in the eastern seaboard district and the design of a regional power system to eliminate these wastes, it was considered advisable to form three divisions, with a chief for each. The divisions are those of (1) power and transmission, (2) railways and (3) industries, and an engineer-secretary collaborates with these division chiefs in the collection and presentation of the field data in the survey report which is due June 30, 1921.

Meetings of the advisory board will be called not less than every two months, when the chairman of the engineering staff will review the progress of the work and the procedure for the next two months will be outlined. It is expected that all field data will be collected by May 1, 1921, so that two months will be available for final preparation of the reports.



ORGANIZATION CHART AND PERSONNEL OF ADVISORY BOARD AND ENGINEERING STAFF FOR SUPER-POWER SURVEY

- A. John Barton Payne, Secretary Department Interior.
- B. George Otis Smith, Director U. S. Geological Survey.
- C. W. S. Murray, consulting engineer, New York, chairman engineering staff.
- D. E. G. Buckland, vice-president N. Y., N. H. & H. R.R.
- E. A. T. Hardin, vice-president N. Y. C. & H. R. R.R.
- F. Appointment not made.
- G. John H. Pardee, president A. E. R. A.
- H. L. P. Breckenridge, head department mechanical engineering, Yale, chairman advisory board.
- I. James H. McGraw, president McGraw-Hill Company.
- J. Appointment not made.

- K. Magnus W. Alexander, managing director National Industrial Conference Board.
- L. Henry Flood, Jr., consulting engineer, Pittsburgh, Pa.
- M. L. E. Imlay, consulting engineer, Niagara Falls, N. Y.
- N. Cary T. Hutchinson, consulting engineer, New York.
- O. Henry W. Butler, consulting engineer, New York.
- P. N. C. Grover, chief hydraulic engineer, U. S. Geological Survey.
- Q. O. P. Hood, chief mechanical engineer, U. S. Bureau of Mines.
- R. J. J. Madigan, chief clerk, U. S. Geological Survey.
- S. R. H. Aishton, president American Railway Association.
- T. Appointment not made.

Another Argument for State Regulatory Commission

THE *Electrical World* commented editorially last week as follows with reference to the Denver strike:

The destruction of life and property which attended the strike of the Denver Tramway Company employees may be attributed in a measure to the peculiar regulatory system existing in Colorado. In a test case before the Colorado Supreme Court brought by the municipal authorities at Denver it was held that that city and other home-rule cities in Colorado could regulate their public utilities to the exclusion of the state authorities. However, when local regulation became effective in Denver trouble ensued. Lower fares were fixed by ordinance, necessitating a lower wage scale, and naturally a strike resulted. Cars stopped running, business was paralyzed, and newspapers which had theretofore proclaimed home-rule regulation as a victory for the people reversed themselves and urged the recall of the Mayor. Conditions became normal again in Denver only with the restoration of the higher wage scale and the 6-cent fare. The causes of the recent disturbance were not very different from those which precipitated the previous strike, and they call attention anew to the fallacies of home rule and municipal regulation. The moral is very plain and the prayer of every public utility manager should be, "From the machinations of local politicians and municipalities good Lord deliver us!"

There may be, and doubtless are, many other elements which entered into the reasons for the strike, independent of those causes for the subsequent riots, but at the bottom was the inability of the company to make both ends meet on the wholly inadequate fare imposed by the city commission in its "home rule" ecstasy.

Excitation of Alternators

IN ITS July issue the *General Electric Review* summarized the discussion on exciters and exciter systems which was a feature of the A. I. E. E. convention held June 29 to July 2 at White Sulphur Springs. The summary pointed out that the field of exciter systems was covered by a number of papers from manufacturers, from operators and from engineers having to do with the design of new stations. It was noticeable that all of the authors attempting classification of exciter systems divided them into two general classes: First, the common bus system with exciters operating in parallel, and, second, separate exciters or individual exciters for each generator not operating in parallel. This division was independent of the method of drive. The general conclusion reached from the opinions expressed in the papers and brought out in the discus-

sion was that for plants where the speed is not too low or too high to obtain a good design of exciter, the direct-connected individual exciter provides a most reliable form of excitation at the lowest cost. There are some engineers, however, especially those connected with large city central stations, who still prefer the common bus exciter system on account of the fact that a storage battery can be operated on this bus at all times, ready to take up the excitation load in case of exciter trouble. The general opinion, however, and the trend of present practice is toward the individual direct-connected exciter, which has the advantage that its circuit to the generator field is short and simple and not liable to trouble, that its method of drive is exceedingly reliable and efficient and that trouble on the exciter affects only one generator.

Suggestion to Railway Employees

IN ITS latest monthly bulletin the National City Bank of New York suggests to railway employees how they may gain their desired control of or at least a voice in the management of the railways. The same plan, of course, is applicable to electric railways. The bulletin says:

The railroad wage bill after the new wage scale goes into effect will be about \$3,600,000,000 per year, and if the employees would set aside 5 per cent they could begin to accumulate an interest in the railroads at the rate of \$180,000,000 per year. If this was applied to the purchase of stock rather than bonds they would come quite rapidly into an influential position in the control of the roads, particularly if they concentrated their purchases upon certain systems. The New York Central system has \$222,729,300 of stock outstanding, now selling in the market at about \$70 per share, or at a valuation of \$155,950,510 for the entire stock. A majority would give control and even a respectable minority interest would give representation.

Something New in Selling Transportation

INTRODUCING a new angle to the publicity work of a railway, the Washington Railway & Electric Company of Washington, District of Columbia, has been issuing some very interesting "zoo" posters which it has used in its cars to encourage more passenger traffic to the National Zoological Collection in Rock Creek Park.

Four of these posters are shown in the accompanying illustrations, but it is impossible to do full justice to the artistic quality of these posters in a halftone reprint. The posters are 14 x 21 in. in size and are printed very artistically in colors, mostly yellows and browns.

EASTER at the ZOO
EGG ROLLING MONDAY

TAKE MT. PLEASANT CAR
DIRECT TO
HARVARD ST. ENTRANCE

Mrs. HIPPOPOTAMUS SAYS:
"Come on out to the
ZOO
and see my
NEW 65-pound BABY!"

TAKE MT. PLEASANT CAR
DIRECT TO
HARVARD ST. ENTRANCE

Mr. and Mrs. Monkey
Introduce
Their New Baby
At Home
THE ZOO

TAKE MT. PLEASANT CAR
DIRECT TO
HARVARD ST. ENTRANCE

3 P.M. FEEDING TIME
AT THE ZOO
FOR THE BEARS

↓ ↓ ↓

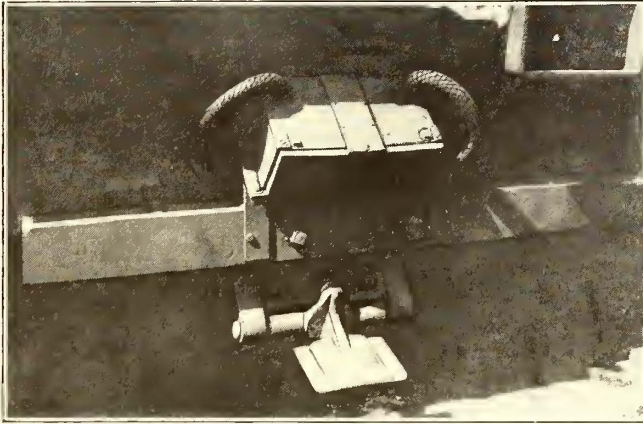
TAKE MT. PLEASANT CAR
DIRECT TO
HARVARD ST. ENTRANCE

ZOO POSTERS USED BY THE WASHINGTON (D. C.) RAILWAY & ELECTRIC COMPANY TO ENCOURAGE STREET CAR RIDING TO THE ZOO

Third Rail Shoe Maintenance

Description of Manufacture and Maintenance of Third Rail Shoes and Appurtenances on the Wilkes-Barre & Hazleton Railway

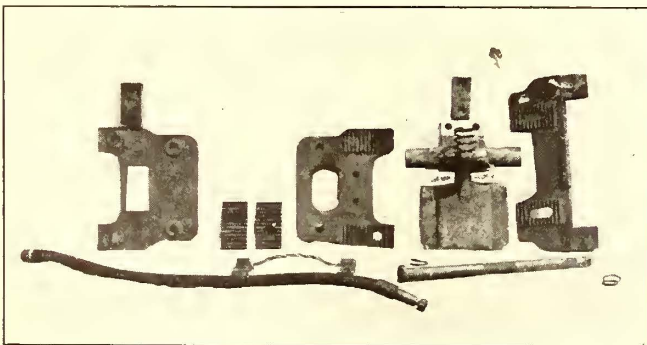
THE Wilkes-Barre & Hazleton Railway operates approximately 30 miles of third rail interurban line between Wilkes-Barre and Hazleton, Pa. For this service the company makes its own third rail shoes and attachments, the designs and details of which are shown



METHOD OF ATTACHING THIRD RAIL SHOE AND LOCATION OF FUSE BOX

in an accompanying illustration, as is also the method of attachment to the car.

In the illustration of the unassembled shoe the piece of equipment at the extreme left is a template for drilling holes in the third rail hanger. This template is made of cast iron and the drillhole guides are lined with tool steel. On top of this template is shown a small block which is inserted in the opening in the template as a guide for drilling the terminal holes. The hanger itself is a casting and is shown in the center of the illustration. The toothed surfaces are made in the shaper and permit vertical adjustment of the bracket and also insure that the bracket will remain in position when bolted. Between the hanger and the hanger template are shown two blocks which are used against the



THIRD RAIL SHOE AND FASTENING MADE BY WILKES-BARRE & HAZLETON RAILWAY

toothed surface to insure that the castings remain parallel in the drill press when the holes are being drilled.

At the extreme right of the illustration is shown the third rail bracket with the toothed surface corresponding to those on the hanger and with oblong holes to permit of vertical adjustment. After the teeth are made in the shaper this casting is placed in the drill press and

bored out $1\frac{1}{4}$ in. and reamed to take hardened bushings 2 in. long for the shaft which holds the third rail shoe in position. This shaft is shown in the right foreground and is 1 in. in diameter with a collar on one end and a cotter pin on the other. A cushioned spring is used on either side of the shoe to take up the end thrust.

The shoe itself is shown between the hanger and the bracket. It is made of gray iron with a chilled face. The shaft hole is made in the lathe by a $1\frac{1}{2}$ -in. diameter four-lip high speed drill. The neck of the shoe is made slender so that in case of obstruction on the third rail the shoe will break at this point and thus leave no part of the shoe to interfere with the third rail or appurtenances. The shoe is planed off to accommodate the shunt terminal, and two holes are drilled by means of the small template shown standing on top of the shoe. The shoe is held down against the third rail by the $\frac{1}{8}$ -in. diameter wire tension spring shown in position on the shoe. This is in addition to the weight of the shoe, which is 26 lb.

The collector cable shown in the foreground has special terminals, one clamping to the third rail frame and the other fitting the GE-M.A.-10-A fuse box.

As shown in the second illustration, the fuse box is placed on a special bracket made of $\frac{1}{4}$ -in. x 2-in. iron, so that it is at a pitch of approximately 45 deg. to the horizontal. This permits water to drain from the top of the box and keeps it from warping. A very good life is said to be obtained from this third rail shoe. The castings are made in a local foundry at a reasonable expense.

New Anti-Rust Compound

THE first public demonstration of "Stazon," an invention of the Conversion Products Corporation, of New York City, was made at the Lawyers' Club on July 19. This is a new anti-rust compound that withstands intense heat. It is intended for use on tools or finished machinery parts which cannot be painted or otherwise protected from rust during transit or while being stored for use. The present practice of manufacturers and other users is to coat the finished parts with vaseline or some other petroleum compound. The trouble now experienced from these compounds is due to their melting when temperatures from 90 deg. upward are reached, as is quite common in warehouses or other storage places during summer months. The melting of the grease leaves the parts unprotected and they soon rust. The principal feature of "Stazon" is that it will not melt until a temperature of approximately 210 deg. is reached.

This new compound contains no metallic element in its composition and possesses the ordinary lubricating and insulating qualities of petroleum jelly. There may be a field for its use among the electric railways for the lubrication of parts such as gears, where it is desirable to have the grease remain on rotating parts and also for the lubrication of valves which are subjected to high temperatures and where the present greases melt and run out.

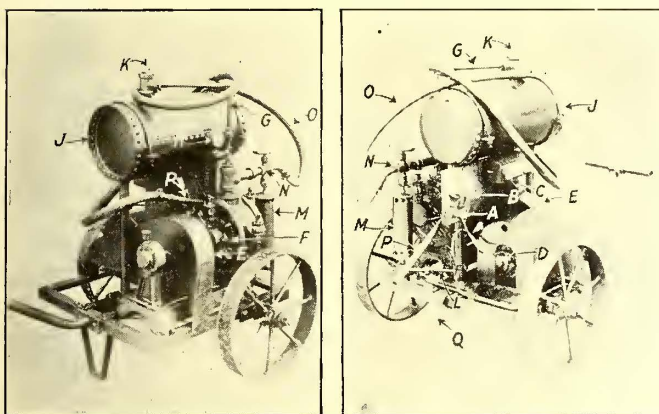
The committee on public service securities of the Investment Bankers' Association of America, O. B. Willcox, chairman, is sending out to all members of the association a pamphlet, entitled "Appraisals and Rate Making," by Cecil F. Elmes of Sanderson & Porter.

Light-Weight Rail Preheater

New Outfit Is Particularly Adapted to Heating One Joint at a Time as Is Necessary for Scattered Work

A NEW light-weight preheater for thermit rail welding has been recently developed by the Metal & Thermit Corporation, New York, N. Y. Until lately preheating for this process has always been accomplished by means of an electrically driven blower mounted with a gasoline tank on a three-wheeled truck and capable of heating four joints at once. This has given very good results where quantity production was desired. There are many cases, however, where it is only possible to heat one joint at a time, and in such cases this small light-weight machine will be found to be much more economical, because it can easily be moved from one joint to another and because two or three of them can be supplied at the cost of one of the larger preheaters. Two or three small preheaters will take care of the same amount of work as one large preheater.

Another feature embodied in the small preheater is a vaporizing apparatus, by the use of which kerosene may be used instead of the more expensive gasoline required by the large preheater. In addition, by using



NEW DESIGN OF SMALL RAIL PREHEATER

A—Trolley and ground connector. B—Snap switch for starting and stopping the motor. C—Fuse box with 6-amp. fuse. D— $\frac{3}{4}$ -hp. 220-volt compound wound motor. E—Guard for drive. F—Rotary pressure blower. G—By-pass air pipe for air pressure in tank. H—Pressure gage. J—Fuel tank. K—Filling plug. L—Fuel feed pipe. M—Combination vaporizer and external resistance heater coil. N—Needle valve for mixing. O—Fuel and air hose. P—Preheating nozzle. Q—Leg to prevent backward over-turning of machine.

kerosene the advantage of its greater heating value is gained.

The preheater is of the single-burner type and is equipped with a rotary blower driven by a 220-volt motor connected in series with an 85-ohm external resistance coil. This arrangement, in addition to permitting the use of the low-voltage motor, also permits the use of kerosene oil for fuel, as the resistance coil is wound on a porcelain tube which surrounds the oil pipe leading to the burner and the heat developed in this resistance is sufficient to convert the oil into a perfect vapor. The oil is stored in an overhead 6-gal. tank and is fed through a looped pipe connected to a needle valve which controls the flow of oil from the tank. The resistance coil is located on a vertical leg of this loop directly under the needle valve and the oil is completely vaporized before entering the needle valve. The object of the loop in the kerosene oil pipe line from the tank

to the needle valve is to eliminate the possibility of oil vapor getting into the tank.

The use of a shut-off valve was purposely omitted in the oil line in order to avoid creating an extremely high pressure in the line in case the operator should have both the needle valve and shut-off valve closed while the current was flowing through the resistance. As the machine is constructed at present, there can, at no time, be a pressure within the tank greater than that supplied by the blower. For the same reason no valve was put in the by-pass air pipe connected to the top of the tank.

This machine, being single burner only, is not equipped with and does not require any air adjustment valve, as the rotary blower furnishes a uniform and constant supply of air. The only adjustment, therefore, is at the needle valve, which should be regulated to obtain proper combustion at the burner. More oil will be required at the start than after the burner has been going for some time. The regulation of this valve will depend also on the voltage, to a considerable extent, as this will affect the speed of the motor and the air pressure.

At 550 volts the full-load current for this machine is 3.2 amp., and the machine has been so designed that even at considerably lower voltages it will deliver sufficient air for all purposes. This is important, as in many cases, particularly in repairing old track, the line voltage will drop so low, due to defective bonding and broken joints, that it is difficult to obtain sufficient air properly to preheat at all.

Making Cement Sack Cleaning a Better Job*

CEMENT sacks have to be cleaned, sorted, counted and bundled for return. This forms an odd job at the track store yard of nearly every electric railway company that nobody wants to do. It has been made a more pleasant job, the cost has been reduced, more cement recovered and a great deal of labor saved by the scheme which has been adopted at the store yard warehouse of the United Railways of St. Louis.

A No. 5 Buffalo blower is installed overhead with the intake pipe extending down to a point about waist high. The discharge from the blower is piped a short distance along the wall, where it connects to a cyclone separator. A cement sack is put over the mouth of the intake pipe. The suction draws the bag up into the pipe and turns it inside out. The workman then pulls it out and again puts it over the end of the intake, which turns the sack the other way out and sucks the cement from the opposite side. This process leaves the sacks cleaner than it is possible to get them by hand. The cement recovered is deposited in a sack attached to the bottom of the cyclone. By this means from one and one-half to two sacks of cement are recovered per 1,000 sacks cleaned. Two men can clean 2,000 sacks a day, besides sorting, counting and bundling them. The cement recovered makes a credit to the cost of handling of about \$2.50 a day. The use of this machine makes the bag cleaning not a particularly undesirable job, and furthermore largely overcomes the spreading of cement dust over everything in the warehouse. "The machine would be worth while if it didn't do any more than make the job fit for a white man to work at," was the way C. L. Hawkins, engineer maintenance of way, expressed the value of the blower system of cleaning.

*Another article describing cement sack cleaning at Cleveland appeared in the issue of this paper for October 9, 1915, page 773.

How an Englishman Appraises American Railway Practice

C. J. SPENCER, manager Metropolitan Electric, London United and South Metropolitan Tramways Companies, gave an interesting paper on American electric railway conditions before the annual congress of the Tramways and Light Railways Association held in London in July. Mr. Spencer spent six weeks in America recently, and, as the chairman said, "perhaps, like many other people who had spent a short time over there, he knew far more about the conditions than Americans themselves." He stated that the main problem facing the American railway industry was financial and that this is being met in two ways, viz., increasing fares and the introduction of improved operating methods.

Mr. Spencer states that the cost of operating a railway system is now about equal in England and the United States, but that the fare charged in America is very much higher than they have ever dared suggest in England.

He believes that the necessity for the high fare in America is due to an absence of short-haul traffic and the short-haul riding habit has not been properly cultivated in America. In this connection he points out that the receipts and costs of operation per car mile are about the same on both sides of the Atlantic but the British car shows a much larger number of passengers carried per car mile. He intimated that a lower minimum fare and the permission to smoke would help the short-haul traffic.

He remarks on the failure of the double-deck car in America and suggests research for English railways to determine the most suitable vehicle for the future. The average speed is the same in each country, and Mr. Spencer thinks the greatest future economy will be found in increasing schedule speeds. He further states that America has been very progressive in rolling stock design and has equipment and conveniences such as air brakes, control doors, etc., far in advance of any found in England. He commends the safety car and the fare collecting systems and was startled to find that American railway labor was paid only at the same rate as English labor since the war.

Mr. Spencer spoke of the efficiency engineer and the use of modern labor saving machinery and said they offered opportunity for profitable study. In conclusion, he said that American systems showed that many improvements could be made in English railway practice, but that he noticed no differences in fundamental transportation methods.

The American Railway Engineering Association has become a member society of Engineering Council and will be represented by its president, Harry R. Safford. Mr. Safford is assistant to President Hale Holden of the Chicago, Burlington & Quincy Railroad and was formerly chief engineer of the Grand Trunk Railway. The societies now represented in Engineering Council have an aggregate membership of 45,000.

The fortieth anniversary of the piercing of the Gotthard tunnel between Switzerland and Italy was celebrated recently. This important artery of travel is now doubly interesting because it is in process of electrification.

Association News

ATLANTIC CITY CONVENTION, OCT. 11 TO 15

The Electric Railways Commission Report

THE American Association has arranged for the printing of an edition of the report of the Federal Electric Railways Commission, released for publication on Aug. 24 and reprinted in full in this issue of the ELECTRIC RAILWAY JOURNAL. The printing was done by the Government Printing Office, Washington, D. C.

The association is also arranging for the printing of the testimony taken by the commission, which will occupy three volumes.

1917-1919 Proceedings Ready for Distribution

SECRETARY Burritt has announced the publication of the volumes of the proceedings for the several associations, each volume covering the 1917-1919 period. The full set sells for \$12.50 and individual volumes as follows: Accountants' Association \$2.50, American Association \$3, T. & T. Association \$3, Engineering Association \$4, Claims Association \$2.50.

Engineering Association Nominations

THE nominating committee of the Engineering Association, consisting of F. R. Phillips, J. H. Hanna, C. R. Harte, J. H. Libbey and N. B. Trist, has presented the following slate for consideration at the October convention: For president, W. G. Gove, superintendent of equipment Brooklyn Rapid Transit System, Brooklyn, N. Y.; for first vice-president, C. L. Cadle, chief engineer New York State Railways, Rochester, N. Y.; for second vice-president, C. S. Kimball, engineer way and structures Washington Railway & Electric Company, Washington, D. C.; for third vice-president, C. F. Bedwell, assistant engineer Public Service Railway, Newark, N. J.; for secretary-treasurer, E. B. Burritt, New York, N. Y.; for members executive committee, H. A. Johnson, organization engineer Metropolitan West Side Elevated Railway, Chicago, Ill.; L. C. Datz, engineer American Cities Company, Birmingham, Ala.; E. H. Scofield, engineer of power Minneapolis Street Railway, Minneapolis, Minn.; A. B. Stitzer, chief engineer Republic Engineers, Inc., New York, N. Y.

Henry L. Doherty was fifty years old on May 15, 1920, and in honor of this event the Doherty Men's Fraternity, through its chapters in the various properties of the Doherty organization, planted trees as a lasting and appropriate tribute to its chief. An account of the ceremonies in the different cities in which these observances took place are collected in a pamphlet recently issued by the fraternity and the hope is expressed that through these trees succeeding generations of the organization may have tangible evidence of the esteem in which the first generation of Doherty men held their chief. Incidentally, it might be said that the Doherty Men's Fraternity now includes a membership of 5,794, with representatives in twenty states. The membership is still restricted to men employed exclusively in the service of the Doherty enterprises.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

\$195,016 Divided

Profit-Sharing Plan Has Been Instituted by the Virginia Railway & Power Company

Employees of the Virginia Railway & Power Company in Richmond and in all other divisions of the company will receive an average of 6 per cent on their present wages by the institution of the company's new "profit-sharing" plan. The announcement concerning the basis for the wage increase follows:

COMPANY'S STATEMENT

Desiring to deal both justly and liberally with its employees, the company hereby makes effective from Aug. 1, 1920, until further notice, the following profit-sharing plan through an increase in wages, based upon a division of the net profits for the year ended June 30, 1920, after paying from the gross earnings: Operating expenses, interest on bonds and other debts, sinking fund charges and taxes, discount on bonds and uncollectable accounts, and reserve depreciation (6 per cent on gross revenue), 6 per cent on preferred stock, and 3 per cent on common stock.

The amount to be made the basis for increase of wages on a division (on a fifty-fifty basis) between the company and all classified employees, superintendents and below, who have been in the service for the last six months, is \$195,016. This will justify an increase of 6 per cent. Therefore, 6 per cent will be added each pay day to the wages or salary of each classified employee who has been in the service six months at the time each pay roll is made up, effective from Aug. 1, 1920, in the following six months.

For each six months' period hereafter ending Dec. 31 and June 30, there will be an ascertainment of the profits to be made the basis of the wages for the following period of six months. The statements of the company will be subject to verification by a certified public accountant, if so desired. Through the profit-sharing plan hereby made effective employees of the company are made "partners," and it is the sincere hope and belief of the management that teamwork will win just reward for all concerned and insure to the public the high class of service it deserves.

Thomas S. Wheelwright, president of the Virginia Railway & Power Company, issued the following statement:

The profit-sharing plan at present announced by the company is based on its present method of accounting, which has been in vogue for the last ten years. It has been the policy of the company to set aside 6 per cent of its gross revenue for depreciation or renewal reserve. This was according to the best practice at the time the policy was adopted.

OPERATING EXPENSES HAVE DOUBLED

However, in this period, operating expenses have been more than doubled, whereas rates and charges upon which revenue is based, have remained practically stationary, and hence the 6 per cent on gross earnings for depreciation or renewal reserve, as shown on the books of the company, has become increasingly inadequate. The present accepted standard of depreciation reserve is based upon 6 per cent of the value of the property used in operation, and if this method of setting aside depreciation or renewal reserve was adopted, instead of showing a surplus a large deficit would be the result.

Lately the company had all of its properties inventoried and appraised and is now seeking to have its franchises so revised as to insure an adequate return on the capital at present properly invested in the business, as well as to set aside a suitable amount for depreciation or renewal reserve so as to keep all of its equipment up to the highest standard of practical efficiency.

It has been the policy of the company in the past to meet, as far as it could possibly do so, the increased cost of living by advancing the compensation of its employees, and realizing their situation under present conditions the company has deemed it just to continue this policy based upon a profit-sharing plan. This is the best possible evidence to its employees of the sincere desire of the company to act fairly by them.

As to the dividends on its stocks: In common with public utilities all over the country, our company has been unable for the last six years to sell any of the bonds issued into its treasury for financing the continued necessary capital expenditures required to keep the service going. Hence these expenditures have had to be financed out of the earnings and dividends on the stocks have necessarily had to be withheld. However, we expect relief in this situation by a revision of the franchises and rates for service based on the capital invested in the business in the light of the recent valuation of the properties.

It is our definite belief and expectation that when the necessary changes are made in the franchises governing rates and charges, that this will meet all reasonable expectations of the investor for a return on the capital, of the employee for his services rendered to the public, and of our patrons who will be insured a morale expressed in team-work which will greatly benefit the service.

Eastern Massachusetts Arbitration Concluded

The hearing before the board of arbitration in the Eastern Massachusetts Street Railway wage controversy was concluded on Aug. 9.

At the closing session Henry F. Hurlburt, special counsel to the trustees of the company said:

It is significant that the men have declined to produce any evidence to show that they cannot get along on their present wages. The road has a fare schedule fully as high, if not higher, than any other road in this part of the country, and the fares cannot be raised to produce increased revenue with which to pay the men, because the public simply will not pay the increase. Regardless of what has been presented here in behalf of the men, I maintain that the old law of supply and demand should hold sway.

These men have their services to sell; that is their commodity in the market. If they are now receiving a living wage, as I contend they are, and there is a plentiful supply of labor, as the company officials have shown there is, then, under the law of supply and demand, no reason in the world why the company should pay its men higher wages.

Discussing the situation from the standpoint of the men, Mr. Vahey said:

This board is bound to award the men a living wage, regardless of its effect upon the company. The position of the company that the men should work for 3 cents an hour less in those places where it did not earn the cost of service illustrates the absolute lack of regard for the men by the trustees. If this was carried out, it would mean a contribution of \$84 per man, against the contribution of \$2 per inhabitant by towns which contributed toward the deficit of the road.

Arguing in support of the demand of the men for eight hours' work in ten, Mr. Vahey declared that the eight-hour day is inevitable. He also brought out the fact that the road has shut down 16 per cent of its trackage, and has installed 200 one-man cars out of a total of 900 cars on the system.

New Orleans Still Puzzled

Settlement of Wage Matter Brings Up Service-at-Cost, New Fare and Credit Matters

Three steps are considered essential by Receiver O'Keefe of the New Orleans Railway & Light Company, New Orleans, La., to give the city proper electric railway and power service. They are service-at-cost for the railway, the expenditure of \$16,000,000 in the next five years for extensions and improvements, and a return on the company's investment sufficient to attract additional capital.

RAILWAY VALUE \$29,191,210

Prof. Albert S. Richey has suggested an automatically adjustable fare under service-at-cost, with a net return of 7 or 8 per cent on an appraised value of \$55,000,000. This is asked as a fair reward for investors. In giving the total valuation of the property of the company at \$55,566,855, the different departments were valued as follows: railway, \$29,191,210; gas, \$11,218,548; electric, \$15,087,097.

With reference to the expenditure of \$16,000,000 in the next five years, it was stated that \$12,000,000 in new capital was needed and that \$4,000,000 must be spent to maintain and repair equipment already owned by the company. The money would probably be distributed from 1920 to 1925 as follows: power, \$4,576,000; equipment, \$5,576,000; track, \$4,576,340; and distribution, \$2,009,600. Since 1918 only about \$1,000,000 has been spent on additions and betterments. The normal program is several million dollars behind. The sum of \$2,000,000 to \$3,000,000 should be expended at once, and thereafter, \$1,500,000 a year.

An 8-cent fare has been requested by the receiver. This may not furnish an adequate return, but is expected to result in a restoration of credit sufficient to enable the properties to be reorganized and thereby provide necessary new capital for additions, extensions and betterments. No dividends have been paid on the common stock since 1916 and none on the preferred since 1917. The interest on the bonds and debentures has not been paid since January, 1919.

Much discussion has ensued relative to the wages that should be paid the employees of the railway. If he is granted a fare of 8 cents, the receiver has offered a wage scale for platform men of 46 cents an hour for the first year, 49 cents for the second year, and 52 cents for the third year and thereafter. The present rates are 38, 40 and 42 cents an hour.

Wage Increase Disallowed in Omaha

State Railway Commission Decides There Is No Need for Increase— Service Attractive Under Present Scale

The State Railway Commission of Nebraska has denied the application of the trainmen of the Omaha & Council Bluffs Street Railway for an increase of 13 cents an hour in wages. The present scale paid by the company is 53 to 57 cents an hour. The commission held that the increase in wages would necessitate an increase in fare and would take additional toll from other working men, many of whom do not earn as much as the trainmen. The commission also found the present wages sufficient to attract enough men to maintain efficient service, as evidenced by an average of ten applications received every day by the company. It was further held that an employee of the company working twenty-six days a month at reasonable hours is able to earn \$150 a month. The order of the commission says that "the evidence does not sustain the complaint that the wages are inadequate and it should be dismissed."

THE men brought their case to the State Railway Commission, holding a strike vote in abeyance. During a hearing which was held in Omaha, they endeavored to withdraw when the commission declined to go into the high cost of living as an element of the case. The men have not indicated whether they will accept the order of the commission. They are holding executive meetings.

The following are the allegations of the pleadings, according to the text of the commission's finding:

The complainants allege that the wages paid in the various divisions and classes of employment are not sufficient to permit the employees to maintain themselves in keeping with the nature of their employment and are not sufficient to enable the company to keep an adequate number of competent conductors and motormen, and that they have taken a strike vote and intend to strike if adequate relief is not provided in wages and conditions. An increase of 13 cents an hour is asked. This would make the pay of all motormen and conductors, 66 cents for the first three months, 68 cents for the next nine months, and 70 cents thereafter, with a corresponding increase over present wages for all other classes of employees.

The defendant alleges that the State Railway Commission has no power to fix or determine a scale of wages to be paid by defendant to its employees; that the right of contract is guaranteed by the constitution of the United States and by the constitution and laws of the state of Nebraska; and that no governmental authority has the right to interfere in the fixing of terms between defendant and its servants. After extended argument on the plea, it was overruled.

COMPANY'S SIDE STATED

The defendant then filed its answer in which it is denied that the wages paid are insufficient, and denied there is any impairment of the service. The defendant alleges that there would be no impairment of the service, even temporarily, in the event that a strike should occur unless complainants use force to produce such impairment. It also alleges upon information and belief that the strike vote referred to in the complaint does not represent the will of the employees of the company and that a large proportion of them wished to continue their service at the existing scale of wages and do not intend to strike. It denies that the scale of wages is inadequate to secure the services of a sufficient number of men capable of operating the system, and alleges generally that the scale of wages is fair and reasonable. It sets forth that there have been numerous increases of wages during the last six years; that the company is operating at a loss and that it is unable to pay larger wages; the complainants having voted to strike and intending to do so unless their demands are complied with, are not acting in good faith and therefore have no standing before the Commission. It alleges generally that the service rendered by the company is efficient and that it will, if it receives proper protection of law, continue to furnish such service to the public.

The reply denies that the strike vote does not represent the will of the employees; denies that a large proportion of them are willing to continue in service at the existing scale of wages; and particu-

larly denies that at any stage of the controversy the complainants, or anyone in their behalf, have interfered or threatened forcibly to interfere with the service of the company.

Prior to entering upon the hearing the commission made the following statement for the record:

We hold that our jurisdiction extends only to the maintenance and continuance of adequate service by the Omaha & Council Bluffs Street Railway within the city of Omaha and its suburbs; that to that end we can, after proper inquiry, establish a general schedule of wages sufficient, in our opinion, to attract and secure the necessary number of men to operate the system. In fixing a general schedule we shall go only as far as is required to determine what amount will be necessary to insure service. Collateral economic questions will not be considered. The ability of the company to pay any schedule we may determine is of necessity a prime factor, and for that reason we shall receive evidence with reference to the present revenues and operating expenses and general financial condition of defendant; so that we may, if found necessary, make emergency rates to cover the new obligation imposed. Such a showing need not involve a valuation of the property, as that might take so long as to defeat the purpose of the rate increase in the event such increase is required.

Another excerpt is taken from the commission's finding:

The commission struck out all references in the pleadings to the cost of living, and all references to the fixing of a general wage standard. Throughout the hearing the complainants endeavored to introduce evidence as to rents, cost of food, cost of clothing, etc. The commission consistently refused to go into such an investigation. It conceived its jurisdiction to be limited to fixing a scale of wages that would attract an adequate number of capable employees to enable the defendant to carry on its service, and further than that it refused to go. There is some reference to working conditions but not much stress is laid on that phase.

The controversy centers on the issue as to wages and principally on the wages of motormen and conductors. The controversy seems to have arisen because at the time of the increase in fares granted by this commission to the defendant on Aug. 1, 1919, the employees considered they did not receive as much increase in wages as they were entitled to. The company urged that it was still operating at a loss, but some of the employees seemed to doubt the accuracy of the figures presented by the defendant and insisted upon submitting their differences to arbitration. It was finally suggested by the men, and agreed to by the defendant that the controversy be submitted to this commission as a board of arbitration. The commission, of course, declined to act in that capacity in a matter in which it was likely to be called upon officially. Therefore the complaint was filed.

Another statement by the commission reads:

One object of the people in establishing the Railway Commission was to protect the public service against interruption. When information is brought in the form of a complaint, it is not material who files the complaint or what his attitude may be. If the commission has information that the public service is threatened with suspension, it immediately becomes its duty to protect it. It must be presumed that the complaint was filed in good faith and that if,

after a full hearing, the employees are not satisfied with the decision of the commission, they will not strike but will pursue their right of appeal.

The commission offered the following comment on the duties of common carriers and their employees:

It is the duty of the Omaha & Council Bluffs Street Railway to render service as a carrier to the public of the city of Omaha. Can the employees of the company who have undertaken equally with the stockholders of the company to serve the people of that city, lawfully agree to strike—to leave en masse and thus paralyze the industries and social organization of a great center because they are not receiving what they consider a suitable wage?

The state has provided a tribunal for the adjustment of wage difficulties and there is no occasion for the settlement of such difficulties other than by resort to it. In short, there is no place for a strike in the public economy of a state that has provided for regulation.

This view is wholly consistent with the right of employees to leave the company as individuals. The company passes upon the merits of each individual as he is taken into the service. The employer can not secure its employees collectively, but must secure them individually, assigning them to the respective departments to which they are best adapted. It is no great loss to the company and does not disturb its working power when an individual drops out of the service. Adjustments are readily made and there is no appreciable injury. But when the employees form themselves into an organization and quit work as a unit, the public service is totally disrupted regardless of the high standard of efficiency prior to the strike and the public suffers until the company has had time to reorganize and develop a new working body and gradually build up the service anew.

That the employees of the company in this instance have invoked the jurisdiction of this commission to settle the controversy between them and the company is a recognition of the fact that the people have the power to adjust these matters and that they have created a tribunal for that purpose, and we have every confidence that the decision of the commission will be received as a final determination by all parties except so far as they may desire to exercise their right of appeal.

A digest of the conclusions of the commission follows:

The company employs 1278, not including the accounting and clerical force. This represents an increase of 13 per cent in the operating force during the last year.

In general the service of the company is at a high standard. It has on its payroll a larger number of men than ever before and at present there is no lack of men.

The company is now averaging ten applicants a day for positions as trainmen received without advertising and without special efforts. It is daily turning away many applicants who have the required qualifications.

The trainmen are now receiving 53 to 57 cents an hour, according to length of service.

The evidence shows that 720 men worked twenty-five days or more during May, 1920. Of these, 652 earned, on the average, \$155 for the month, the highest being \$204. The remaining sixty-eight of the 720 worked twenty-five days or more, but a lesser number of hours per day, and received on the average \$125. The average wages earned by the 720 men for the month were \$152. The average earned by all trainmen for the month of May, regardless of the number of days or hours, was \$140.

The wages of trainmen have been more than doubled from Aug. 1, 1914; to be exact, they have increased 114.98 per cent.

It was necessary to compare the wages of carmen with wages paid to other employees in Omaha, whose occupations are comparable with the employees of the railway. As the result of an independent survey of wage conditions in Omaha the commission notes the following:

Teamsters, \$20 to \$28 per week; standard wage about \$27.

Truckman, \$23 to \$31 a week; drivers of large trucks with considerable responsibility and part time on Sunday, \$150 a month.

Truck drivers for ice companies earn \$110 to \$120 a month. Route ice drivers are paid \$125 a month.

Employees of the fire department are paid \$100 per month for first year; \$110 second year; \$140 a month thereafter.

Policemen are paid \$125 a month for first year; \$135, next six months; \$140 a month thereafter.

Men in charge of gasoline and oil stations, \$90 to \$110.

Bank clerks, \$80 to \$140 a month. We cannot, therefore, say that the wage paid by the defendant company is not sufficient to attract suitable men and the fact that its lists are now full is evidence that they are coming in sufficient numbers.

It also follows that if the pay of the railway employees is to be raised, the operating expenses will be correspondingly increased, all of which in turn must be met by an increased fare. To give increased wages to the railway employees would be to subtract that much from the income of those engaged in other lines of labor in the city of Omaha, and who are now getting, on the average, a smaller wage than the employees of this company.

The company should be allowed by the commission to charge the public only such a rate of fare as will enable it to furnish proper service. This, of course, includes a wage that will keep in its employ an adequate number of men sufficiently qualified to carry on the work. When the men receive the wage that is offered generally for like service and the company has properly maintained its facilities, set aside sufficient reserves and paid a fair return to its stockholders, the surplus, if any, should and must stand for the rate-paying public. The commission has no right to allow this surplus to be encroached upon either by the stockholders or by its employees.

Commissioner Browne dissented from the conclusions of the majority by holding that a section of the Clayton Anti-Trust act and a decision of the Nebraska Supreme Court "specifically permitted employees 'singly or in concert' to quit employment and 'recommending, advising or persuading others by peaceful means to do so.'"

Rehearing Asked in St. Louis Wage Case

The State Public Service Commission is asked to disregard the inability of the United Railways, St. Louis, Mo., to increase wages and to ignore the fact that such increases might require an advance in fare, in a motion for rehearing of the United Railways wage arbitration case, filed in Jefferson City on Aug. 11 by Edward W. Foristel, attorney for the employees of the railway. The commission in July granted the employees an increase of 5 cents an hour. They had requested an increase of 20 to 25 cents an hour over the prevailing scale of 50 to 60 cents for motormen and conductors. It was stated recently that because of the wage increase the company might ask for a higher fare. Six grounds for rehearing are set out in the motion, as follows:

1. The award is based on matter outside the facts submitted in the stipulations filed by parties to the controversy, in that the award stated that "wages have about reached the limit the traffic will bear or that the public should be asked to pay."

2. The only matter submitted was the fixing of a reasonable rate of pay and reasonable working conditions, regardless of the company's ability to pay, and the rate of street car fare.

3. The finding was against the weight of testimony adduced at the hearing and the pay allowed is less than the decent living wage of American workmen.

4. All evidence introduced as to increased living costs shows that the increase in cost of necessities amounted to 22 per cent in 1920 and the increase in rents to 30 per cent and that the pay advance was less than 10 per cent.

5. The award was based on the assumption that if the demands had been allowed, a uniform car fare of 8½ cents would have been required.

6. The commission erred in basing its findings on those facts and therefore it should disregard the ability of the company to pay and whether a higher fare would be required.

Toledo Will Vote Again

Service-at-Cost and Municipal Ownership Measures, Recently Defeated in Referendum, Repassed by Council

Three propositions aiming at a solution of railway troubles in Toledo, Ohio, will confront electors when they go to the polls at the general election on Nov. 2. The City Council on Aug. 23 passed both the cost-of-service ordinance and the twin municipal ownership ordinances which were decisively defeated at the primary election on Aug. 10. An attempt was made to put the Milner cost-of-service plan up alone at the coming election, but the municipal ownership enthusiasts backed by the Socialists in Council formed a deadlock and it was necessary to pass both plans in order to have any chance at the cost-of-service plan.

MAYOR CORNELL SCHREIBER also urged Council to resubmit the bonding propositions. The two municipal ownership ordinances call for \$7,000,000 in general credit bonds for some unknown kind of transportation system, but with definite provision for added tax levy to pay the interest and sinking fund requirements of the bonds.

PROPOSAL A MODERN ONE

The service-at-cost plans is one of the most modern and complete of its kind. It has a rate-making valuation of \$8,000,000 which was accepted by the Toledo Railways & Light Company, in a written agreement delivered to the city on Aug. 21.

The agreement was executed by the Toledo Railways & Light Company, and a copy was delivered to the newly incorporated Community Traction Company, provided for in the cost-of-service ordinance, and a third copy to the city. The Rail-Light assigns upon the passage of the ordinance all its franchise rights and railway property to the Community Traction Company.

The Community Traction Company is capitalized at \$10,000,000 of which amount \$8,000,000 is represented in bonds and is the accepted valuation of the present railway property. These bonds will bear 6 per cent interest. The other \$2,000,000 of capitalization represents the funds Henry L. Doherty agrees to bring into Toledo for extensions and a cross town line. It will be represented by an 8 per cent preferred stock. Matters are so worked out that the city would own the lines at the end of twenty-five years.

DEFEAT AGAIN LIKELY

It is conceded by most municipal ownership advocates that the unchanged twins will be defeated by a greater majority when they come to the people for the second time. The fate of the Milner ordinance is doubtful. If both should be passed the Mayor and legal authorities have declared that the cost-of-service plan would be put into immediate operation and the bonds for municipal ownership held up indefinitely.

Upon the organization of the Community Traction Company, officers were chosen. They are practically the same as those of the present Toledo Railways & Light Company. Frank R. Coates is president, Morton Seeley, vice-president, S. D. Carr, treasurer, Henry Led-

better, secretary, and A. C. VanDriesen, assistant secretary.

The company will only begin to function if the cost-of-service is approved by the people. A transportation commissioner, selected by a city board of management, will have supervision of management of the railways and all accounting.

On account of a conflict in state and city constitutional requirements the three measures will have to be repassed by Council at its session on Sept. 13.

Barratry Act Constitutional

U. S. Supreme Court Passes on Texas Statute Affecting Laymen—Law's Chief Features Reviewed

In 1917 the Texas legislature amended the State barratry statute by making it apply to laymen as well as attorneys-at-law. The statute as redrafted is a very comprehensive one and is aimed to prevent unnecessary litigation, the penalty for its violation being a fine of \$500, with possible imprisonment for three months.

The history of the act can be summed up briefly. In 1916 the San Antonio Traction Company brought suit against a layman who had been active in soliciting claims against it, alleging that he was engaged in the business of soliciting and stirring up claims and suits for unliquidated damages for personal injuries against the company, that he maintained an office and had a large number of employees for this purpose, with agents that kept a lookout for accidents and hunted up prospective claimants and urged them to make contracts with him, and caused many of them to enter into such contracts, assigning him one-third or one-half of the amount of their cause of action. The company asked for an injunction to restrain him from engaging in this business, but the injunction, on appeal, was refused because the existing act did not cover laymen.

The legislature then promptly enacted an amendment so as fully to prohibit the business not only by lawyers but by laymen. Soon after an action was taken under the act, whose constitutionality was attacked, but the Supreme Court of the United States confirmed the act as constitutional.

Fred. C. Johnson, chief adjuster of the claim department of the San Antonio Public Service Company, has issued in handy form a copy of the law.

Denver Company Stands Firm

Has Recruited 700 Out of 1,100 Men for Permanent Service Since Strike—New Men Will Be Retained

Striking trainmen of the Denver (Col.) Tramway met on Aug. 20 upon call of G. Y. Harry, Portland, Ore., federal mediator. In this meeting the applications to return to work, which had been signed by 940 strikers on Aug. 16 in an effort to prove their good faith and stave off jail sentences for the executive committee and officials of the union, were torn up. The executive committee sent from jail a written statement urging the men not to go back to work.

ANOTHER mass-meeting was held Sunday morning to act upon what was announced by Mr. Harry as "a new proposition to end the street car strike." The proposal was submitted to F. W. Hild, general manager of the railway, Monday morning. It was virtually a reiteration of all previous demands with the exception of the demand for recognition of the union. In fact, reference to the Amalgamated or Local Division No. 746 was carefully avoided.

700 MEN RETURN

The letter, which was addressed to Mr. Harry, was signed by two of the striking trainmen as "Presiding Officer" and "Secretary," respectively. They agreed that the men would return to work provided they were taken back 100 per cent, the company to remove all strikebreakers and discharge all men employed since the beginning of the strike, arbitrate the increase in wages from 58 to 75 cents an hour after the Supreme Court decision in the tramway injunction case, restore the seniority rights of the strikers and the company enter into a working agreement with the strikers after their return.

Nearly 700 men, including old employees who have returned to work, have been employed as permanent members of the new organization which the tramway is building up. These men, together with about 300 remaining strikebreakers, are taking the place of the 1,150 strikers.

The company the same day rejected the strikers' proposal, stating that on Aug. 10, in response to a statement from the former employees that they were ready to go back to work, it had given the strikers ample opportunity to return to work with former seniority rights and former wage schedule. Those employees who had not returned within the time limit set had been cut off from all seniority rights and wage standing, and would have to come back into the company's employ as new men.

COMPANY'S POSITION STATED

General Manager Hild's letter further stated:

The position and policy of the Tramway Company with respect to its employees has not changed. For your information I wish to say that at the present time, entirely apart and above the first group of temporary employees originally brought here by the Jerome agency, we have since Aug. 12 taken on more than 600 permanent employees, most of them from the city of Denver and the state of Colorado, whose positions and seniority rights have been assured them and must be respected. Certainly in fairness to these new, permanent employees no one can reasonably and honorably expect that we will dismiss them from our service in order to make room for former striking

employees who have, up to this late date, failed to avail themselves of the opportunities extended to them to return to work.

Mr. Hild was asked whether he would discharge any new men to make places for strikers. He said that the company would remove strike-breakers as fast as possible, but no permanent employee would be discharged to make room for anybody.

Asked whether the men on strike would be taken back in a body and whether all of them would be re-employed, he replied: "They can't be. We have between 600 and 700 new employees now."

Another mass-meeting of the strikers was held at 4 o'clock Monday afternoon to receive Mr. Hild's reply to their proposal.

The North Division car barns of the tramway were cleared of strikebreakers Saturday morning and all cars from this division, as well as South Division, are being operated by new men. At the rate new employees are being put to work, it is anticipated that the entire system will be operated without strikebreakers by Sept. 30.

VIOLENCE AGAIN RESORTED TO

Saturday and Sunday two cars were mobbed and their crews beaten by strike sympathizers. As a result, two soldiers were placed on each car run through trouble zones.

Car service is rapidly being restored to normal; trailers being operated on fully half of the lines.

The Supreme Court of Colorado was appealed to on Aug. 25 to release seven members of union's executive committee, who are serving ninety days in jail for contempt of court. The city's attorney characterized the strike as "a willful and violent violation of the law and a breach of faith with the District Court. The tramway has obeyed the order against it to the very letter, but the men determined they would violate this injunction. They determined they would break faith with the District Court, the court they had told they did not object to an injunction."

Attorneys of the union men, while admitting that they were in contempt of court, claimed that the District Court had no jurisdiction and could not prevent any American citizen from quitting work.

Apart from this action of the union the tramway strike situation appears hopelessly deadlocked. Conciliator Harry of the Department of Labor announced: "I am simply watching the situation. I have no present intention of making any new demands to settle dispute within the next few days."

Reports are circulating that the strikers will modify the conditions under which they will agree to return to work. Eight hundred and fifteen new men and returned strikers had been employed up to Thursday morning to replace 1,150 strikers. Tramway officials reiterate that the strikers have waited too long, for no new men will be discharged to make way for strikers.

On Aug. 26 all cars from the East Division were operated by new permanent employees. Only one division then remained to be manned by new men. More than 500 strikebreakers have been shipped out of town to date.

The Colorado Supreme Court on Aug. 26 denied the application of the executive heads of the Tramway Employees' Union for a stay of execution, and an order directing the District Court to release them under bond. The court intimated that after the application for a writ of supersedeas the strike leaders may be admitted to bail. The hearing of the supersedeas probably cannot be had until late September.

Akron Reports Progress on New Grant

So far only a small part of the proposed new street railway ordinance between the city of Akron, Ohio, and the Northern Ohio Traction & Light Company has been tentatively agreed upon. All the points agreed upon have, however, been made public. Announcements have been made by the city that the ordinance provides for city control over service. That is one point which has been tentatively agreed upon. Another point which meets the approval of both the city and the company is that the basis of the contract shall be a service-at-cost plan similar to the service-at-cost plans in other cities throughout the country. In the new ordinance provision is being made for the purchase of the property when the city desires. The new grant will also give the city control over service, and provide for extensions that may be necessary from time to time.

Men at Nashville Strike

Despite the strike of union conductors and motormen cars of the Nashville Railway & Light Company, Nashville, Tenn., were running the first of the week following the Sunday stoppage. Service was 70 per cent normal on all lines Monday and Tuesday. It was decided not to operate after 6 p.m., until conditions more nearly normal are restored. Mayor Gupton of Nashville, issued a statement urging all stores and factories to close at five o'clock in order that employees might ride home. The strike was not unexpected. Some weeks ago, however, the union asked a closed shop and a 25 per cent advance in the wage schedule. The same day the company posted a notice of a new schedule of pay amounting to about 12½ cents, but the demand for the closed shop was refused. Not all the trainmen are members of the union.

D. U. R. Plans Improvements

Insists on Carrying Out Work for Relieving Congestion—City Suspects Company's Motives

Permission is again sought by the Detroit (Mich.) United Railway to construct a single-track loop to turn Woodward Avenue cars at Grand Circus Park. The proposed plan is to swing east at Elizabeth Street and return to Woodward Avenue at the Park. The necessity for the loop is emphasized in a communication to the City Council by E. J. Burdick, general manager for the railway. The loop is suggested as a means of relieving congestion.

This question was brought up before by the Detroit United Railway just prior to the election on April 5, when the bond issue was carried providing for the construction of the municipal railway.

CORPORATION COUNSEL RAISES OLD QUESTION

In the endeavor to obtain this permission, Corporation Counsel Wilcox sees another attempt on the part of the railway to obtain rights in the street that it may come into court at a later date and make claim that in allowing the loop the city admitted that the company had rights in Woodward Avenue. He maintains that exactly the same question is raised as when the company sought to continue work on the St. Jean, West Warren and Harper lines after the Couzens plan was approved by the voters. Further work was prevented on these lines by the city's orders and a rescinding resolution passed by the Council.

The city's rights were decided by the Supreme Court in 1913 when it was held that the city could take over the Fort Street and Woodward Avenue lines in the downtown district, and the Corporation Counsel recommends that the company's petition be denied as it was before when it was held that to grant the petition would confuse the municipal plan issue.

CONSTRUCTION CONTRACTS BEING LET

Although several members of the Council maintain that the voters in the April 5 election decided on what streets certain municipal lines should be built, and that any amendments to the people's action cannot be taken according to the charter until six months have elapsed, a resolution was passed by the Council ordering the Street Railway Commission to make a study of alternate routes which might be taken instead of the proposed one on Burlington Avenue west of Hamilton Boulevard. This action on the part of the Council is the result of petitions by the property owners along that section of the proposed line.

Immediate action will be taken by the contractor in starting excavation and foundation work for the road bed of the Charlevoix-Buchanan crosstown municipal line. This line extending across the city for a distance of about 9 miles

will be the first important line of the new system. Contract for the foundation work entails an expenditure of approximately \$605,500.

Total construction contracts amounting to \$1,600,000 have been entered into and \$1,750,000 bonds have been authorized.

Interurban to Build Detour

Residents of Lockport, Ill., have in prospect a walk to the outer edge of the city if they intend to use the Chicago & Joliet Electric Railway for transportation. That company intends to detour its line avoiding Lockport. There is good reason for this. The franchise of the company in Lockport will expire on Feb. 18, 1921. The tracks of the company through the city are in bad condition and the company tried on several occasions since 1917 to have its franchise renewed so that it could reconstruct the tracks. The terms of the city administration were prohibitory.

After the company had submitted to the city several propositions which seemed fair, all of which were rejected by the city, the company finally sought relief through the Public Utilities Commission, which ordered the railway to build the detour, with the right of eminent domain. Upon the issuance of this order a delegation of Lockport citizens waited on the company and suggested a settlement. The railway then submitted a draft of an ordinance acceptable to it. Action was taken on this at a meeting of the Council and it was voted down four to two.

The company plans to proceed to acquire a right-of-way, and build a detour for operation by Jan. 1, 1921. The detour means the lengthening of the interurban line 1 mile between Joliet and Chicago. At the center of the city the new line will be about 0.95 of a mile east of the present location.

Monongahela Company Advances Wages

Substantial wage increases were granted employees of the Monongahela Valley Traction Company, Fairmont, W. Va., at the closing of negotiations on July 21, when members of unions No. 812 and No. 813 voted unanimously to accept the contract which had been agreed on by their representatives and the company. The new contract covers the period from July 1, 1920, to July 1, 1921.

The scale of wages under the old contract was from 45 to 55 cents an hour. Under the new agreement the men will receive wages on a sliding scale basis covering two and a half years and ranging from 51 to 63 cents. This means that beginners will receive 51 cents an hour, employees who have been in the service six months 52 cents, those of one year's employment 54 cents, those in the service a year and a half 57 cents, and so on. The closed shop plan will be carried out as in the past. The company owns 190 miles of track and serves Fairmont and neighboring towns.

Auto Drivers Strike

One Thousand Men at Los Angeles Return to Work Following Compromise

Motor stage drivers of the Motor Transit Company working out of Los Angeles, Cal., went out on a strike on Aug. 17 for a 25 per cent increase in wages, thus tying up service on nearly 500 auto stage buses. Close to 1000 men are out. Only a few stages were in operation, the drivers of others failing to appear for their scheduled runs. The stage companies claim the drivers went out without notice. Patrons of the bus lines were obliged to use steam and electric railways to reach their places of business. The bus drivers are organized as the Operators of Motor Transport.

TREAT MEN AS INDIVIDUALS

Managers of the companies indicate that they will be willing to deal with the car owners as individuals, but not as members of an organization, and restore them to their old runs at the old rate of pay, \$32. per trip, Los Angeles to San Diego.

The manager of the Motor Transit Company states it is impossible to grant the raises in pay asked by the drivers until the State Railroad Commission grants increased passenger fares. He states that the drivers between Los Angeles and San Diego own their own buses and are paid \$16 for a one-way trip of 127 miles, or \$32 for the round trip, and out of this allowance the drivers pay all expenses of the trip. All the drivers on the Bakersfield run do not own their cars and are paid \$4 on a one-way trip of 171 miles with an eight-passenger car and \$5 for a one-way trip over the same route with an eleven-passenger car.

After one week the strike was called off on Aug. 22. A settlement was effected and the drivers returned to work. Both sides made concessions. It has been agreed that all drivers are to be paid increases, but the advances will not reach the figure originally demanded by the strikers. The motor transit company, however, made promises of further advances if it is permitted by the Railroad Commission to raise its rates. An application for a hearing is now pending before the commission.

MEN OWN THEIR CARS

The drivers employed on the Los Angeles to San Diego runs, under the new agreement, will be paid \$35 for the round trip. The strikers demanded \$40. They had been receiving \$32. The men own their cars, leasing them to the Motor Transit Company, which sells bus transportation to the public. If a rate raise is granted the corporation drivers will be paid \$40 a round trip. Drivers on other runs where cars are owned by the Motor Transit Company are likewise to be given an increase in salaries. These drivers are hired outright.

News Notes

Increase for Long Island Traction Men.—The New York & Long Island Traction Company, Hempstead, N. Y., recently advanced the employees' wages 10 per cent.

Strike Action Delayed.—Strike action by employees of the Toledo, Bowling Green & Southern Traction Company Toledo, Ohio, has been delayed, according to announcement made by officials of the union on Aug. 20. The men are demanding an increase in wages of 40 per cent.

Strike at Ashtabula Settled.—Because of an order from the company that cars would be operated as one-man cars thereafter, the trainmen of the Ashtabula (Ohio) Rapid Transit Company walked out on Aug. 5 and the road was idle for the greater part of the day. The company finally agreed to resume service with crews of two men.

Boston Men Receive Wage Award.—More than 7,000 trainmen of the Boston (Mass.) Elevated Railway shared in the distribution of between \$225,000 and \$250,000 on Aug. 12 and 13. The distribution is the carrying out of the award handed down on June 7. According to the officers of the union the average payment per member was between \$35 and \$40.

Trackmen Return to Work.—Between 100 and 125 trackmen and oilers employed by the Monongahela Valley Traction Company who struck on Aug. 2 returned to work on Aug. 9, after they had been granted a wage increase from 38 to 46 cents an hour. Under the new agreement the men will work nine hours a day and will receive time and half for overtime and for Sundays and holidays. They asked 50 cents an hour.

Requested to Complete Improvements.—The Dallas (Tex.) Railway has been called on by the city authorities to spend between \$300,000 and \$500,000 on right of way improvements on certain streets. Four street paving projects involving expenditures by the company were outlined by Mayor Wozencraft, who notified the company that the city desired to have these projects completed before May 1, 1921, and that traction company was requested to notify the city of its intended action by Sept. 20 next.

Trackmen Accept Compromise.—Trackmen in the employ of the United Traction Company, Albany, N. Y., to the number of 150 have accepted the compromise offer of an increase of pay of 13 cents an hour. The men have been receiving 42 cents an hour. They asked for 15 cents an hour increase, or 57 cents, but after a number of confer-

ences in which 53 cents an hour was rejected the men voted to accept 55 cents. The agreement will go into effect from July 1 last, and will continue for one year.

Mayor Favors City Ownership.—Mayor David L. Whiton, Quincy, Mass., recently announced that he favored municipal operation and ownership for the Quincy division of the Eastern Massachusetts Street Railway rather than have the city pay the deficit of \$137,000 which Homer Loring, chairman of the public trustees of the company, declared had accumulated because of low fares since Jan. 1 of this year. Under the Public Control Act municipalities may be called upon to make up the deficit in the operation of the electric railway lines.

Wages Adjusted on Ohio Electric.—Agreement on a wage scale for trainmen employed by the Ohio Electric Railway in the cities of Lima, Newark, Springfield and Zanesville, Ohio, prevented a walkout of nearly 1,100 men. The men had asked 75, 77 and 80 cents an hour to supplant the present scale of 38 to 40 cents an hour for city men and 41 to 50 cents an hour for inter-urban employees. The closed shop was also asked. The company offered city men 43 to 50 cents an hour and inter-urban men 46 to 55 cents an hour. More was promised as soon as fares are increased in all the cities.

Rapid Transit Extensions in Brooklyn Opened.—The Eastern Parkway and Nostrand Avenue (Brooklyn) extensions of the Interborough Rapid Transit system began running at 12:40 o'clock on Aug. 23, thus furnishing rapid transit facilities to a large section of Brooklyn not served heretofore. This section extends for approximately three-quarters of a mile outside the new routes, as well as the large triangle between President Street and Utica and Flatbush Avenues. These extensions, which complete the principal Brooklyn link of the Interborough system, consist of 5½ miles of a four-track subway. Of the fourteen stations on the extensions only eleven are now open, because the others are not sufficiently near completion to make it safe to use them.

Company at Rutland, Vt., Advances Wages.—Announcement has been made by the officials of the Rutland Railway, Light & Power Company, Rutland, Vt., of the granting of an increase in wages to the employees. About thirty-five motormen and conductors will be affected by the new advance wage schedule. They will get an increase in pay of 10 cents an hour, making the minimum wage for a motorman or a conductor who has worked six months or more, 53 cents an hour. New employees will be paid at the rate of 49 cents an hour for the first three months, 51 cents for the next three months and 53 cents for service after that. The trackmen have received an advance of 25 cents a day, making the salary for their day's work \$4.75.

Macon Men Get More.—Motormen and conductors of the Macon Railway & Light Company, Macon, Ga., have made a new working contract with the company whereby they will receive from 12 to 16 per cent increase in pay. The employees of the operating department under the new contract, which dates from Aug. 1, receive from 40 to 53 cents an hour and double time for working holidays. Under the new scale the men can make as much as \$200 per month by working extra time. The employees of the mechanical department were also given an increase. The car inspectors, who are now working on a salary basis, are also asking for an increase in pay. A few months ago they were given an increase of \$10 per month.

Ban Proposed on Natural Gas.—Five state public service commissions are to meet on Sept. 10 to consider whether natural gas for firing boilers and for certain industrial heating operations will not be cut off altogether in order to insure more nearly adequate supplies for domestic users and industries which are regarded as more essential. The States involved are Pennsylvania, West Virginia, Ohio, Maryland, and New York. It seems certain that the Pennsylvania commission, at least, will follow out certain of these recommendations, and effort is being made to have the other commissions co-operate so that a joint action to this end can be taken. If the proposed regulations now under consideration are adopted, public utilities generating current from natural gas will have to use other fuels.

Parson a Conductor on Interurban.—The Auburn & Syracuse Railway, Auburn, N. Y., has the distinction of having in its employ Rev. H. H. Van De Myer, the conductor-parson. Rev. Van De Myer, who was studying in Auburn, found that employment as a conductor on the South Street Lake run was best suited as a means for him to earn money to continue his studies and accordingly accepted a job for the summer. His fellow employees soon learned that besides being a very efficient fare collector, he was also an ordained Presbyterian minister and he was recently prevailed upon to officiate at a ceremony by which Berton F. Hoskins, a motorman, became a benedict. Rev. Van De Myer appeared in his brass buttoned coat, disregarding clerical attire. The bridegroom also wore his working uniform. The clergyman is studying for his doctor of divinity degree at the Auburn, Seminary.

Program of Meeting

Iowa Electric Railway Association

The mid-year convention of the Iowa Electric Railway Association will be held on Sept. 16 and 17 at the Fontanelle Hotel, Omaha, Neb. A program of great interest to mechanical and operating men is being prepared. It will be announced in the near future.

Financial and Corporate

Financing Method Attacked

Detroit United Railway Keeps Up Its War on City—Seven Suits Now Pending

The city's methods of obtaining money for the new Detroit municipal lines by the sale of bonds to the sinking fund commission is the basis of the latest suit filed by the Detroit United Railway in the District Court against the city. This is the seventh suit filed by the Detroit United Railway. In it the city is charged with juggling funds to raise money.

WANTS LEGALITY ESTABLISHED

The Detroit United Railway is now seeking to enjoin the prosecution of construction work and further purchase of railway public utility bonds by the sinking fund commission. It is claimed that the city has violated the charter by selling the bonds to the sinking fund commission, thus indirectly using the tax money for street railway financing.

Mayor James Couzens, Controller Steffens, City Treasurer Ingalls, the three members of the Street Railway Commission and the eight councilmen are named as defendants. Commissioner of Public Works Martin and the contractors who have been awarded contracts are also made defendants. The contracts which have been entered into by the city are held to be illegal. The Mayor, the Comptroller and the Councilmen are all members of the sinking fund commission.

Word has been received from Washington to the effect that the Detroit United Railway has also filed an appeal with the United States Supreme Court asking a permanent injunction restraining the city of Detroit from building the proposed municipal ownership lines. This appeal from the adverse decision of Federal Judge Arthur J. Tuttle in the case of the first two suits filed against the municipal lines, one by the Detroit United Railway and the other by the New York Trust Company and is based on the claim that the election authorizing the municipal ownership is invalid and the \$15,000,000 bond issue for its construction is illegal.

CITY COMMISSION GOING AHEAD

The Street Railway Commission is ignoring the company's actions. It maintains that substantial progress is being made with regard to the new lines. Construction superintendents have been hired and it is expected that track laying will be started soon. Efforts will later be turned to the planning of carhouses and overhead systems. Plans are already being worked out for the type of cars to be used on the municipal line.

In commenting on the city's plans for financing, the Detroit United Railway points out that of the \$1,750,000 of railway bonds that have been sold, \$1,628,000 have been taken by the city itself and paid for out of sinking fund and invested funds cash, money raised by taxation. Mayor Couzens purchased \$100,000 of bonds and the general public \$22,000.

COUNCIL CONFIRMS BOND SALE

The Council has confirmed the sale to the sinking fund commission of \$1,450,000 of railway bonds bearing interest at the rate of 5½ per cent. The first two issues bear only 5 per cent interest.

When the company applied for authority to build the Elizabeth-Grand Circus Park route for the relief of the Woodward Avenue service by doing away with the necessity for all Woodward cars going through the congested section, the Council suggested that the loop be built by the street railway commission and rented to the Detroit United.

PRIVATE COMPANY READY TO BUILD

This loop, according to the Detroit United Railway, could not be built by the city under the present authorization, as none of the \$15,000,000 of bonds cover this piece of track work. On the other hand, the company points out that it has the rails and other material on hand for the immediate completion of the work.

Dividend Increase Voted Down

The ordinance increasing the dividends of stockholders of the Cleveland (Ohio) Railway from 6 to 7 per cent was defeated about three to one in a referendum vote on Aug. 12.

J. J. Stanley, president of the company, stated that an attempt will be made to sell stock for the purpose of securing funds for carrying out the improvement program for next year, but that it will be offered over the counter at par. Whether this can be done successfully remains to be seen, as the stock is now quoted below par on the stock exchange.

The increase in dividends was asked in order to make the stock more attractive. It is said that the company will ask for a new rate of fare of 6 cents, with 1 cent for transfers, before Sept. 1. This will not only strengthen the stock, but will be necessary to meet the expenses.

This year's program of extensions will be completed, but Mr. Stanley said that work for next year will have to go until additional funds are secured to carry out the program which the company contemplates putting through.

Rhode Island Sale Ordered

Trustees Required to Sell Stock—Some Lines May Be Abandoned and Scrapped

The Rhode Island Company, the Providence & Danielson Railway and Sea View Railroads will be sold at public auction on Sept. 3, in Providence, R. I., according to an announcement made on Aug. 24 by the Federal Trustees.

The trustees will sell the stock of these roads and the purchaser will then obtain possession and control of the physical properties. The sale is authorized by the United States District Court for the Southern District of New York which has entered an order directing the trustees appointed by the Court to dispose of the property before Sept. 4.

The sale of the Rhode Island Company includes the Providence and Burrillville and the Woonsocket lines. The Danielson line includes the Chepachet line from Providence.

The lines of the United Traction & Electric Company and the Rhode Island Suburban Railway, which are leased by the Rhode Island Company, are not affected by the sale.

DISPOSITION OF ROADS UNCERTAIN

Just what will become of the properties after they are sold is a problem. There are interests seeking to get hold of the Chepachet line, which is a part of the Danielson line, but they do not want the line from Providence to the State line to Danielson, Conn.

The general impression is that the Danielson and the Sea View lines will be junked. As noted elsewhere in this issue these two lines are to be turned back to their owners on Sept. 7 by the receivers of the Rhode Island Company, by authority of the Superior Court.

When the Federal Trustees learned of this, knowing that the lines did not pay and that the trustees had no money with which to operate them, they applied to the Federal Court in New York for instructions. The result was that the court ordered the sale of these two lines and of the Rhode Island Company as well.

The sale of the Rhode Island Company involves the entire 96,885 shares of outstanding stock held by the trustees. At the same time 9,132 shares and \$600,000 in bonds of the Providence & Danielson Railway, and \$700,000 in stock and \$600,000 in bonds of the Sea View Railroad will be sold.

Public Service Railway Appraisers Named

State Comptroller Bugbee and State Treasurer Read, of New Jersey, members of the commission created by the last Legislature of that state to value the property of the Public Service Railway for rate making purposes, on Aug. 24 announced the selection of the firm of Ford, Bacon & Davis, New York, to do the actual work of appraising.

The act of the Legislature under which the appraisal will be made was a storm center from the time of its introduction before the Legislature. The measure was passed in April, but was promptly vetoed by the Governor. He considered that it was loosely drawn and offered an invitation to litigation. The bill was then passed over the Governor's veto. Under the law the Governor was designated as a member of the valuation commission, but he announced that he would not serve.

According to the bill the valuation commission consisting of the Governor, the State Treasurer and the State Comptroller was constituted "for the purpose of ascertaining and determining the value of all the property, including every proper and lawful element thereof, of any or all street railway and traction companies" in the State of New Jersey. The manner in which this is to be carried out is prescribed by the selection of "a competent electrical or mechanical engineering concern of the highest established reputation, equipped and organized for and experienced in the work of valuing street railway property."

When the value of any property has been completed as directed by the act, "the value of the property as set forth in said report shall be accepted by the Board of Public Utility Commissioners of this state as the value of said property as of the date specified in said report in any rate proceeding under any law of this state to the extent that the value of said property is a factor in the fixing of a rate."

Opponents of the measure contend that the act is defective in that proper provision is not made for the review of the findings of the engineers.

New Haven Trolleys Do Better

The results of the operations of the various electric railway properties of the New York, New Haven & Hartford Railroad for 1919 are unsatisfactory, but there are signs that the situation is improving. Operating revenue and the total operating expenses increased respectively 11.4 per cent and 12.1 per cent over that of 1918. The increase in the net operating revenue was

a little more than 7 per cent. The non-operating income fell far short of the previous year. The decrease in this item was about 22 per cent. On the whole, however, operations were slightly encouraging as the net income, which showed a deficit, decreased over 1918 by 3.3 per cent.

The volume of business done by the various companies is increasing. Valuations of the Connecticut Company show property substantially equal to the securities, and valuations of the other road controlled by the New Haven but not included in the Connecticut Company would probably show the same results.

Municipal Roads Go Behind

Figures for 1917 Show a Deficit in Net Income for Eight Publicly Operated Roads of \$141,896

The census bulletin for electric railways for the year 1917, recently issued by the United States Bureau of Census, presents for the first time a separate table showing the operating and financial statistics of municipally-owned and operated electric railways.

The accompanying table gives the names on nine municipal companies, together with the total passengers carried by each, and their miles of track and number of passenger cars. The net income is shown except in the case of the Monroe Street Railway and

operating expenses at \$7,770 so that there was at least an operating deficit of \$5,344 before fixed charges were approached.

The St. Louis Water Works Railway might well have been omitted from the table. This road was built primarily for the purpose of transporting freight and employees of the city water works. Of the total of 358,851 passengers, 215,603 were carried free. The figures of operating revenue and expenses given by this road are misleading, operating revenue being \$29,103 and operating expenses at exactly the same amount. No deficit in either gross or net income is indicated although a cash investment of \$274,800 is admitted.

For the eight roads covered by the totals of the Census Bureau the income account shows:

Operating revenue.....	\$1,682,354
Operating expenses.....	1,462,719
Net revenue railway operations.....	\$219,635
Taxes.....	126,146
Operating income.....	\$93,489
Non-operating income.....	\$28,608
Gross income.....	122,097
Deductions from gross income:	
Interest on funded debt.....	262,977
Interest on unfunded debt.....	1,016
Total deductions from gross income...	263,99¢
Net income.....	*\$141,896

* Deficit.

This deficit does not show the true conditions of operation for two reasons. In the first place, in the St. Louis and Monroe operations, no provision is made

	Total Passengers	Miles of Track	Passenger Cars	Net Income
Municipal Railway of San Francisco.....	36,234,723	58.55	197	*\$103,908
Monroe Street Railway.....	935,776	9.11	9	†12,774
Municipal Lines of Seattle, Wash.....	899,387	23.37	14	*\$34,938
Municipal Street Railway of Alexandria.....	825,075	6.40	12	*1,189
St. Louis Water Works Railway.....	353,851	13.60	7	
Pekin Municipal Railway.....	364,817	3.11	5	4,345
Tacoma Municipal Railway.....	254,292	6.79	9	7,405
Lincoln Municipal Railway.....	169,562	4.61	6	*867
Capitol Car Line of Bismarck, N. Dak.....	48,525	1.00	1	†5,344
Total.....	40,086,008	126.54	260	

* Deficit in net income.

† Deficit in operating expenses.

the Capitol Car Line, where the deficit from operating expenses is given.

Figures for the Bismarck line are not included in the totals of operation, a full report upon the road not being obtainable. The total operating revenue is given as \$2,426 and the total

for the payment of interest on the funded debt, although in the case of St. Louis, there is an investment of \$274,800 and in Monroe, an investment of \$90,550. In the second place, only in San Francisco, Lincoln and Tacoma is there any allowance for taxes, and in

STATEMENT OF EARNINGS OF ELECTRIC RAILWAYS CONTROLLED BY NEW YORK, NEW HAVEN & HARTFORD RAILROAD FOR 1919

	New York, Westchester and Boston Railway		Berkshire Street Railway Company		The Connecticut Company		New York and Stamford Railway		The Rhode Island Company		The Westchester Street Railroad		Total	
	1919	Per Cent Increase Over 1918	1919	Per Cent Increase Over 1918	1919	Per Cent Increase Over 1918	1919	Per Cent Increase Over 1918	1919	Per Cent Increase Over 1918	1919	Per Cent Increase Over 1918	1919	Per Cent Increase Over 1918
Total operating revenues.....	\$752,307	30.0	\$918,644	3.1	\$1,043,805	11.5	\$434,003	15.9	\$6,970,675	10.4	\$298,585	22.9	\$20,418,019	11.4
Total operating expenses.....	662,594	19.1	868,178	-19.7	9,210,376	13.0	388,824	16.1	5,928,263	15.9	336,855	15.4	17,395,090	12.1
Net operating revenue.....	\$89,713	305.0	\$50,466	1.3	\$1,833,429	2.7	\$45,179	11.8	\$1,042,412	-12.8	\$38,270	21.8	\$3,022,929	7.4
Taxes.....	147,810	3.5	64,371	4.1	619,658	7.6	23,676	2.4	621,885	2.9	11,918	22.0	1,489,318	5.0
Operating income.....	*\$58,097	51.8	*\$13,905	9.5	\$1,213,771	0.4	\$21,503	24.4	\$420,527	-29.0	*\$50,188	14.5	\$1,533,611	9.9
Non-operating income.....	7,883	105.0	1,694	57.4	232,831	-3.8	608	-6.0	37,853	-65.8	879	156.0	281,748	-21.6
Gross income.....	*\$50,214	57.0	*\$12,211	95.3	\$1,446,602	-0.3	\$22,111	23.3	\$458,380	-34.8	*\$49,309	15.5	\$1,815,359	3.4
Deductions from gross income...	1,672,930	3.8	317,397	-0.6	1,338,567	7.3	97,458	1.5	1,491,760	0.8	35,654	7.4	4,953,766	3.4
Net income.....	*\$1,723,144	0.3	*\$329,608	41.3	\$108,035	-46.5	*\$75,347	3.5	*\$1,033,380	29.1	*\$84,963	7.2	*\$3,138,407	-3.3
Profit and loss account.....	*\$11,667,095		*\$1,724,789		\$2,653,854		*\$324,571		*\$1,262,684		*\$355,740			
Miles of single track.....	54.41		163.08		696.48		36.29		299.11		28.09			

* Deficit.

the two latter this is below what a private company would have to pay. If the interest on the investments of the two companies mentioned had been added, as had also the taxes for five of the companies not taxed, then the deficit in net income would have been larger. These facts lead to the conclusion that the showing made by municipally owned roads is not very impressive.

Loss of \$17,135 in Jacksonville in July

Unless the rates of carfares of the Jacksonville Traction Company, Fla. are increased, the company will not be able to continue to function. The existing conditions are not suitable as shown by the report for the month of July, 1920, with cash on hand on July 1 of \$48,617, the report, filed in the office of the clerk of the Federal Court, shows that the expenditures were such as to leave a balance on Aug. 1 of only \$31,482 in cash, a loss during the month of July of \$17,135. The statement follows:

Cash on hand July 1.....	\$48,617
Passenger receipts	86,717
Sale of tickets	380
Accounts received, miscellaneous..	1,885
Miscellaneous	53
Total railway revenue	\$137,652
Salaries and wages	46,999
Supplies	9,266
Supplies—fuel	31,955
Accidents causing expenditure...	1,299
Taxes	7,850
Miscellaneous expenditures.....	8,471
Total operating expenses.....	\$106,170
Balance on hand Aug. 1.....	\$31,482
Balance of accounts assumed and unpaid Aug. 1.....	\$3,542

Plea for Sale at Foreclosure Entered

Counsel for the Guaranty Trust Company, New York, N. Y., as trustees for the holders of the first mortgage bonds of the New York Railways sought on Aug. 17 to have Judge Julius M. Mayer of the United States District Court accept and enter a proposed decree which would end the receivership of the surface railway system by putting it up at auction. After a protracted hearing the court deferred consideration of the subject until Nov. 10.

Joseph P. Cotton, in offering the decree, declared that the property, now in the hands of Job E. Hedges, receiver, should be sold for the benefit of the senior bondholders before equities are further diminished, but evidence introduced by counsel for the company disclosed the fact that many of the surface lines are showing a large increase in revenue, attributed mostly to action of the courts in eliminating competitive city buses.

E. H. Blanc, representing the junior mortgage holders, and Frederic Couderc, counsel for additional interests, pronounced the proposed decree premature and discriminatory. It was finally decided to sell, but not under a foreclosure decree, certain unused carhouses. The court ordered another hearing on Oct. 18 on winding up the receivership.

Financial News Notes

Texas Line Suspends.—The Longview & Junction Railway, Longview, Tex., has suspended operation indefinitely. The line is 1 mile in length.

Resort Lines Suspend.—The Jersey Central Traction Company, operating 44 miles of line with principal offices at Keyport, N. J., shut down its Keansburg division and Carr Avenue lines on July 19. The lines which have been abandoned comprise less than 2 miles of the entire road. The business which is offered in these places, it is explained, is all being cared for by jitneys.

Refunding Issue Authorized.—The Public Utilities Department of Massachusetts has authorized the Holyoke Street Railway to issue bonds to the extent of \$85,000, to mature in April, 1935. They will bear interest at 6 per cent. The new issue is planned to provide funds to refund an issue of \$85,000 of Holyoke Street Railway debenture 5s dated 1899 and due Oct. 1, 1920.

Abandonment Plans Before Commission.—The Westchester Street Railway and L. S. Miller, receiver, have applied to the Public Service Commission for approval of the action of the company on June 29 in a declaration of abandonment of the Westchester Avenue and Mamaroneck Avenue lines on the ground that "they are no longer necessary for successful operation of its road and the convenience of the public."

Receiver for Ashtabula Road.—The Ashtabula, (Ohio) Rapid Transit Company has been placed in receivership, resulting from failure of the city to take over the lines as a municipal system as contemplated. The city withheld action until an agreement could be reached regarding \$350,000 bonds of the company and because some creditors were unwilling to pro-rate their claims with the bondholders.

Railway Being Dismantled.—The work of removing the abandoned trackage of the Shore Line Electric Railway from New Haven to Flanders, Conn., is now under way. The American Railway Equipment Company, New York, is in charge of the work. Two months will be required to remove the 60 or more miles of rails. Insufficient patronage to support the road, followed by a strike of its employees who demanded increased wages, caused this public utility to pass into the hands of a receiver.

Purchased Companies Are Dissolved.—The United Light & Power Company which was organized in East Moline on Feb. 2, 1908, but later was purchased by the Tri-City Railway & Light Company, Davenport, Ia., has been dissolved and its charter surrendered to the Illi-

nois State Secretary. The same has been done with the Watch Tower & Campbell's Island Park Company. Officials of the Tri-City Railway & Light Company explain that the dissolution of the companies was merely to clear up their records. Both of the companies were purchased by the Tri-City Railway & Light Company and ceased to exist several years ago so far as operation was concerned.

Preparing Reorganization Details.—The International Railway, Buffalo, N. Y., on Aug. 18, made application to the Public Service Commission for the Second District, for approval of the increase of its capital stock from \$17,000,000 of which \$16,707,500 is outstanding, to \$17,500,000, consented to by the stockholders in writing and also authorizing the issue of \$792,500 in capital stock which shall or may be sold to the protective committee for collateral trust 4 per cent bonds of the International Traction Company, now owner of all the stock of the railway, at a price not less than par. The commission will give early consideration to the petition.

No Action in P. R. T. Lease Controversy.—The Union Traction Company, Philadelphia, Pa., has yet to appoint a committee to meet the four directors of the Philadelphia Rapid Transit Company picked to deal with them in regard to the resignation as a Union Traction director, of Thomas E. Mitten, president of the Philadelphia Rapid Transit Company, following the refusal of the Union Traction directorate to assent to the \$6,000,000 car trust certificate issue sought by the P. R. T. except on terms deemed excessive by the P. R. T. The next regular meeting of the Union Traction directors is scheduled for Sept. 18 and if no meeting is held before that time, the compromise agreement espoused by J. J. Sullivan, president of the underlying body, will have to wait.

Rhode Island Company Will Discontinue Some Lines.—The receivers of the Rhode Island Company, Providence, R. I., have decided to discontinue operation of cars over the Chepachet, Danielson and Sea View lines after Sept. 6. The federal trustees, as yet, have made no decision, as to the future of the lines. The Chepachet line is the newest of the three, having been opened about five years ago. It runs to Greenville, Harmony and Chepachet. The Sea View runs through Wickford, Hamilton, Saunderstown, Narragansett Pier, Wakefield and Peace Dale. The Danielson line touches, North Scituate, Rockland, Clayville, Foster Centre in Rhode Island and East Killingly, Elmville, Danielson, Dayville and Putnam in Connecticut. Other phases of the affairs of the Rhode Island Company are referred to on page 433 of this issue. As indicated there the holdings of the company will be sold on Sept. 3 unless court action, unforeseen now, should intervene.

Syndicate May Purchase Railroad for Automobile Road.—The Ocean Shore

Railroad, San Francisco, Cal., recently discontinued operation on account of labor troubles. Primarily this was due to the increase in wages, but also to the difficulty of maintaining satisfactory service under present labor conditions. Several months ago a syndicate of real estate men made a proposal to buy the property, sell the rolling stock, scrap the rails and construct an automobile road along the right-of-way. Although this proposal was abandoned for a time it is now being revived. The Ocean Shore Railroad is a broad gage line running from the depot at Twelfth and Market Streets, San Francisco, to Tunitas, about 38 miles down the coast. The company has a total of 54 miles of track and the terminals in San Francisco are electrified.

Franchise Passed at Bellaire.—The Council of Bellaire, Ohio, passed the Wheeling Traction Company franchise ordinance, inserting a provision authorizing the solicitor to institute injunction proceedings to oust the company if the franchise is not accepted in thirty days. If the company declines to accept the franchise, the solicitor is empowered to attempt to stop the company from operating in Bellaire, and to compel the removal of its tracks, cars, poles, and other equipment from the streets of the city. The ordinance has been passed twice previously, with provisions that it must be accepted within fifteen days, but due to delays in getting the ordinance into the hands of the company officials, ouster proceedings were not instituted.

Interurban Has Deficit of \$727.—The Northwestern Ohio Railway & Power Company, which operates the interurban line connecting Toledo, Lakeside and Marblehead, announced that it had a deficit of \$727 for the year ending June 30. The company has outstanding an issue of first mortgage 5 per cent bonds totaling \$1,293,000, the interest charges on which amounted to \$64,650. The total revenue for the year was \$392,663, an increase of 22.1 per cent over the previous year. The expenses increased 18 per cent to a total of \$328,740. The net profit before interest charges was \$63,923. Because of the company's inability to secure contract coal in sufficient quantities to keep its power house going it has been buying power manufactured at the Acme plant of the Toledo Railways & Light Company in Toledo.

Boston Elevated Refused Lease.—The Board of Trustees of the Eastern Massachusetts Street Railway have refused to lease their lines in Chelsea and Revere to the Boston Elevated Railway. To lease the lines, in the opinion of the former, would further complicate the traffic situation between Boston and points north. If the Boston Elevated Railway operated the lines to Revere, the passengers concerned would have to pay the higher fare to Boston. The Eastern Massachusetts trustees suggest the construction of a joint terminal at Chelsea in connection with the train service in the tunnel, in order

to do away with drawbridge delays. It has been proved that the East Boston tunnel capacity can be increased from 6,000 to 20,000 passengers per hour by the use of trains and the elimination of surface cars.

Receiver for Road at Alton.—Judge George E. English, Federal Judge for the Eastern District of Illinois, has appointed Fred E. Allen St. Louis, and W. H. Sawyer receivers for the Alton, Granite City & St. Louis Traction Company, East St. Louis, Ill., as the result of a petition filed by bondholders of the road. The interest coupons for the last two periods, which became due in August and February, are in default, according to the petition. The Alton, Granite City & St. Louis Traction Company operates between Alton and St. Louis, passing through Edwardsville, Mitchell, Woodriver, Eagle Park, Granite City and East St. Louis. Including connections, the road controls 62 miles of trackage. Mr. Sawyer is president of the railway, which is controlled by the East St. Louis & Suburban Company.

Huntington Road Will Resume.—The Huntington, (N. Y.) Traction Company has been granted a certificate of public convenience and necessity by the Public Service Commission for the Second District of New York for the operation of the former Huntington Railroad between Halesite and Melville, Long Island, a distance of about 7 miles. Operation of the trolley line will permit residents along its line to make connection with the Long Island Railroad. The commission has also approved assignment by William A. Dempsey, Brooklyn, of a franchise granted to him by the Huntington authorities. The former Huntington trolley line was dissolved. There was a hearing before Commissioner J. A. Kellogg in New York who holds that operation of the line is a public necessity. The commission also authorized the company to execute the necessary securities, the proceeds of which are for the construction and acquisition of the road.

Court to Pass on Rentals.—Judge William B. Lynn of the Superior Court of Pennsylvania has signed a writ superseding removing from the hands of the State Public Service Commission the case of the United Business Men's Association, Philadelphia, vs. the Philadelphia Rapid Transit Company. The association had complained to the commission against the payment by the P. R. T. of large rentals to the Union Traction Company and its other underlying companies. The commission recently dismissed the demurrers of the underlying companies and ordered them to defend the action. The commission is now prevented from taking further steps in the matter until after a hearing by the Superior Court. Mayor Moore recently signed an ordinance for an appropriation of \$50,000, which will enable the city to make a valuation of the P. R. T. system. This fund will be used for the employment of engineers, accountants, assistants and advisers.

Purchase of Bluefield Line Discussed.

The directors of the Chamber of Commerce of Bluefield, W. Va., have endorsed and agreed to promote a plan of the Princeton Power Company to take over the electric railway system of the Appalachian Power Company in Bluefield, W. Va., and Graham, Va., and own and operate it in the future. Details of the plan have been worked out which are acceptable to both of the companies involved, and it now remains only for the people to support the proposition morally and financially to the extent necessary to put the deal through. S. J. Evans, president of the Princeton Power Company, and S. P. Hardy, the treasurer, appeared before the directors of the chamber and stated that their company stood willing to assume the ownership and management providing the business men of the city would subscribe to \$50,000 of preferred stock to provide funds to rehabilitate the present system. The directors of the Chamber of Commerce passed a resolution endorsing the plan and authorized the president, Edwin Mann, to appoint a committee of five to assist in the sale of the stock.

Dismantlement May Be Prevented.

There are prospects that the Charleston-Isle of Palms Traction Company's line may escape being dismantled and junked. The State Railroad Commission of South Carolina has decided to permit the company to charge 5 cents a mile. The order is based on an act of the Legislature of 1920. The request for the increase was a resolution adopted at a mass meeting in Charleston several days ago, urging the commission to grant the higher mileage charge. The railroad seemed to be indifferent to the outcome of the situation because the road was operating at a daily loss. Judge Smith recently issued an order for the road to be sold and the company liquidated. The case went before Judge Smith on an appeal from a ruling of the Railroad Commission which refused to allow the road to increase its fares, instituting a zone system. This was before the passage of the act of the 1920 Legislature making possible the 5 cent a mile limit for small lines. The court on Aug. 11 authorized the company to conform to the regulations of the commission for the safety of passengers and to pay \$12,500 in interest to the Baltimore Trust Company for the year ended Aug. 15. The company must make a full and complete return of its business and affairs on or before July 15, 1921, or sooner, if so ordered by the court. On this return will depend the ultimate future of the concern, for if it does not show that with the increased rates which have just gone into effect the company is able to operate without a continuous loss and to meet its just obligations, Judge Smith will put into effect the provisions of his decree of June 29, the effect of which would be the cessation of operations and the sale of the property, according to the order of the court.

Traffic and Transportation

Fare Order Brings Strike

Des Moines Men Plan to Ignore Court Because Dissatisfied with Terms of Rate Advance

Announcement of a walkout of the employees of the Des Moines (Ia.) City Railway to take effect at 1:15 on Aug. 24 was made on Aug. 23 by officials of the men's union.

This action toward a strike follows dissatisfaction of the men over the fact that in his order granting the receivers the right to place the fare in Des Moines temporarily at 6 cents and to pay an increased current wage to the men, Judge Martin J. Wade of the Federal Court made no definite order as to the back wages. The men claim an increase from 60 to 70 cents maximum from March 1, the date the arbitration board awarded an increase to the men.

RATE INCREASE TEMPORARY

Judge Wade's order granting the increase in fare was made on Aug. 21. It went into effect on Aug. 22 at 5 o'clock. While not writing it into the order, Judge Wade intimated that the new rate was to extend over a period of from sixty to ninety days and that by that time the solution to the problems of fare in Des Moines might be found.

The fares fixed by Judge Wade are as follows: adults, 6 cents; children and school children, 3 cents; owl fares, 10 cents; Valley Junction, Fort Des Moines and Urbandale lines (where an additional fare of 5 cents has been collected when the cars passed the city limits) an additional fare of 4 cents.

Judge Wade further ordered that for the convenience of the public tickets were to be placed on sale at the company's office at four for 24 cents.

Earlier in the week action was started in the Des Moines City Council to grant the company a rate of 7 cents for a period of ninety days. The corporation counsel and the special counsel, however, fought the move on the grounds that it would prejudice the city's power to reduce the rate at the end of the temporary term. The resolution in the City Council was lost by a vote of three to two. The deciding vote was cast by the union labor member of the Council who had been considered to be the member strongest for the increased fare.

JUDGE ACTS TO PRESERVE SERVICE

In his order Judge Wade said:

Of course no one connected with the proceedings claims that service can be continued at a 5-cent fare. I will not, however, undertake to determine what fare shall be paid as a permanent matter. I shall only undertake to act on this emergency so that for a short period of time the people of Des Moines will have street car service.

A strike has been suggested. Of course the men have the legal right to strike, but I have no hesitation in saying that they have no moral right to strike during the period of the State fair which would result in punishing hundreds and thousands of people who do not live in Des Moines and who are utterly innocent of any wrong with regard to the controversy about rates and wages.

I shall not undertake to enjoin a strike, I am making a temporary order which I trust will be the beginning of a permanent settlement. This order will give some relief to the employees and I trust will lead to the ultimate settlement of all matters in controversy.

It is only fair to the men and to the people of Des Moines to say that if after this order there is a strike the court will feel that it is its duty to cancel the wage contracts between the company and its employees. The receivers will be instructed to operate the cars if they can secure enough men to do so. If they cannot the receivers will be instructed to cease operation entirely until men can be procured to render service.

If at the end of sixty to ninety days the city and receivers have not settled the controversy Judge Wade announced that he would appoint a commission to fix fares which will be paid under future court orders.

The present week was settled upon by the men as a strategic week for a strike by reason of the fact that it is the time set for the Iowa State fair which brings several hundred thousands of visitors to Des Moines. The strike vote was taken some time ago by the men with Aug. 25 named as the last date for settlement.

Judge Wade promptly ordered the receivers to suspend service indefinitely and keep the cars in the carhouses and only to employ sufficient men to guard the property. The court also canceled all wage agreements and specifically ordered that no re-employment contracts be entered into with the men without the court's consent.

Seven-Cent Fare Appears Insufficient

Intimation has been made that the Connecticut Company may ask a higher fare of the Public Utilities Commission at the hearing to be held Oct. 1, when the test period under the present system ends. Leonard M. Daggett, one of the trustees of the company, in an interview is reported to have stated that the 7-cent fare is producing more revenue than the preceding zone system, but that the increased income is not sufficient to meet the expenses of operating the system.

In authorizing the present flat 7-cent fare system, which began on Aug. 8, the Public Utilities Commission set Oct. 1 as the date for a resumption of the hearing on the Connecticut Company's financial condition. On that date the Connecticut Company is to submit a report of the operation of the 7-cent system during the two months, and whatever recommendations it may have for the future.

R. I. Buses Quit

Company Placed in Receiver's Hands Pending Reorganization—Poor Management Alleged

Service has been temporarily discontinued by the Rhode Island Omnibus Company, Providence, R. I., because of lack of funds. The company, which has been operating in competition with the Rhode Island Company for about a year, has been placed in the hands of a receiver by agreement of all parties at interest. It is said that the company's assets are greater than its liabilities. An attempt is to be made to secure additional capital for the enterprise, which is claimed to have been run on a profitable basis up to the past few months.

ATTACHMENTS PLACED ON BUSES

William Law, one of the chief creditors in the concern, has been appointed temporary receiver. In asking for a receiver the creditors set forth that many persons had placed attachments upon the property of the corporation and that other creditors had threatened to do likewise. The naming of a receiver was deemed advisable for the preservation of the assets and for the best interest of all parties concerned in the venture.

Twenty-one buses are owned by the company. At a recent meeting of the creditors it was stated that the liabilities amounted to \$7,764. The concern is capitalized at \$51,000, of which Abraham Luff and J. C. Doran, former president, own \$25,000 each. Mr. Doran put in \$23,000 in cash while Mr. Luff is said to have \$28,000 invested. An attempt is to be made to secure \$15,000 in additional capital through stock subscriptions from the communities served by the company to permit the resumption of service.

POOR MANAGEMENT CHARGED

Poor judgment in the management of the affairs of the company is given as the chief reason for the company's difficulties. Unsuccessful experiments cost several thousand dollars.

J. C. Semonoff, counsel for the company, recently made the following statement outlining the reasons for the corporation's temporary embarrassment:

For various reasons the Rhode Island Omnibus Company has decided to discontinue business temporarily until the reorganization of the affairs of the company can be effected. The company has made the mistake of trying several experiments which have proved to be failures, and these experiments, together with the fact that there has been lack of harmony among the directors as to the methods of management, have been responsible for the present situation.

The company has operated very successfully, doing a good business with substantial profits until recently. At the present time, its assets, allowing for a reasonable depreciation, are understood to be in excess of its liabilities. From the experience gained the owners of the company are confident that with sufficient capital and with the proper management, the business will be so organized as to be very successful.

The public has greatly appreciated the service given by the company, and the residents of the suburbs, who have particularly profited by the service rendered, are understood to be making arrangements to do their part toward restoring the company to a sound basis.

Bridgeport Transportation Committee Reports

Open Meeting Monday to Consider Report and Its Recommendations—Admits Jitney Service Inadequate

Recommendations that the jitneys be barred from the central portions of the city of Bridgeport, Conn., giving the trolleys full right of way on Fairfield Avenue and State Street, from Water Street to Park Avenue, and the business section of Main Street, are contained in the report filed on Aug. 25, by Mayor Wilson's transportation investigation commission. Mayor Wilson has called a public meeting for Aug. 30. The members of the Board of Aldermen will be in attendance. In the report, the Connecticut Company is advised to take prompt steps to exercise its franchise by resuming operating of cars. The city is also urged to take legal action accorded it by the state laws to insist on a resumption of service or abandonment of franchise if the company fails to operate within a reasonable time. The city is further urged to use every effort to have the State Legislature grant permission to the Connecticut Company to operate motor buses. A further study will be made of the fare matter.

THE lines of the Connecticut Company embraced in the report cover 104 miles of track and include what the committee recommends be considered as the Bridgeport district. The first part of the report is given up to a review of the need of Bridgeport for adequate transportation and to a summary of the early financial history of the companies now included in the system of the Connecticut Company in and around Bridgeport. The commission lays very largely to the automobile the failure of the state-wide system represented by the Connecticut Company to meet its expenses, rentals and taxes.

On the matter of the frequently suggested plan for the segregation of the Bridgeport lines from the rest of

"conducting transportation," which includes the wages of trainmen, are not excessive and were necessary.

On the question of fares the commission says:

There are possible combinations of fare with transfer charges, and other combinations, but the correct combination to enact is the one that will yield the greatest number of passengers per car-mile possible, within the economic fare range. These details require several weeks of additional study before conclusive recommendations can be made. We cannot treat the problem as one merely of raising sufficient returns to keep the lines solvent and pay interest upon investments, because a combination of high fares and small travel which might do this, will not furnish the city with a proper service.

A resident vice-president and general manager for Bridgeport lines of the company is recommended, the incum-

bric, service and fares, and similar control in every phase should also be made effective concerning all public motor buses following specific routes.

It is the view of the commission that prior to the suspension of the railway, there were unfair elements in the competition between the trolleys and the buses, resulting in some degree in the inability of the railway successfully to operate its cars as contemplated under the railway's franchise; but, says the commission, "at the same time it seems proper to say that to take action that would virtually suppress responsible motor bus service in the city would hamper the line of progress toward better things in future transportation." Further, the commission says that it is of the opinion that "a properly organized bus corporation, surrounded by control, can meet with entire satisfaction, all the transportation requirements of the district."

A CONDITION; NOT A THEORY

While it is deplored that the railway thought it advisable, or was able under the law, to discontinue its passenger service on Aug. 2 and that the city was without adequate means to control the situation, the commission is mindful of the fact that "we are dealing with a condition and not a theory." The commission says:

It is to be expected that the railway will voluntarily, or by necessity, resume, but should the railway fail now, upon further demand to restore its service immediately under the system of fares legally provided, it seems proper that the city should initiate such action as may under the law be done, for requiring such restoration, or sacrifice of franchises and should thenceforth proceed to lend its aid and encouragement to the organization of a modern standard motor bus company.

It is believed that the failure of the present system of bus service fully to meet the requirements is due to the fact that operation is voluntary by individuals and lacks the possibility of control that may be exercised over an enfranchised body.

In conclusion the commission says:

To this end it is recommended that a local permanent transportation commission for the city be appointed and legislative action be sought at the coming session under which such commission shall be recognized as a medium and clearing house for inter-course, reports, and regulation between the railway, or bus operators, and city. Thus, a permanent body of men will be provided through medium of which fare adjustments and service matters may be handled with better degree of preparedness, protecting both public and the companies in all situations that arise.

The rates outlined in the program of the commission would eliminate the motor buses from Main Street, south of E. Washington Avenue, and Fairfield Avenue between the Plaza and Park Avenue, and from State Street between Water Street and Park Avenue, and from portions of Stratford Avenue, Noble Avenue and Barnum Avenue.

A draft of an ordinance which would bar buses from many central streets of New Haven was submitted to the Board of Aldermen at its special meeting on Aug. 26 by the Aldermanic committee. The report is a short one and recommends the enactment of an ordinance laying down the street from which public service autos would be barred. A fine of \$100 would be imposed for every violation of the provisions of the ordinance.

STATEMENT OF OPERATING EXPENSES OF CONNECTICUT COMPANY IN BRIDGEPORT DISTRICT FOR THE PAST FOUR YEARS

Expenses:	Year Ended	Year Ended	Year Ended	Year Ended	6 Mos. Ended
	Dec. 31, 1916	Dec. 31, 1917	Dec. 31, 1918	Dec. 31, 1919	June 30, 1920
Maintenance of way.....	\$258,657	\$270,193	\$160,213	\$205,528	\$123,558
Maintenance of equipment.....	100,539	137,815	191,055	171,678	105,824
Cost of power.....	185,807	247,934	354,547	438,532	199,534
Conducting transportation.....	501,994	558,583	598,385	762,344	439,635
Traffic expenses.....	1,743	1,273	2,163	5,188	2,980
General and miscellaneous, including accident and insurance.....	153,017	175,629	181,350	238,361	122,314
Taxes.....	77,214	76,441	70,342	77,498	36,960
Return on property value at 7 per cent.....	655,726	655,726	655,726	655,726	327,863
Total costs.....	\$1,934,701	\$2,123,598	\$2,213,783	\$2,554,858	\$1,358,671

the system, the commission says that "it is indisputably proper that each community represented by such towns as Bridgeport and its suburbs should be considered and administered apart from alliance with the rest of the State and its transportation salvation should be had with respect only to its own problems."

Reference is made to the valuation of the lines in Bridgeport made in 1910 by Westinghouse, Church, Kerr & Company. As of 1919 the valuation is \$9,367,518 based upon unit values suggested by the engineers, with additions entered at cost at the time of purchase. The commission says that "if replacement values as of 1919 were to be used the total value would be about doubled," but that "it is not proper that increment in value under present inflated costs should be used." The figures mentioned are considered by the commission to represent a basis of valuation believed satisfactory to all.

The commission says that it must be conceded that the increases in the item

bent to be a man who will identify himself with the city as a citizen interested in the growth of the city. The local manager should be "limited in authority only as necessary for coordination."

More safety cars are recommended. The report says:

While now possessing excellent and sufficient number of cars, at earliest possible date the number of modern safety cars should be increased from the present number of forty-six to the number required for the full service on lines where this type of car has been found desirable, approximately thirty more such cars being required. It is believed that this addition can be deferred until 1921, at which time the city, or Bridgeport interests, might well underwrite a trust fund for the purpose. Further large outlays appear unnecessary for several years.

The commission would have the Connecticut Company prepared to enter the bus business. On this point it says:

At the coming session of the Legislature the city should use its influence to secure passage of an act, if necessary, providing the Connecticut Company with authority for operation of rubber-tired motor buses in service complementary to its rail service. Such power should be made subject to full municipal control as to standards of ve-

California Commission Takes Lead

Grants Pacific Electric Railway and Other Lines a 20 per Cent Rate Increase, Co-operating with Interstate Commerce Commission

Announcing a policy of co-operation with the Interstate Commerce Commission, the California Railroad Commission has issued a decision authorizing steam railroads, electric interurban railroads and boat lines operating in California to increase both passenger and freight rates in conformity with the decision of the Interstate Commerce Commission. Under this decision the Pacific Electric Railway, Los Angeles, is authorized to increase all rates by not to exceed 20 per cent, which means that the company's local fares in Los Angeles and outside cities may be raised from a 5-cent to a 6-cent basis. All other interurban electric railways in California have heretofore been allowed, under decisions of the commission, to increase their local fares and therefore this increase will not be effective as to these lines.

THE action of the commission follows the application made by the carriers and hearings held by the commission in both San Francisco and Los Angeles, following the decision of the Interstate Commerce Commission. The Railroad Commission states in its decision that it is confronted with two alternatives: that either it must base its conclusion on the conditions in California alone, regardless of the fact that the income produced by the rates thus fixed would have been contrary to the action of the Interstate Commerce Commission, or it must proceed in harmony with the decision of that commission. The decision goes on to say:

We have given this matter very careful consideration, and in so doing have attempted to give weight to the probable consequences of proceeding upon either of these alternatives. We realize that without requiring more evidence that is now before us in this proceeding, to impose on intrastate business the identical percentage authorized by the Interstate Commerce Commission would, in effect, be the fixing through us of all State rates by the Interstate Commerce Commission. Whether or not this constitutionally may be done is a question we do not consider it our function to decide.

On the other hand, to proceed in the usual manner as though this were an entirely independent proceeding would result in serious delay, as it is evident that to gather and submit technical data upon which to base sound judgment of what practically all transportation rates in California ought to be, would require many months, and all possibility of immediate relief to the carriers would disappear.

WOULD AVOID FRICTION

This, however, is not the most serious result that would follow independent action by this State. If this commission, under the circumstances that now confront us, fixes State rates regardless of the order of the Interstate Commerce Commission, and if such rate fixing resulted in a return to the railroads of the Mountain Pacific group less than the 6 per cent authorized by the Interstate Commerce Commission, either the Interstate Commerce Commission must further burden interstate commerce with rates high enough to make up the deficit resulting from the California action or, if legally possible the Interstate Commerce Commission would be compelled to overrule this commission, or the Esch-Cummins Act would be a demonstrated failure.

It appears to us that if each State in a given group insists upon wholly independent action and judgment the whole spirit and purpose of the Esch-Cummins Act is in danger of nullification. It must be realized that the Interstate Commerce Commission, a national body entitled to the respect and confidence of the country acting under the mandate of Congress, has proceeded impartially, using the best available information and the best judgment of its members in the determination reflected in the order referred to. It has evidently in good faith sought to carry out the mandate of Congress.

It is our deliberate judgment that it is the duty of this commission to co-operate in every feasible way to give the Esch-Cummins Act a fair trial.

The commission makes it clear in its

decision that it in no way abdicates its function in rate fixing as it states its determination to grant the prayer of the carriers is sustainable on the ground of reasonableness. Shippers who appeared before the commission at the hearings practically without exception stated their conviction that the roads must have relief in increased rates in order to be able to continue functioning and that it was their belief that the commission should co-operate with the Interstate Commerce Commission in making the increases effective.

The Pacific Electric Railway some time ago applied to the commission for a general increase in fare over its entire system amounting to approximately 33½ per cent. The commission was asked to conduct a thorough investigation of the company's affairs with a view to fixing a valuation upon which permanent rates might be fixed. Several hearings have been held on this petition, which is still in the commission's hands.

Seven-Cent Fare for Rochester Approved

The Public Service Commission for the Second District of New York on Aug. 24 authorized the New York State Railways to charge a 7-cent fare in Rochester on one day's notice to the public.

On Aug. 5 the New York State Railways presented evidence to the Public Service Commission, upon its application for authority to charge a 7-cent fare in Rochester under amendment of the Rochester franchise which was the subject of litigation through the Court of Appeals in the Quinby case.

The proceeding on Aug. 5 was under a waiver by the Rochester authorities of the railway's franchise agreement and a stipulation in the Quinby case permitting the commission to pass on the company's petition for right to charge a 7-cent fare under agreement with the Rochester Common Council and Mayor.

A statement was introduced in evidence showing that in May and June the operating revenues on the Rochester lines totaled \$743,522, the operating expenses \$802,433, and taxes \$50,820, leaving a deficit in income of \$110,107.

Chairman Hill brought up the question of service in Rochester which it

was shown at a prior investigation by Commissioner Barhite was not efficient. He asked the company to submit evidence as to improved service under the proposed new fare.

James F. Hamilton, president of the railway, said there had been an improvement since the commission's investigation, and schedules of operation are now being prepared which will insure better service. These will go into effect in thirty days under the increased fare. He said details of the proposed improved service would be submitted to the commission.

Mr. Barnes said it was planned to give a service in Rochester which would be beyond criticism. Travel will be closely watched for improving service in the future.

Mr. Pierce stipulated in the present proceedings that the value of the company's property used on the Rochester lines was \$17,500,000.

The 7-cent fare now allowed is the initial rate fixed under the terms of the new service-at-cost contract under which the lines of the New York State Railways in Rochester will be operated in the future.

Massachusetts Road Gives Up Freight Service

Freight service was discontinued by the Eastern Massachusetts Street Railway on June 16. It has been unprofitable. On paper it appeared that the company was breaking even, but figuring the wear and tear on equipment and tracks and the interruption of passenger service at a time when the agitation for better passenger service was at its height, it was deemed best to discontinue the service.

Another obstacle was the large number of bridges to be crossed on the various lines of the company. The capacity of most of these bridges was insufficient for the weight of their freight cars which had a capacity of 60,000 pounds.

In addition to all this the company was confronted with the purchasing of snow fighting equipment or the converting of some of its present equipment into snow plows, etc., and it was decided to convert the forty freight cars into equipment for keeping the lines open this coming winter.

The men formerly employed in this branch have gone into the passenger service and retained their rating. Some of the men with low ratings have left the company, but the majority are satisfied with their ratings in the passenger service.

As to the executives, Frank D. Ward, formerly superintendent of rolling stock, has accepted a position with the Robert Dollar Company, New York, as construction engineer and has departed for Shanghai, China. On his departure Walter C. Bolt, formerly purchasing agent, was made superintendent of rolling stock, and Perley P. Crafts, formerly manager of the freight department, became purchasing agent.

Asks Indefinite Rise

Los Angeles Railway Applies to State Railroad Commission for Rate to Yield Just Return

Application for an increase in fare was filed with the State Railroad Commission by the Los Angeles (Cal.) Railway on Aug. 20. The present rate is 5 cents. The application does not ask for a specific increase but asks that the commission "make such order, granting authority to the applicant to increase the rate of fare as will afford the applicant sufficient revenue to pay the cost of the transportation service which it renders the public." In this way it is left to the commission to decide what increased revenue the company must have to meet present obligations, and those of the future which the commission can foresee.

The commission is asked to resume the investigation of the Los Angeles Railway which it made last year and which led up to the rerouting of many lines and introduction of safety car service. It is pointed out in the application that while the last survey showed where economies could be effected, new factors which the commission could not then foresee have arisen and increased expense has more than wiped out the savings resulting from these economies.

It is stated that the cost of power has increased 27 per cent since the last survey was made and that it has been necessary to raise wages practically \$990,000 since Jan. 1, 1920. Prices of nearly all materials have been advanced substantially, the application states, and will be materially increased again by the rise in the interstate freight rates.

The application of the Los Angeles Railway follows the award of a 20 per cent increase to the Pacific Electric Railway, which operates interurban service out of Los Angeles and local service throughout the Hollywood district. The commission awarded the Pacific Electric a temporary 6-cent local fare and will make an investigation before announcing a permanent increase.

Still Fighting Kansas City Buses

Continuing its fight for the extermination of jitney competition with its electric lines, the Kansas City (Mo.) Railway is publishing from week to week in the *Railwayman* articles dealing with various aspects of the local railway situation in which it points out that bus traffic on the present scale makes the difference between profit and loss to the company. In a recent issue the company said:

Jitneys are taking away from this company approximately \$3,000 per day in revenues. As against 11,828,364 revenue passengers carried in June, 1917, the company in June, 1920, carried 10,656,374. In June of last year 580 cars were operated in the evening rush. Today 662 are operated, or an increase of 82 cars, or 14 per cent. Due to the system of turn-backs on through lines and because of the increase in scheduled speed, each car is today giving much more service than it gave a year ago. In other words, as against 580 cars in June, 1919,

700 are being run today on the same basis, showing an increase of 20 per cent in service.

Assuming that jitneys are making expenses and some profit, and this assumption must be correct or these individual would not continue in the business, the fact remains that transportation in Kansas City both for jitney and railway passengers is being furnished at a loss of \$3,000 per day. In other words, the investors in the Kansas City Railways are paying this amount daily in order to support the operation of jitneys. The unfairness and injustice of this is so apparent that we do not believe it can long continue in a city where fair play and the square deal is the basis of its industrial life, as is the case in Kansas City.

It is a situation that cannot continue indefinitely and which in the end must result either in the removal of jitney competition or in some readjustment of service and fares that will permit this company to exist. No one for a moment believes that Kansas City's transportation could be adequately furnished by a haphazard system of jitneys. The withdrawal of street railway service in the outlying portions of the city would result in deteriorating the value of property and homes millions of dollars.

The Kansas City Jitney Men's Association is investigating various types of motor buses with a view to standardizing vehicles used in bus traffic. The association aims to make the bus the chief means of surface transportation in Kansas City. As soon as the association has made its selection it plans to replace vehicles now in use with those of standardized type. It is reported that the investigators favor a double-deck, steam-driven bus seating fifty persons.

Transportation News Notes

Seven Cents in Winnipeg.—The Winnipeg (Man.) Electric Railway has been allowed by the Manitoba Public Utilities Commission to advance its fares to 7 cents, effective Sept. 1. Labor tickets are ordered abolished. The company was granted an increase of 25 per cent in gas rates, after an eighteen month struggle, which places it on a sound economic basis. The city is appealing the case. The company is now charging a 6-cent fare.

Interurban Raises City Fare.—Permission has been granted by the Wisconsin Railroad Commission to the Chicago, North Shore & Milwaukee Railroad, Highwood, Ill., under an order issued August 19, to increase the rate of fare on its line within the city of Milwaukee from 5 cents to 6 cents. The company gave the increased cost of coal and labor as the chief reasons for seeking an increase in fare. The higher rate was not opposed by the city authorities of Milwaukee, and has already become effective.

Ticket Withdrawal Meets Protest.—A petition signed by 1,000 residents of Winthrop, Mass., was filed with the State Department of Public Utilities as a protest against the elimination of reduced rate tickets on the Boston, Revere Beach & Lynn Railroad's narrow gauge line. Under recent order the de-

partment reduced the fare from Boston to Lynn from 20 cents to 10 cents, allowed the single fare of 10 cents to Winthrop to stand and abolished the commutation tickets formerly sold at the rate of ten rides for 85 cents.

Memphis Rise Takes Effect.—A cash fare of 7 cents took effect on the lines of the Memphis (Tenn.) Street Railway on Aug. 18. The new rate had previously been approved by Judge Cochran of the United States District Court. Based on the report of the receivers for the month of July, the increase in the fare will bring to the railway an additional revenue of approximately \$29,000 a month. T. H. Tutwiler, one of the receivers of the company, stated recently that the sale of tickets would result in a net increase in the rate of fare of between six-tenths and seven-tenths of a cent. The July report shows a deficit of more than \$17,000 under the 6-cent fare, which, according to the receivers, indicates that even under the new rate the report for August will not show a surplus above the cost of operating expenses.

Commutation Rates Increased.—The Rochester & Syracuse Railroad, under a tariff which it has filed with the Public Service Commission for the Second District of New York, effective on Sept. 6, will increase its rates for fifty-trip commutation and fifty-trip school commutation books for travel between the Rochester city line and the Syracuse city line and intermediate points from 1.5 cents to 2 cents a mile, minimum rate increased from \$6 to \$7 a book. Other changes proposed are: mileage books of 300 miles increased from \$7.50 to \$8.25 a book. Twenty-five strip book good between Rochester city line and East Rochester, increased from \$2 to \$2.50, and between the city line and stops 11 and 12 from \$2.40 to \$2.90 a book. Increases will also be made for carrying newspapers from 25 cents to 50 cents a hundred weight and for chartered cars.

Six-Cent Measure Passed.—A new franchise permitting the Ohio Valley Electric Railway, Huntington, W. Va., to raise the fare in the city to 6 cents was passed unanimously over the Mayor's veto on Aug. 13 by the City Council of Ironton, Ohio. Whether or not the decision will affect the situation in Huntington is uncertain. The Councilmen had investigated the fares of various cities before taking final action, and were of the opinion that the increase was just and reasonable. W. R. Power, general manager, stated some time ago that the company had taken up with the Huntington officials an increase in rates and that in the near future a petition would be filed with the Interstate Commerce Commission, at Washington, requesting permission to advance the fare. The petition has not yet been filed. The fare increase on the Ironton lines met with no opposition from the public or the press. The *Irontonian* commented favorably on the Council's action.

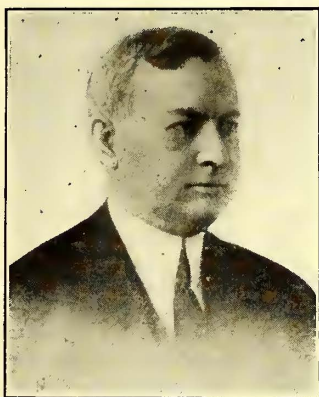
Personal Mention

F. L. Butler Steps Up

Becomes Manager of the Winnipeg Electric Railway Under Re-organization Plan

Several changes of importance have been made in the official personnel of the Winnipeg (Man.) Electric Railway. These changes have for their purpose the effecting of a more compact organization, in which the various departments are co-ordinated under the direction of A. W. McLimont as vice-president. This arrangement relieves Mr. McLimont of the more direct operating duties, enabling him to give his time more fully to administrative matters.

Frank L. Butler, heretofore general superintendent, becomes manager of the



F. L. BUTLER

system. In this capacity Mr. Butler will have complete charge of the operation and maintenance of the company's railway, light, power and gas properties and also of the subsidiary companies, the Suburban Rapid Transit Company and the Winnipeg, Selkirk & Lake Winnipeg Railway.

W. E. Blodgett has been appointed comptroller of the company in charge of all accounting matters. Mr. Blodgett has been serving as secretary-treasurer of the Utah Light & Traction Company, Salt Lake City, Utah. He succeeds A. R. Ross, resigned.

W. F. Edwards, traffic instructor, has been promoted to traffic superintendent. Mr. Edwards succeeds A. MacDonald, who has resigned because of ill health and has returned to Montreal.

An experience of more than twenty-five years in the operation of public service companies in the United States and Canada makes Mr. Butler well qualified for his new position. He began his career in 1894, when he entered the service of the Vandalia Railroad, now a part of the Pennsylvania Railroad lines. He remained with that

company in various capacities and at various points until 1909, when he resigned to become superintendent of the Denver & Inter-Mountain Railway, Denver, Colo. Later he was promoted to the position of vice-president and general manager of that property. He resigned on Sept. 1, 1911, to accept the position of general manager of the Alton, Jacksonville & Peoria Railway, which road was then under construction. Shortly thereafter he was appointed receiver of that railroad, and later completed the line as far as Jerseyville, Ill. In July, 1913, Mr. Butler was appointed general manager of the Chicago & West Towns Railway and the Suburban Railway, with headquarters in Chicago, Ill., and remained in charge of that property until April 1, 1918, when he accepted the position of general superintendent of the Winnipeg Electric Railway.

Mr. Schreiber, Division Manager

The Public Service Railway, Newark, N. J., announces changes for the Southern Division. William B. Graham, whose position as division superintendent will be abolished, will be transferred to a position on the general superintendent's staff at Newark. The new manager of the Southern Division will be Martin Schreiber, the present chief engineer of the railway. Robert A. McArthur will be superintendent of transportation for the Southern Division and John T. Torbert and William G. Scheiner will be made assistant superintendents. William Matlack will be supervisor. James M. Symington will be transferred from Camden to succeed Mr. McArthur at Newark.

William H. Wright will be given the title of superintendent of distribution, while J. Walter Wright will be made superintendent of maintenance of way. John Hanf will be master mechanic instead of division master mechanic. The changes will go into effect on Sept. 1. The Southern Division comprises the territory around Camden.

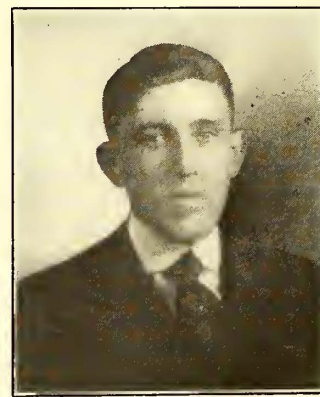
F. P. Edinger has been appointed superintendent of transportation of the Chicago (Ill.) Surface Lines. Mr. Edinger has been serving as acting superintendent of transportation since last February, when Henry A. Blair took control of the company's affairs as president. Mr. Edinger has been with the transportation department of the Chicago Railways and its subsidiaries since 1893. He began his career as a conductor and, working up through the transportation department, became superintendent of one of the North Side districts. In 1914, at the time of the unification of the Surface Lines, he was placed in charge of the Sixth division.

W. F. Collins at Rochester

Announcement Made of Appointment of Transportation Engineer Under Service-at-Cost Grant

Plans are rapidly being developed to put into effect all the conditions sought to be imposed under the new service-at-cost franchise under which the New York State Railways, Rochester Lines, will operate. One of the first moves by the city was the appointment of Charles R. Barnes as city street railway commissioner. Now comes the announcement of the appointment of the assistant to Mr. Barnes with the title of transportation engineer.

Willis F. Collins is the appointee. He is a young man who has been reared in an atmosphere of railroading, being the son of W. H. Collins, general manager of the Fonda, Johnstown & Gloversville Railroad. The natural aptitude of the younger Mr. Collins for things mechanical was rounded out by attendance at Rensselaer Polytechnic Institute, of which he is a graduate, and by varied experience in electrical



W. F. COLLINS

and railway work obtained while in the service of the General Electric Company on construction and installation work.

From the engineering side Mr. Collins branched out into the problems of management of electric railways, starting in a minor capacity and advancing to be superintendent of transportation of the Newport News & Hampton Railway, Gas & Electric Company, Hampton, Va. It was under the supervision of John N. Shannahan that the abolition of the physical properties of this company was carried out, and while the work of Mr. Collins had primarily to do with the railway operations of that company, still an opportunity was afforded to him for the collateral study of problems of the gas and electric industry, which a combined property such as that at Hampton affords. Mr. Collins has already left Hampton to enter upon his new duties.

Mr. Collins will be the right-hand man to Mr. Barnes. He will be responsible for keeping the railway commissioner informed as to operating conditions.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Lower Cotton Not Affecting Electrical Goods

Price of Raw Material Is Frequently a Small Factor in Ultimate Cost

Despite recent drops in the price of cotton electrical products containing this material have not yet generally declined in price. About the only drop of importance has been a considerable reduction about Aug. 15 in the price of some lines of cotton insulating tape and webbing. In general the reasons for the firmness are the excellent demand, the large number of unfilled back orders, the high labor cost and the fact that the price of cotton is a small part of the cost of finished products. Another reason is that the spinning mills still have some 40-cent cotton with which they are filling orders placed some time ago.

In the matter of cotton insulating tape, which is more directly dependent on the price of cotton than other electrical products, there was in some cases a notable drop in price about the middle of August.

The demand for cotton insulating

tape is just ahead of the supply, though deliveries are not longer than one month. The thinner grades are harder to get as the fine yarns are scarce. Cotton-sleeving deliveries are made in two to six months. There is a very heavy demand for this material, which cannot be met by the mills because of a scarcity of sleeving machinery.

Friction tape is more plentiful than it has been for some time and immediate deliveries can usually be made. No changes in price are reported.

The fine yarns used on magnet wire are difficult to obtain; consequently there is some scarcity of this material and prices are firm. Stocks of non-metallic flexible conduit are in good shape and the demand is fair. Prices are holding firm.

Cloth manufacturers are hoping for still lower cotton, crop prospects are good and there is talk of heavy cancellations by tire manufacturers, who use an enormous amount of cotton fabrics, but in spite of these factors manufacturers of electrical material whose basis is cotton state that present prices will continue to hold firm for several months.

In the steam railroad field the state of Nigeria has bought 20,000 tons of rails which the United States government intended for use in France during the war, and 11,000 tons have also been purchased from the same source by the Swedish State Railways.

Nor is continental Europe the only active foreign market for rail production here, as South America is also showing great interest. One of the recent inquiries is from the Brazilian government, which is asking for bids here on 13,000 tons of 50-lb. rails.

Railway Motor Deliveries Excellent

Demand Continues Quiet, but Inquiries Are Active and Prices Holding Firm

Railway motor sales are running relatively low in volume at present, although the business being booked by some manufacturers appears to be somewhat above that of a year ago at this time. The safety car motor continues to rank as the season's "best seller," and interest in this standardized product grows with each passing month. Inquiries are received from a good many of the smaller operating companies, and if their financial needs were less acute there is no question that many more orders for these motors would be soon forthcoming from these companies. Notwithstanding recent price increases of 10 to 15 per cent that were announced by various leading makers of polyphase and direct-current motors, railway motor quotations are still holding steady at late levels. On account of difficulties recently experienced in securing raw materials, however, and fluctuating conditions that exist in manufacturing plants generally, it is customary in representative motor sales to present factory quotations only, but while these are being made up for each representative order booked in typical cases, there can be seen no disposition to mark up prices further at the present time.

Deliveries on safety car motors are being quoted now at about three months for the completion of the order, initial shipments beginning in from twenty-one to thirty days after the signing of the contract. Motors of larger size and varied type, such as are required in four-motor car equipments, are quoted about four weeks longer than the safety car outfits. The advantages of standardization and hence of mass production are thus

Strong Market for Steel Rails Abroad

Mills Are Already Well Booked Up and Electric Railways May Find Difficulty in Placing Orders for Future Needs

In view of the needed repairs to worn-out railway equipment that are now expected to be made as the result of the financial relief that has been granted to steam railroads, a heavier buying movement of steel rails is anticipated. This circumstance, in connection with the strongly increasing demand for rails that exists abroad, should more than take care of the output of domestic mills for some time to come, it is thought. In fact, few of the rail makers in the Pittsburgh district are taking any orders for shipments this year, as many of them have more than sufficient business booked for the remainder of the year and are practically out of the market.

Hence it seems logical to draw the conclusion that purchasing agents of electric railways who must enter the market for rails would do well to anticipate their needs long in advance so as not to be left in the lurch with their orders. The growing volume of rails exported is an especially important factor in the situation. The total figures of 553,860 gross tons of steel rails exported for the fiscal year ended June

30, 1920, do not compare very favorably with the total of 621,728 tons in 1919 it is true, but the increase in recent inquiries from abroad is significant.

The city of Glasgow, Scotland, a short time ago awarded a contract of 10,000 tons of steel rails at a total cost of about £250,000 to an American firm, and the offer of the latter was almost £4 10s. per ton lower than the best British bid. The price paid for the rails to the American firm, according to advices from abroad, was £24 10s. a ton. Egypt is also in the market for rails, and the surveyor general of that country has invited American firms to submit bids for immediate or future delivery, on same footing with British mills.

Italy is in dire need of grooved rails for the traction companies of her cities, as production there is wholly inadequate to cope with the demand, and the former sources of supply in Belgium, France and Germany are temporarily closed. As soon as the rate of exchange, which is now so heavily unfavorable to Italy, improves, a strong demand for American rails is expected to materialize there.

realized by the manufacturer and purchaser alike. The raw material situation is somewhat improved at present, chiefly as a result of the resumption of work in the brass and copper industry, following the end of unsuccessful labor agitation. Stocks of motors are running pretty low at present, and the "floating" reservoirs of motors maintained at car builders' plants are not up to previous levels. Very little spare part ordering is being handled at this time, but a good deal of this business is expected in the coming winter.

Electrical manufacturers are finding the completion of control equipment the chief difficulty in filling motor orders. The disturbed transportation conditions have upset the supply of numerous comparatively small parts and fittings, and labor troubles have played their part in delaying the completion of orders for such outfits. Some of the trolley systems in the medium-sized cities within fairly easy reach of the electrical factories are picking up financially, and there is good ground for optimism in regard to future business from roads which are getting on a better monetary basis. The further development of express car service should result in increased motor sales, notwithstanding the singular policy adopted by one large operating company of doing away with this branch of its transportation functions.

Small Prospect of Relief in Rigid Conduit Supply

Some Factories Forced to Close as Result of Car Shortage and Inability to Obtain Pipe

Reports received from the metropolitan territory on the rigid-conduit situation within the past couple of weeks may, according to representative manufacturers, give an erroneous impression of the true general market condition of this material. A curious situation exists in that while the supply of conduit for New York and certain points to the south has somewhat improved, the general situation throughout the rest of the country apparently shows little betterment. This is only natural when the true significance of the improved supply in these instances is understood.

According to representative manufacturers of conduit, the transportation situation as it affects them is very little, if any, better. Added to this circumstance is the dwindling supply of pipe that has for some time past been available for the manufacture of conduit. Steel mills attribute the shortage to their inability to get cars for shipping their product to the makers of conduit. One of the latter has received no pipe for a month and a half, and another manufacturer has received no recent supplies except by boat. As a result of this lack of raw material caused by the car shortage, one of the large makers of conduit has ceased pro-

duction during the past two weeks and another company has not turned out any conduit in over a week.

Prior to this, however, stocks of finished conduit had accumulated at the mills awaiting cars to carry it away, but a system of embargoes that was placed upon producers in the Middle West made it very difficult to move their product. At one time a permit was even necessary to ship the material. Recently, however, the situation has been relieved to the extent that shipments can be made to certain territory in the East and some points southward in a little better shape, although the car shortage continues and the rest of the country remains almost as restricted in its supply as before. Consequently, with the outlet to their market restricted, conduit manufacturers have shipped their product in large quantities to the metropolitan district, creating a misleading impression that conduit is becoming very plentiful. This condition would seem to be but temporary, however, inasmuch as manufacturers say the unusual flow of conduit into the favored territory will cease as soon as freight conditions improve generally.

Regarding the general market for conduit over the country, no let-up in the insistent demand has as yet appeared, and in distant places like Cuba a condition of absolute famine prevails. New orders are accepted with no promise as to date of delivery and with price quoted in effect at time of shipment. Back orders have in some cases piled up sufficient to absorb production for nearly a year to come. The large labor turnover found among the many foreigners employed in this industry is a further source of inconvenience.

In spite of these factors, prices have generally remained firm, but some producers hold to the opinion that an advance may be necessary owing to the increased freight rates.

Demand for Bare Copper Wire Not Extra Heavy

Drawing Process and Shortage of Fuel and Cars Are Impeding Deliveries

Although raw copper is in an easy position and copper rods are plentiful, the supply of bare wire has suffered from unfavorable conditions of manufacture. Chief among the latter are insufficient supplies of fuel and a shortage of cars. Labor has also caused some concern, for though no strikes have been experienced recently it is reported that a certain indifferent attitude in the past has materially reduced the output of work per man. Some improvement in that respect is now noticed, however. Production is in most cases close to normal, although a few wire manufacturers report a subnormal output. The operation of drawing the wire seems to be causing some delay, as manufacturing facilities have not in-

creased as did demand during the war. Consequently the finer sizes of copper wire are much the hardest to obtain.

ELECTRIC RAILWAY BUYING IS LIGHT

Demand at present is not exceptionally heavy, and in several quarters it is said to be slackening. Foreign demand is also decidedly off and seems likely to remain so until exchange rates improve. The increase in freight rates granted to steam railroads, however, is expected to result in large orders on their part, but this buying has not yet begun to materialize. Electric railways are not heavy purchasers of copper wire at present, nor have they been for some time past, because financial relief in the form of rate increases seems to be necessary before appreciable orders can be expected from that quarter. One of the reasons why bare copper wire has not been as plentiful as might be expected is the very large call which exists for insulated wire. This demand has been so great that much of the bare copper wire which would normally supply the market has been insulated to meet the demand which exists for the covered wire. Consequently, in order to safeguard their needs, some consumers largely overbought and pyramided their orders, with the result of eventually causing demand to slow up as is now happening. Some few cancellations are reported as the result of this inflation of orders.

Producers seem to be optimistic about the future volume of business, for transportation is easing up slightly, and many new projects long held up by freight difficulties are expected to go forward. Some wire makers believe the price of copper, and hence of wire, must advance and not decrease, in view of the estimated increase of a cent per pound in the cost of transportation of copper. Still others hold that no price increase is possible until foreign demand once more makes itself strongly felt here. One of the leading producers is quoting copper wire on a 22½-cent base.

Deliveries are slightly improved. One of the largest buyers of copper wire, who was formerly unable to obtain supplies under six to ten weeks, is now securing deliveries in from ten days to three weeks. This is apparently not a representative case, however, as in general manufacturers are quoting about six to eight weeks' delivery.

Rolling Stock

Detroit United Railway, Detroit, Mich., states that its car construction program for the coming year contemplates the building of 150 new motor and trail cars, for which material is being ordered. This program is to be carried on independently of any cars which may be purchased from outside manufacturers. Several of the new motor cars will be of the Peter Witt center-entrance type. Since the be-

ginning of this year, 65 new motor and trail cars have been built by the company in its shops, and by Jan. 1, 1921, it is expected that at least 35 more cars will have been completed and added to the service, making a total of 100 or more new cars for the year.

Franchises

Pacific Electric Railway, Los Angeles, Cal.—The Pacific Electric Railway has been granted a franchise for the construction of a single spur track connecting with the company's line in Santa Monica Boulevard, Los Angeles County.

Springfield (Mass.) Street Railway.—The Springfield Street Railway has been granted franchises for the building of its East Springfield-Indian Orchard extensions. New lines are to be laid from Liberty Street to Page Boulevard, and on Page Boulevard, from the turnout east of the Westinghouse plant to Berkshire Street. Relocations are provided on St. James Avenue. Several relocations are to be made, which call for the construction of long turnouts and considerable double-tracking.

Track and Roadway

Rhode Island Company, Providence, R. I.—The Rhode Island Company is laying new rails on its Oaklawn line beyond Meshanticut.

Pacific Electric Railway, Los Angeles, Cal.—The Pacific Electric Railway is making plans for the building of a subway from the Hill Street station to Figueroa Street.

Eastern Massachusetts Street Railway, Boston, Mass.—The Eastern Massachusetts Street Railway is double-tracking its line in Boston Street, Lynn.

Pacific Electric Railway, Los Angeles, Cal.—The Pacific Electric Railway proposes to construct an overhead trestle crossing its tracks at Atlantic Avenue and Newport Street, Long Beach.

Jacksonville (Fla.) Traction Company—The Jacksonville Traction Company proposes to build an electric railway extension in Monroe Street from Broad to Clay to connect with the Clay Street line.

Springfield (Mass.) Street Railway—The Springfield Street Railway has begun work on an electric railway extension in Carew Street, Springfield. The line will run through Carew Street from Chestnut Street, to connect with the company's Liberty Street line.

United Railroads of San Francisco, Cal.—The United Railroads is installing a loop at Fourth and Market Streets to permit a turnback service on the Market Street line. The Municipal Railway of San Francisco is making a similar installation.

Trade Notes

The American Welding Society now has a Chicago section, which was organized on Aug. 3 at the rooms of the Western Society of Engineers, in that city, where meetings will be held on the second Tuesday of each month.

The Leeds & Northrup Company, 4901 Stenton Ave., Philadelphia, Pa., manufacturer of electrical measuring instruments, has purchased property totaling about three acres on Germantown Avenue, for the erection of a new plant. The consideration is stated to be about \$35,000.

The Franklin Moore Company, Winsted, Conn., manufacturer of electric hoists, small electric cranes, etc., has appointed William C. Briggs vice-president in charge of manufacturing. Mr. Briggs was formerly sales engineer and New York manager for the Shepard Electric Crane & Hoist Company, Montour Falls, N. Y.

The Lehigh Portland Cement Company, Allentown, Pa., has secured a tract of 450 acres on the outskirts of Birmingham, Ala., and announces the early building of a 1,000,000 barrel plant as the initial unit, at an estimated cost of \$3,000,000. The location is contiguous to the Alabama By-Products Company, from which by-product gas will be used as fuel if found advantageous.

J. J. Costello, formerly sales engineer with James C. Barr, Boston, Mass., has established offices at 201 Devonshire Street, Boston, where he will represent the Lewis & Roth Corporation, Philadelphia, manufacturers of high-tension devices and power plant specialties, and will also handle the New England sales for the Cutter Company, Philadelphia, manufacturers of the I-T-E line of circuit breakers and other equipment.

A. E. Roberts, formerly vice-president and general manager of the Hedden Iron Construction Company, Newark, N. J., has been elected first vice-president of the Milliken Brothers Manufacturing Company, Woolworth Building, New York City, manufacturer of radio towers, transmission towers, fabricated all-steel buildings for electrical service, etc. He will be in charge of the New York office and direct all matters pertaining to sales.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has introduced an Insurance and Savings plan to which 90 per cent of its employees have subscribed. An employee after six months' service with the company is given a \$500 life insurance policy free, and by depositing at least 2 per cent of his earnings in the Employee's Savings Fund, additional insurance of from \$500 to \$1,500 may be secured, depending upon the length of service. The savings fund pays 4½ per cent interest on all deposits.

The Black & Decker Manufacturing Company, Baltimore, Md., announces that it has sent a letter to all jobbers handling its line, stating that there will be no reduction in prices this year, and that, starting Jan. 1, 1921, the company will protect its jobbers against loss through price reductions for sixty days after the purchase of goods. The letter says, however that if conditions make a reduction possible, it will be made promptly so as to give the ultimate purchaser the benefit, and the company will absorb any loss which would otherwise be caused the jobber who bought within sixty days before the change in price.

The Sprague Electric Works, 527 West 34th St., New York, N. Y., has a new factory at Maspeth, L. I. It is a two-story building of approximately 100,000 sq. ft. In addition there is a two-story structure containing about 12,000 sq. ft. which will be used for the New York district sales warehouse. Work is to be started at once on a warehouse containing about 19,000 sq. ft., and another small warehouse 100 ft. x 15 ft. for the storage of rigid conduit.

New Advertising Literature

Fuses.—E. W. Snow & Company, Rochester, N. Y., are circulating catalog No. 15, covering their different types of inclosed electric fuses.

Instruments.—“A Few Simple Methods of D. C. Testing in Routine Practice” is the subject of bulletin No. 13, recently published by the Pyroelectric Instrument Company, 636 East State Street, Trenton, N. J.

Power Plant Devices.—The Yarnell-Waring Company Chestnut Hill, Philadelphia, Pa., has issued folder No. G 1301, covering the Yarway devices for modern power plants, and booklet No. B 410, describing different types of the Yarway blow-off valves.

The Canton Culvert & Silo Company, Canton, Ohio, has just issued a new catalog on Acme Nestable Corrugated Culverts. Information regarding use and shipment is given, together with tables of the safe load in pounds per square foot.

Devices for Conduit Connections.—“Spraguelets” is the title of a small booklet issued by the Sprague Electric Company, New York City, covering its Spraguelet devices for conduit connections. The company is also distributing a booklet entitled “The Universal Key,” “a cross-reference for matching any standard wiring device to any desired box and cover.”

Gages.—The Schaeffer & Budenberg Manufacturing Company, Brooklyn, N. Y., has issued catalog sections No. 1, 50 and 75, covering its pressure, vacuum and draft, gages and gage testers; also a preliminary bulletin describing its hand and stationary tachometers.