

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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Cock-and-Bull Story Starts Strike in Brooklyn

THE facts elicited at the hearing before the New York Public Service Commission on Tuesday of this week clearly show the haphazard way in which the present strike in Brooklyn was called. A meeting attended by some 3,000 employees is held early Saturday evening and adjourns after a "no-strike" vote is taken. A later gathering, held shortly after the ghostly hour of midnight and attended by a smaller number of employees who were unable to be present at the first meeting, becomes excited over a mysterious story that the company had declared a lockout of its power station men, and declares a strike. The legend about the lockout is found later to have no foundation, but the evil has been done and a transportation system which is practically essential to a community of some 2,000,000 inhabitants is seriously crippled. Events like this do not enhance the prestige of the labor organization in control in Brooklyn, nor do the extortionate demands of the men, which, according to Receiver Garrison, would require the company to pay out for wages more than the gross receipts. They also emphasize the importance of some means by which strikes in public utilities would be impossible.

Wages Determined by Supply and Demand

THE Nebraska State Railway Commission has taken action which it appears to us is a departure from anything previously done by regulating commissions in that it has acted upon the question of wages to employees of a public utility. As indicated in our news columns last week, the commission argues in its order in the Omaha & Council Bluffs Street Railway Company wage controversy that the Nebraska Constitution permits the commission to assume jurisdiction in wages on the theory that the wage determines the number of men who will be attracted to this employment, and that this fact, in turn, affects the service of the company, over which the State Railway Commission admittedly has jurisdiction.

On this basis the commission justifies itself in neglecting all consideration of cost of living and wage standards, open shop and unions. It does, however, state that there is "no place for a strike in the public economy of a state that has provided for regulations."

The hearing was not an arbitration. The conclusion reached after investigating various other similar lines of work was that the wage paid is sufficient to attract suitable men and that, if this is so, service is insured and the commission's duty ends.

We wonder if this is not in line with the "principles of ordinary economic and business common sense" recommended by the Federal commission in its recent report. According to Einstein's theory of relativity, how do we know anything is so unless it is referred

to something else? Likewise, how can we determine a fair wage unless we have something to refer it to? And what better comparison can we make than by seeing whether a given wage attracts the necessary numbers of men of satisfactory qualifications? A similar proposal has been made with reference to determining the proper return to capital.

True, there may be pitfalls in such arguments applied to public utilities, and we would not neglect the effort made to improve living conditions for all. But our present labored means of determining both reward to labor and return to capital are surely somewhat artificial, and it is refreshing to anticipate relations based on natural economic laws.

Report Is Favorably Received and Will Prove Beneficial

BELIEVING that the industry would be interested in obtaining the views of a number of railway men in different parts of the country this paper has attempted to make a quick canvass, quite difficult in this vacation season, and a few representative views are published elsewhere in this issue. We hope to publish others later and invite contributions and discussions on this important report.

The views already secured show general unanimity on the value placed by the industry upon the work of the commission, and we might add that the general sentiment in the daily press is in line with this view. It is of interest and value to note that every one urges full publicity and welcomes the report as an opportunity to get the facts of the situation adequately portrayed to the public.

We hope indeed that the report will mark a turning point in the history of the industry. The electric railway has been termed the "sick man of business," and while this report shows clearly that the patient has been suffering from a variety of causes, it proves with equal definiteness that he is worth saving.

He is organically sound and is capable of doing work which no other agency is able to perform. Yet in some respects the treatment recommended is a severe one if credit, which the commission says is one of the two serious needs of the industry today, is to be re-established.

For instance, at one point the report says 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." But it also says that "no permanent solution of the electric railway question can be found in the absence of a finding of value for rate-making purposes" and that "the valuation, when once fixed as the basis for the financial return of the company, should logically come to affect the amount of capitalization," and that the company "should voluntarily reduce any excessive capitalization to conform to such valuation as may have been determined upon."

Although a logical argument can be built up in defence of a capitalization independent and not directly related to valuation, we believe that the position taken by the Federal Electric Railways Commission on this point is a sound one. Such a policy, we realize, will bear hard on some companies. To continue the metaphor already used, in their cases the sickness calls for a major operation. But even with them we believe that this course is better than a continuation of the present situation. They are not earning now a fair return on their value, and while this value may not be as large as their capitalization, the two approximate much more closely, we believe, than the public as a whole realizes. We are not referring to this phase of the report because it is of the most importance, for there are many other recommendations which have a much stronger bearing upon successful operation. We are mentioning it because it is part of the program recommended by the commission which is largely in the hands of the companies.

Broadly speaking, the establishment of official values for the various electric railway systems, the abolition of high taxes and other non-railway imposts like paving, and the grant of a rate of fare under which a fair return would be earned on the valuations officially established would be a great boon to the railways and to the communities served by them. It would mean that a necessary system of transportation would be continued under circumstances which would warrant its expansion and improvement according to the needs of the public.

Municipal Ownership Not Considered the Logical Solution

AN INTERESTING and instructive aftermath to the publication of the report has been the statement distributed by Dr. Delos F. Wilcox and mentioned on another page of this issue. It will be remembered that after accumulating a vast amount of testimony and data the commission secured the services of Dr. Wilcox to digest and analyze this testimony. This analysis was made by him, and, in his opinion, pointed to municipal ownership as the logical solution of the electric railway problem. Hence he included in his analysis a recommendation to this effect. The commission commended the analysis and adopted, as part of its report, some of the statements contained in it, but when it came to deductions from the facts the commission made certain recommendations which differ from those of Dr. Wilcox and with which he strongly disagrees. Without expressing any opinion in the case, we believe these are the facts.

Dr. Wilcox says that the commission declares both municipal ownership and service-at-cost are experimental and that it chooses the latter while he chooses the former. As we analyze the situation, it is not quite so simple as that. The commission, viewing the matter from the national standpoint, and it must be remembered that five of its eight members were appointed as representatives of the public, believes that the testimony and facts indicate that greatest usefulness to the public will result from a continuation of private operation and that the service-at-cost arrangement will probably prove one very useful means of establishing a satisfactory basis for this. It does suggest that any steps taken now should not impede the public in taking over the industry, should it so desire. But there are

many problems, more pressing, if not more fundamental, to which energies may well first be directed.

As to the publication of Dr. Wilcox's study, it is to be regretted that funds have not been made available for its publication. If it is a "masterful analysis," it would save the time of every one desiring to digest the testimony. But it is doubtful if the effectiveness of the commission's report has been decreased by the fact that this analysis was not published by the commission.

Fare Is Not the Only Factor Which Affects Riding

VARIOUS conclusions are drawn from time to time as to the effect of changes in fare on riding, based on a comparison of the number of passengers carried during a certain period before and after the fare was increased. There is no doubt that the rate of fare affects riding, but it is only one of many causes, some more important than others. It would certainly be erroneous for any one to assume that changes in fare are the only or even the controlling influence which affects riding.

Some other factors are: (1) Headway of cars; (2) speed of cars; (3) comfort, etc., of cars; (4) courtesy, etc., of employees; (5) popularity of management; (6) weather; (7) general industrial activity of community; (8) general industrial activity of certain sections of the city with large traffic requirements; (9) population; (10) prosperity of community; (11) trackage in service; (12) competition from public and private automobiles.

We also want to warn electric railway statisticians of the danger of too readily accepting as still true the old rule that an annual increment in passengers of from 3 to 5 per cent might be expected, so long as no changes are made in fares. This rule was based on the theory that as the population increased from 10 to 20 per cent during the ten-year period, or from 1 to 2 per cent per annum, the riding would increase in even greater proportion. This, indeed, was the experience on American city properties for many years. It was during a time, however, when the length of line was constantly being increased by the construction of extensions and other track facilities. It is quite probable that these extensions had as much, or more, to do with the increase in traffic as did the increase in the population. Where there has been no increase in track, as during the last few years, it is unsafe to expect a large increase in riding even with an increase in population.

This Valuation Will Possess Special Interest

THE much-valued Public Service Railway Company of New Jersey is to be valued once again and it is to be hoped that the results this time will constitute a forward step in valuation theory and practice. As has already been noted, the engineers, Ford, Bacon & Davis, employed to make the valuation under the recent law are empowered to determine the "value" of "all the property, including every proper and lawful element thereof." No restriction, other than being required to use and consider all data collected in previous studies, is imposed on the engineers, and no definition of value is laid down. It is then the law that the "value" thus determined "shall be admitted as evidence in courts and shall be evidence of facts therein contained" as if "the

same had been produced and proved" and "shall be accepted by the Public Utilities Commission as the value of said property . . . in any rate proceeding . . . to the extent that the value of the property is a factor in the fixing of a rate."

What view the United States Supreme Court might take of the value as determined in this manner or under this law is somewhat problematical, to say the least. But it appears to us that the very uncertainty of the attitude which various authorities and critics may take affords an opportunity to as well as imposes a duty upon the engineers.

The opportunity is to give authority to such sound and logical developments of valuation practice as have been made by the engineering profession in the intensive study that has been given to this subject in the past ten years. The duty lies in selecting and presenting such developments with conservatism and force. In this valuation by such a process there will not be opportunity for having widely varying figures set down side by side to beget confusion and unending debate. It is hoped that the standards adopted will be so clearly and fully set forth that commissions and courts can compare or reconcile them with their own interpretation. And it is further hoped that the electric railway industry as well as all other public utilities will out of this proceeding secure some firm ground to stand upon in answering the question as to what their property consists of and what it is worth.

Cheap Power Is a Transportation Essential, but—

WE SYMPATHIZE with the railway power superintendent these days; he is up against a difficult proposition and has no commission or board of arbitration to help him out. His only joy lies in the fact that fuel cannot protest audibly, no matter how it is treated. Coal prices are out of sight and any kind of black dirt goes. Powerhouse organizations are still suffering from the disruption caused by the war, and the present labor is expensive, green and unskilled when compared to pre-war labor. Power-house equipment has depreciated and become obsolete because no money for maintenance or renewal has been available. Load curves are being affected and not always improved by attempts to lower outside operating costs.

The general manager calls up the power man and says, "Look here, in 1914 you operated on 3 lb. of coal per kilowatt-hour and now you use 4 or 5; get busy, for we haven't got the money." We haven't heard very much about the power superintendent's problem, although we have heard more than a few whispers about fuel prices and platform labor costs. He has not kicked or whined, but has gone ahead, "sawed wood" and produced power by any and every means at his disposal in spite of adverse conditions.

By way of contrast, think of the golden days of the past with \$3 coal—real coal from one group of mines, clean, uniform and furnished on a B.t.u. basis; think of the skilled personnel and competent but cheap labor then available, of the comparatively new and well-maintained equipment. These good old times are gone, and we must adjust ourselves to the new conditions. Coal will never be back at the old figure, old equipment will never be new, the world-renowned American firemen and stationary engineers are being replaced by automatic machinery and unskilled foreign labor. These

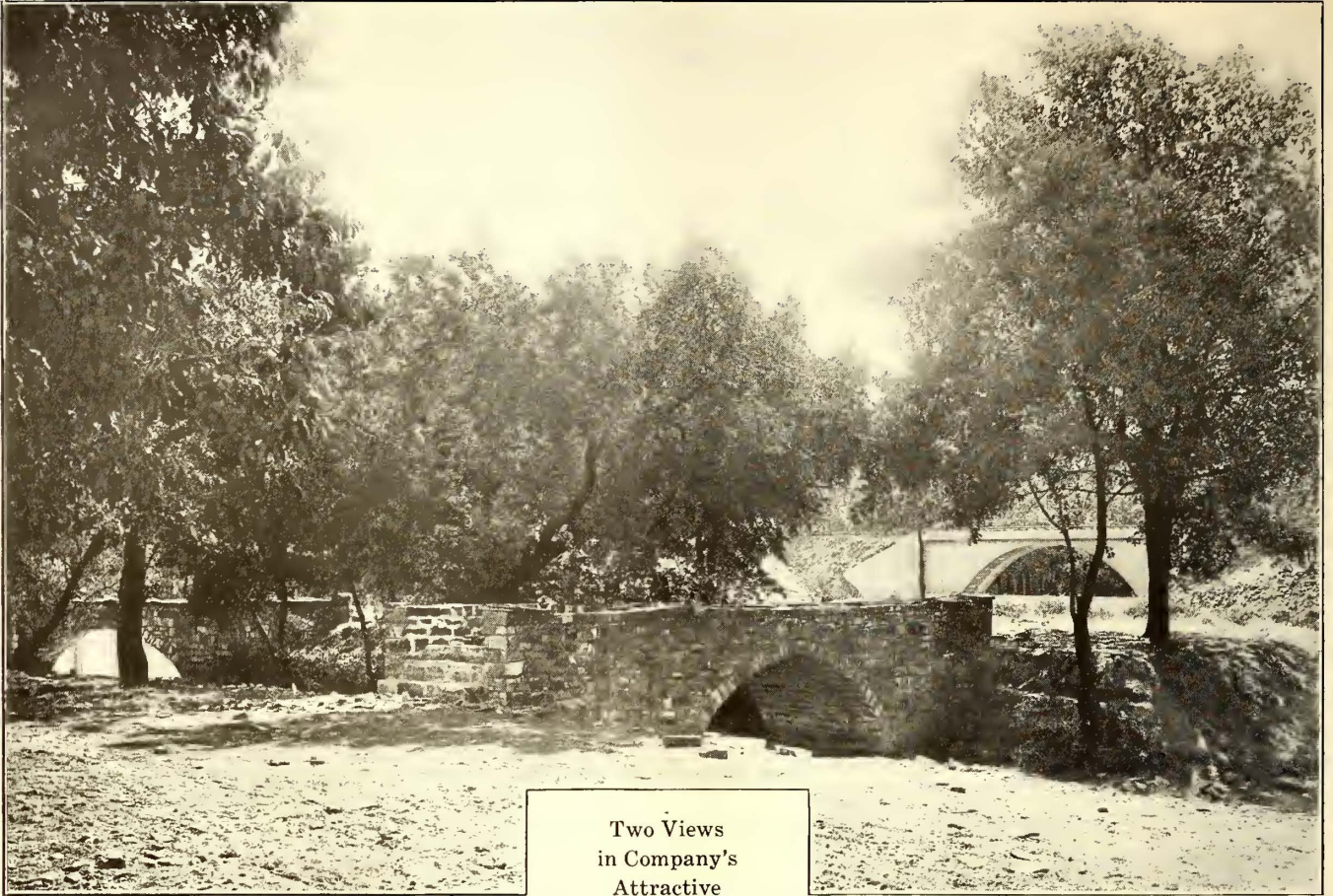
elements tend to make power more expensive and scarcer every day.

Nevertheless, cheap power in plenty is an essential to electric transportation. What can be done to insure it? Of course, concentrated power production in modern high-pressure plants, load-factor improvement through interconnection of systems, etc., are factors in the economic solution of the problem. Developments are occurring along lines that prove these elements to be the ultimate solution. But such things take time and money and we are facing existing conditions. Nevertheless, great improvements can be obtained right now in existing plants at an expenditure of a little time and a little money, and a dollar saved is a dollar earned, without dwelling on the fact that coal is difficult to obtain at any price.

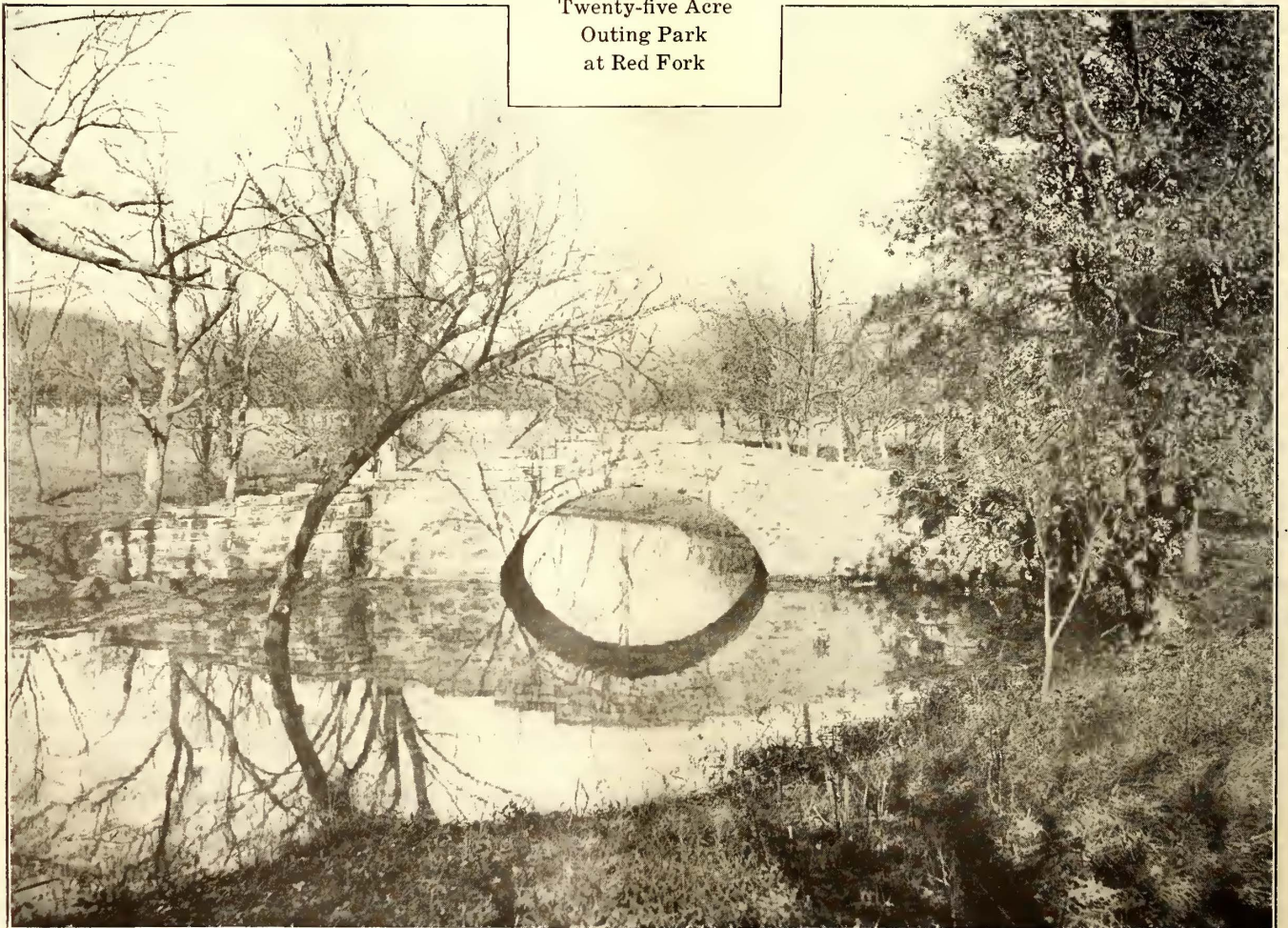
In the first place there is opportunity for improvement in operating efficiencies. Poor but cheap coal, old equipment, automatic machinery and an unskilled but expensive personnel are elements that indicate the need for competent direction in power production. A combustion engineer with efficient auxiliary and control apparatus can therefore be of great value in a railway power plant. There is no longer any need for guesswork in steam production—any fuel can be burned in any equipment in the one proper manner through the application of engineering skill to existing apparatus, fuel and personnel. Put a competent combustion engineer in the boiler room, give him the necessary meters and control apparatus to enable him to care for the changing fuel and operating conditions and he will produce results and maintain efficient combustion conditions at all times with the existing equipment.

The power-plant superintendent can appreciably lower power costs through a more intensive study of the economies that can be obtained by properly scheduling and forcing boilers, by properly using and grouping existing turbines, engines and auxiliaries, by attempting to maintain a continuous economic heat balance and by intelligent interconnection with other power plants. He should have time and opportunity to study possible operating improvements in connection with steam production and utilization under existing conditions. If he can show that junking some equipment and installing new will pay a good return, he should be allowed to do it. If he wishes to remodel the auxiliary system or the excitation system to yield more economical results the management should permit such action. If stokers, automatic controls and regulators, new tubes, water and steam meters and new types of auxiliary apparatus are needed to enable him to know, not guess, how he is operating, he should have what he needs. Money spent thus may be as useful in lowering costs as in doing such other desirable things as buying safety cars, rerouting cars, adopting skip stops, using trailers, etc. Less money needs to be spent in the power house for beneficial financial results than in any other part of the system.

Railway managements have been so harassed by platform labor, financial and fare troubles recently that they have possibly been lax in their attention to the power plant during recent years. It is a managerial function to deal with all elements of cost, and the economic production of power under existing conditions requires broad vision and real engineering skill. Railways can neither afford to burn black diamonds ignorantly nor to throw away steam by inadequate use. Conditions change in the power plant as well as in the outside plant and what is, is not always right.



Two Views
in Company's
Attractive
Twenty-five Acre
Outing Park
at Red Fork



New Interurban Railway in Oklahoma

Serves Activities of Prosperous Oil Fields—Built Cross-Country, with 2-Deg. Curves and .1 per Cent Maximum Grade and Concrete Bridges Designed for Heavy Loads, Looking to Future Freight Business

THROUGH the center of the oil fields to the south of Tulsa, Okla., a new interurban property has been built and its operation is now well under way. It runs from Tulsa southwest through West Tulsa and Red Fork to Sapulpa, Okla., a distance of 14 miles, where it connects with the Sapulpa Electric Interurban Railway. This latter line runs from Sapulpa south-east through the old Glenn Pool oil field, which is almost a forest of derricks, to Kiefer, Okla., a distance of 5 miles. This older line is controlled by the same interests, and while the present service does not include through cars from Tulsa to Kiefer, this is contemplated for the future, and at present the cars of the two lines meet on regular schedule for transfer of through passengers at Sapulpa.

Tulsa is a flourishing city of some 80,000 people—a beautiful, almost entirely new city, whose inhabitants are nearly 100 per cent engaged in the oil industry, or are farmers who have been retired to ease and luxury through the good fortune of the discovery of oil on their own or adjacent land. Sapulpa is similarly an oil city, but in addition it is a division point of the Frisco Railroad and the home of several large glass works and other industries. It has a population of 18,000. Kiefer is a small town of 2,000 in the heart of the oil field, whose inhabitants are the real workers in the production of petroleum. There is plenty of ready money in these communities, particularly in Tulsa, the new interurban line herein discussed having been entirely financed by local people. No bonds were sold.

Construction of the new line between Tulsa and Sapulpa was begun in January, 1917, and first operation started in October, 1918, under the corporation name of the Oklahoma Union Railway, which had previously acquired the property of the Sapulpa Electric Interurban Railway between Sapulpa and Kiefer and the local lines in Tulsa of the Tulsa Traction Company, which has 4.2 single-track miles of line. The entire property comprises 27.2 single-track miles of line, all of which is now under the general management of R. V. Miller.

The need for the new line grew out of the activities in the oil fields, which demanded a frequent means of transportation between Tulsa and the oil fields to the south.

Evidence of this demand is afforded in the accompanying table of gross earnings, which covers the total city and interurban lines, exclusive of the older Sapulpa-Kiefer line. For August, 1918, just prior to the inauguration of interurban service, the earnings for the city lines alone in Tulsa was \$10,371. Comparing this figure with earnings for the entire company for the

next few months will show in what manner the interurban contributed from the beginning to the total income. The number of car-miles operated on the city lines is about one-half of the total, though the income from the city lines is less than half the total. Taken by themselves, the interurban cars are earning a gross revenue averaging nearly \$1 per car-mile. The figures shown in this table include an earning of about \$100 a day made by an express car which makes one round trip a day between Kiefer



PROVISION IS MADE FOR CHILDREN, ALSO, IN THE PARK AT RED FORK AND A WELL-EQUIPPED PLAYGROUND IS A FEATURE

and Tulsa and carries packages and miscellaneous freight. Express matter is carried on the regular passenger cars.

October, 1918.....	\$16,283.22	September, 1919.....	\$27,285.33
November, 1918.....	17,564.68	October, 1919.....	27,489.06
December, 1918.....	18,014.78	November, 1919.....	28,071.70
January, 1919.....	23,267.74	December, 1919.....	29,547.52
February, 1919.....	20,848.23	January, 1920.....	27,954.34
March, 1919.....	24,614.70	February, 1920.....	27,747.71
April, 1919.....	24,658.51	March, 1920.....	30,484.87
May, 1919.....	26,687.76	April, 1920.....	32,168.12
June, 1919.....	17,323.52	May, 1920.....	34,463.25
July, 1919.....	*9,384.34	June, 1920.....	33,075.92
August, 1919.....	25,588.16	July, 1920.....	34,898.40

* Strike of employees. Cars were kept running, but people were afraid to ride.

Contributing to these figures are the activities already referred to at Tulsa and Sapulpa and a good deal of oil industry along the line between these two towns. Immediately adjacent to the right-of-way is the plant of the Cosden Refining Company, the second largest refinery in the country, and other sizable plants of the Texas Company, Pan-American, Phoenix, Constantin and Mid-Continent oil companies and several other smaller companies.

CONSTRUCTION OF NEW INTERURBAN LINE

Beginning about ½ mile from the terminal in Tulsa, the new line is built on a cross-country right-of-way 100 ft. wide. The track was laid with 70-lb. A. S. C. E.

rail on 6-in. x 8-in. x 8-ft. Northern white cedar and white oak ties spaced on 2-ft. centers. The joints were completed with continuous joints and Ohio Brass acetylene-welded 4-0 bonds. To begin with, no ballasting was done except in low places.

The overhead trolley is of the bracket type construction, using Ohio Brass mast arms, hangars and ears, supported on 35-ft. Northern white cedar poles. The mast arms are 10 ft. long and the trolley is 4-0 grooved section. A 6,600-volt, 60-cycle, three-phase transmission line was also erected on these same poles and insulated for 13,200 volts, to which the line will probably be changed over later on. Garton-Daniels lightning arresters form part of the overhead equipment.

The road is all single-tracked except for about 1 mile of double track in Tulsa and West Tulsa. The roadbed has been graded and filled so that the maximum grade is 1 per cent outside of the cities, and the track is laid out for a maximum curvature of 2 deg. The building of the road required the construction of four bridges, three of them having 75-ft. spans and one a 40-ft. span. All of them are designed for Cooper's class E-40 loading for carrying heavy freight trains and are constructed of concrete, the frequent oil fires on the streams having made this permanent construction essential. All culverts up to 2 ft. in diameter were laid with vitrified pipe, while all requiring a larger opening were constructed with stone side walls and have a concrete slab spanning them.

Nachod signals protect a curved stretch of single track in Tulsa and a stretch over the Arkansas River bridge, also two highway crossings.

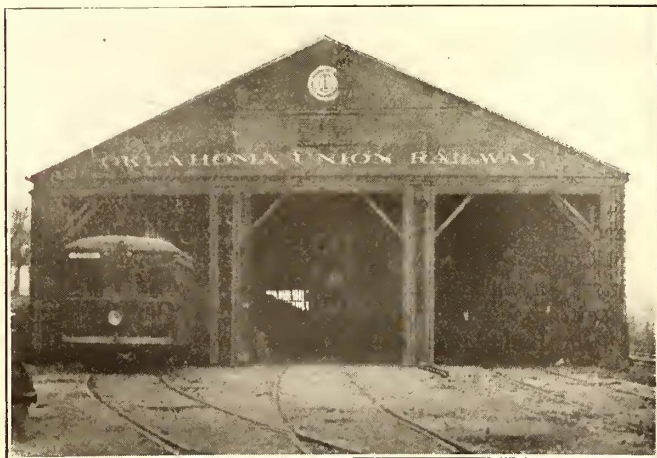
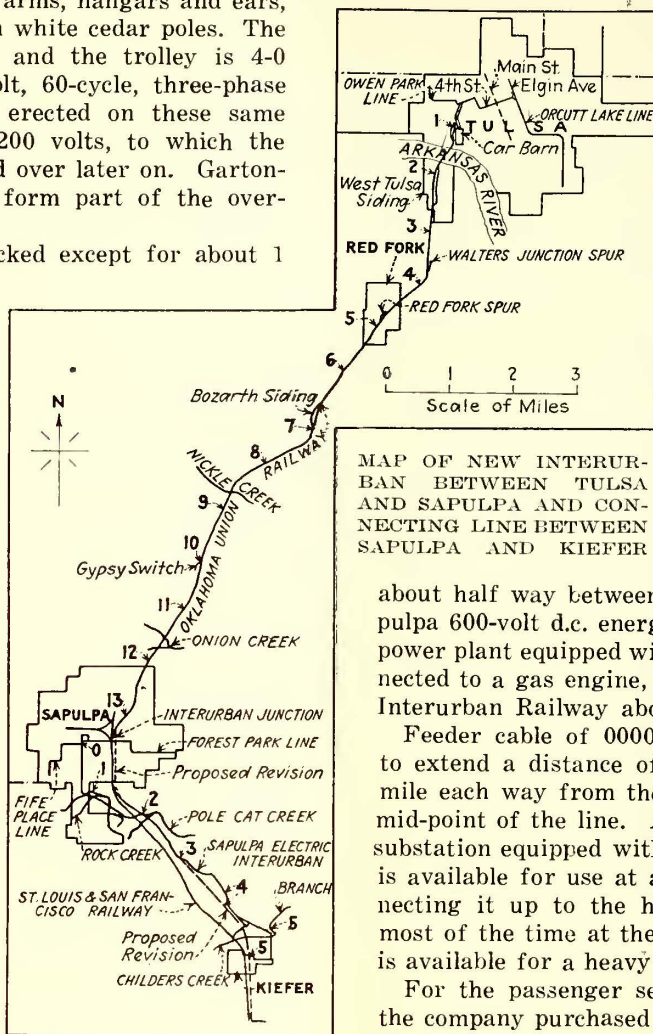
Near Tulsa a strip of the right-of-way about 2 miles long has been leased to the Midland Valley Railway for the purpose of installing a side track for tank cars to serve the Standard Oil Company's storage plant.

Power for operating the Oklahoma Union Railway is supplied from three sources. At Tulsa energy is purchased from the Public Service Company of Oklahoma, an Insull property, in the form of 600-volt direct-current energy supplied at the railway company's switchboard. At West Tulsa 6,600-volt, three-phase 60-cycle power is received from the Sand Springs plant of the Sand Springs Railway, 7 miles west of Tulsa, and is delivered over the O. U. R. company's high-tension line to an automatic substation equipped with one 300-kw. G. E. rotary converter and automatic equipment and situated

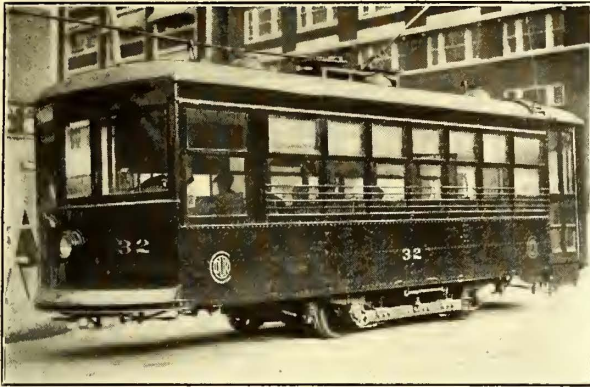
about half way between Tulsa and Sapulpa. At Sapulpa 600-volt d.c. energy is received from a 300-kw. power plant equipped with a d.c. generator direct connected to a gas engine, built by the Sapulpa Electric Interurban Railway about nine years ago.

Feeder cable of 0000 and 00 sections is installed to extend a distance of 3 miles out of Tulsa and 1 mile each way from the automatic substation at the mid-point of the line. A manually operated portable substation equipped with one 300-kw. rotary converter is available for use at any point on the line by connecting it up to the high-tension line. It is used, most of the time at the Sapulpa end of the line, but is available for a heavy load at any other point.

For the passenger service on the interurban line the company purchased three all-steel passenger cars of M. C. B. design and equipped with four G. E. 201-G, 65-hp. motors, G. E. type PC-5 multiple-unit control, Brill trucks and Westinghouse 18-ft. compressor and air-brakes. The car bodies are 56 ft. long over all and are built with a 9-ft. baggage compartment, a smoking



VIEWS OF THE SMALL SHOP BUILT IN THE OUTSKIRTS OF TULSA BY THE OKLAHOMA UNION RAILWAY TEMPORARILY TO TAKE CARE OF THE MAINTENANCE REQUIREMENTS OF THE COMPANY



AT LEFT, STANDARD BIRNEY SAFETY CAR, OF WHICH NINE ARE USED IN THE CITY SERVICE IN TULSA.
 AT RIGHT, PASSENGER CAR OF NEW OKLAHOMA INTERURBAN STANDING IN FRONT OF
 THE TULSA TERMINAL AND GENERAL OFFICES BUILDING

compartment and general passenger section, giving a total seating capacity of fifty. The trucks are mounted on 32-ft. centers and equipped with 36-in. Davis wheels. The cars complete weigh 31 tons. There is also one express car, which is likewise of all-steel construction and equipped with the same types of motors, control, air brakes and other equipment as the passenger cars.

Two of the passenger cars are required to give the hourly service between Tulsa and Sapulpa. The running time each way is forty-five minutes, and the cars leave each city on the hour, giving a short layover at each end of the line. The time required to go from Tulsa to Kiefer now, with the transfer at Sapulpa, is one hour and thirty minutes, but with the line ballasted and through service installed it is expected that this run will be made in one hour. Like the newly constructed line, the old section of line between Sapulpa and Kiefer is on private right-of-way except for about 1 mile through the main streets of Sapulpa.

The cars on the new line are dispatched from Tulsa, where the duties of the dispatcher and ticket agent are combined in one job. The dispatching is handled through the installation of a Western Electric Company railway telephone system with a telephone jack installed every 1/2 mile on the line and an instrument on each car.

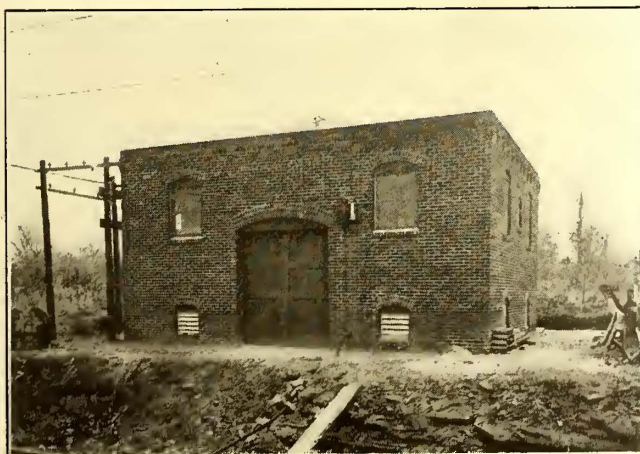
The city service in Tulsa is now supplied with nine standard safety cars, six of which are required in the regular schedule. These operate on a fifteen-minute headway. In addition there are two double-truck cars equipped with the Westinghouse Traction Brake Com-

pany safety devices and four G. E.-258 motors which provide a fifteen-minute service to West Tulsa and a thirty-minute service to Red Fork, a town of some 600 population situated on the interurban line 4 1/2 miles south of Tulsa. These double-truck safety cars seat sixty people and weigh 28,000 lb. They are operated by two men, with front entrance and exit, and the fares are collected within the car on account of the different denominations required for the different lengths of ride. They are arranged for double-end operation and the door openings made wide to expedite loading and unloading in the downtown section.

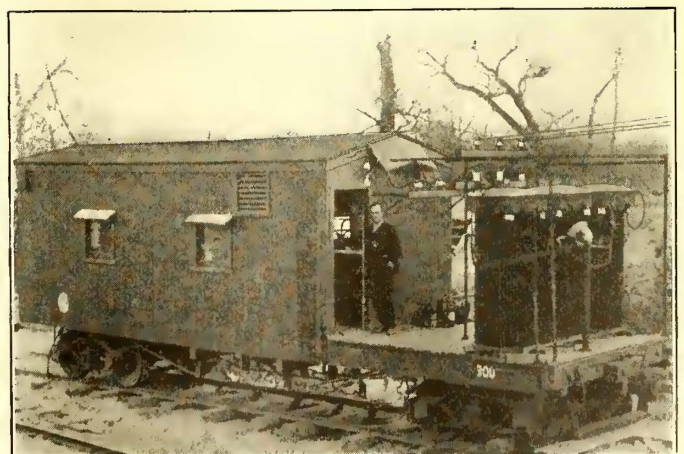
DOUBLE-HEAD CARS DURING RUSH HOURS

On account of the interurban and suburban service operating over the same single track at the Tulsa end of the interurban property, it is necessary to double-head the cars during the rush hours, for the interval cannot be reduced without double-tracking the line. This character of operation has made highly acceptable the counting feature of the Nachod signals protecting dangerous sections of the line over which both interurban and city cars must operate.

At Red Fork the company owns 60 acres of land, of which 25 acres have been set aside and partially improved for a recreation park. Adjacent to this park it is planned at some future time to build a shop which will be adequate to take care of the entire maintenance requirements of the system. For the present a small shop, pictures of which accompany this article, has been

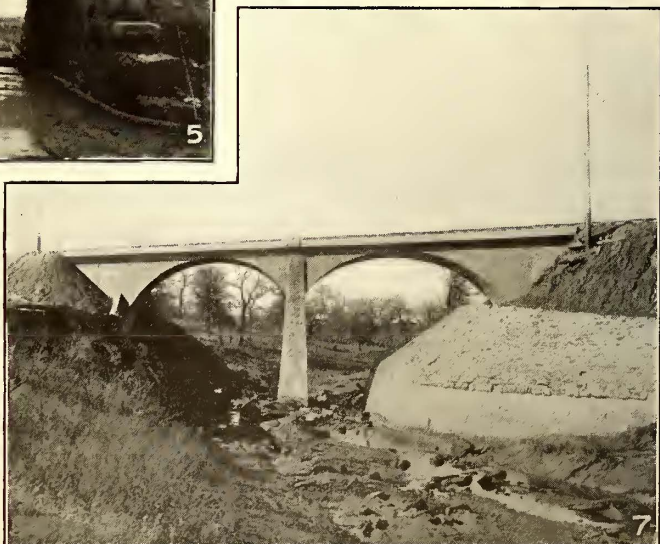
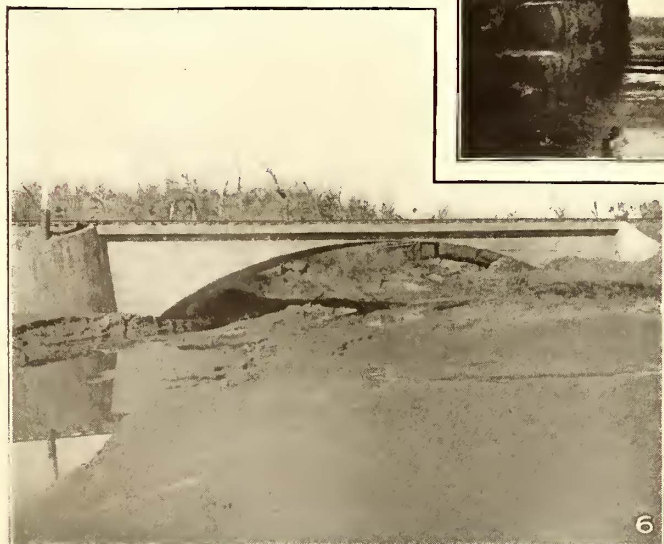
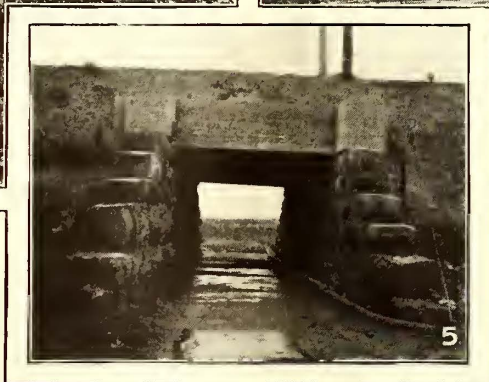
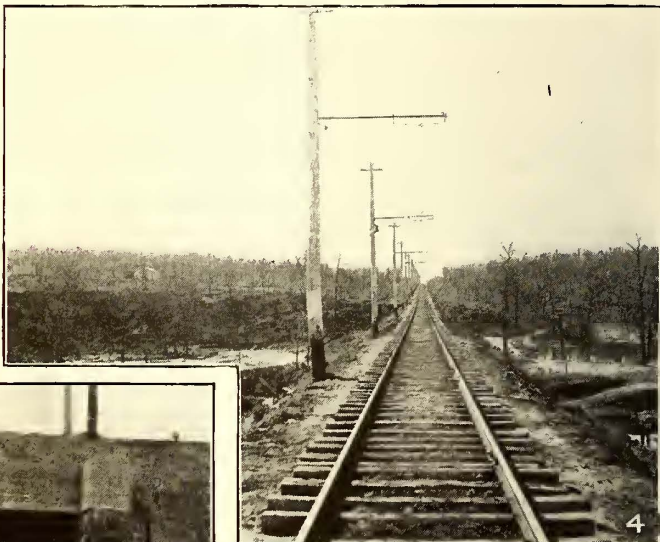
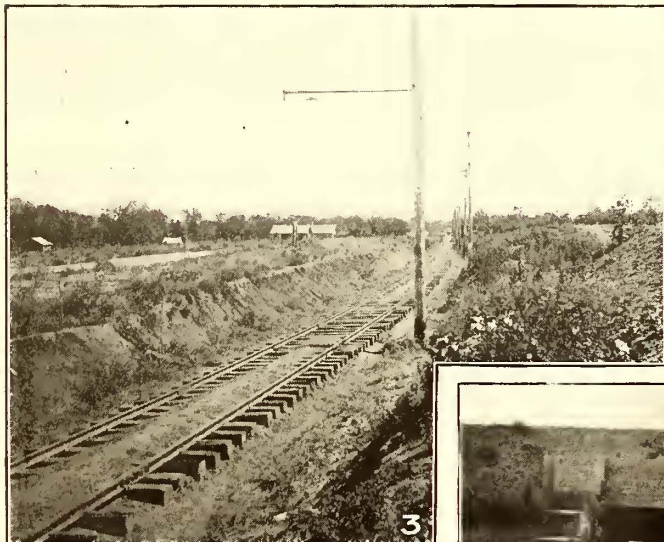
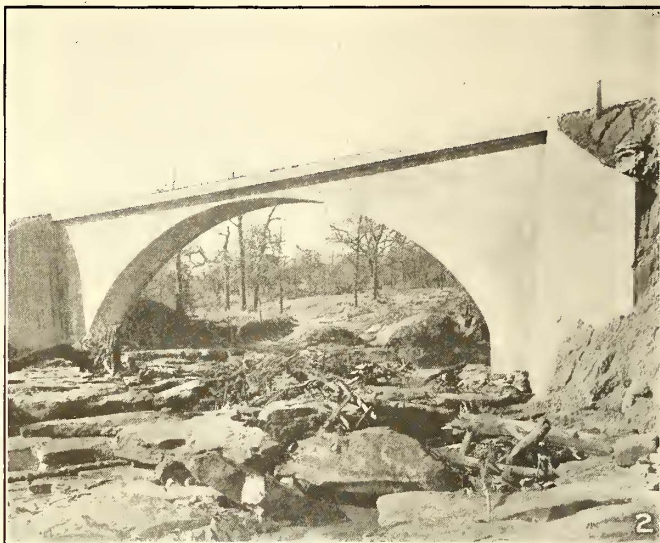
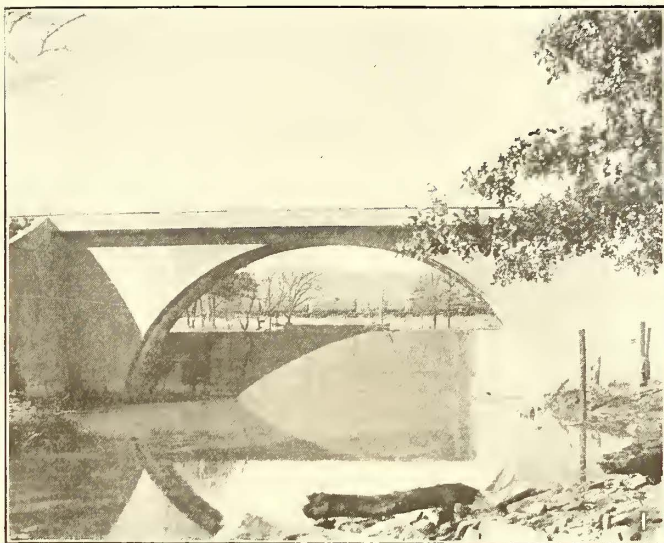


AUTOMATIC SUBSTATION EQUIPPED WITH ONE 300-KW. ROTARY AND INSTALLED HALF WAY BETWEEN TULSA AND SAPULPA



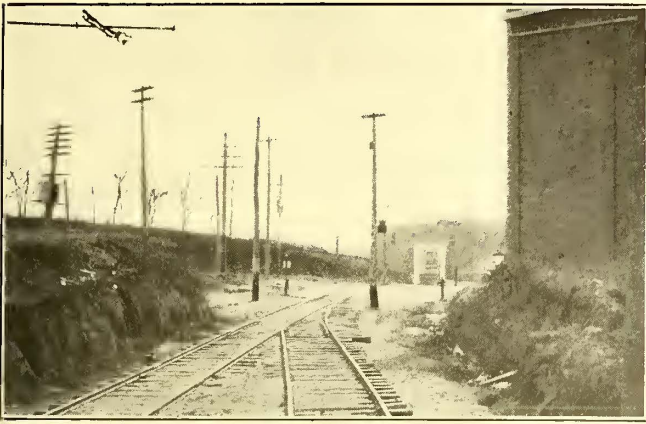
PORTABLE SUBSTATION HOUSING ONE 300-KW. ROTARY CONVERTER FOR EMERGENCY USE ON OKLAHOMA UNION RAILWAY

The Structures Along the Right-of-Way Present Many Interesting Features

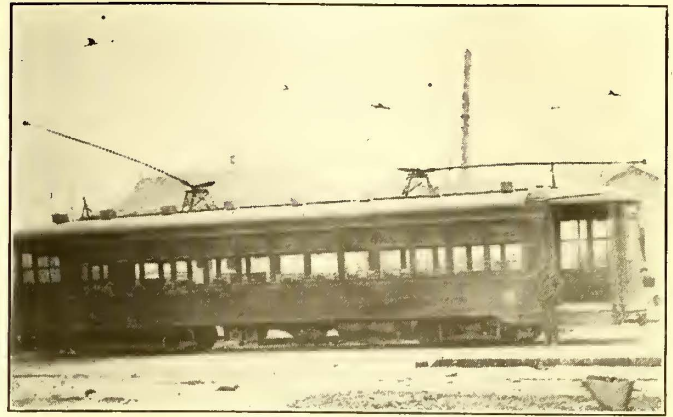


Numbers 1, 2, 6 and 7—Concrete bridges along right-of-way, original permanent construction being necessary on account of oil fires on streams. Numbers 3 and 4—Roadbed and overhead

construction, with telephone wires and provision for high-tension line on same poles. Number 5—Standard culvert construction, where opening required exceeded 2 ft.



TROLLEY CONTACTOR SIGNAL INSTALLATION TO PROTECT MOVEMENT ON THE SINGLE TRACK OVER THE ARKANSAS RIVER BRIDGE



DOUBLE-TRUCK SAFETY CAR USED IN SUBURBAN SERVICE BETWEEN TULSA AND WEST TULSA AND RED FORK

built in the outskirts of Tulsa and equipped with a wheel lathe, drill press and a few other machines, so that the company is enabled to take care of its own maintenance of equipment except for that work which requires a wheel press. The pit capacity permits work on three large cars or six safety cars at one time.

The very rapid development of the territory in this section of Oklahoma has led to the serious consideration of extending the interurban line to Beggs and Okmulgee, about 25 miles from Kiefer. However, this extension will not be built so long as present prices prevail.

Swiss Dynamometer Car

THE use of dynamometer cars in connection with trunk line electrification is advocated by the Swiss State Railways. The need for reliable determination of train speed, drawbar pull, brake performance, etc., was appreciated and a car was designed to meet the requirements. This car is described in the *Railway Engineer* for May, 1920. It is 57 ft. long over all and weighs about 37 tons completely equipped. The car body rests on two four-wheeled bogie trucks of standard design with an exceptionally strong underframe with double side sills. The interior of the car is divided into four compartments. The first, in front, is 21 ft. long and is the test room which contains all indicators and measuring apparatus. The second compartment is a workroom, 13 ft. long, which gives access to a small corridor. This reaches the room on the back platform, containing an outfit for making running repairs, a workbench with chemical apparatus and lockers for supplies.

Westinghouse air brakes are provided on the wheels of three truck axles only, as the rear axle of the front truck is used to transmit the car motion to the measuring devices.

A hydraulic dynamometer was used instead of the spring type usually encountered, as the springs of the latter are cumbersome and difficult to calibrate when used for large dynamometers. The hydraulic dynamometer is of the usual principle, but was modified in many ways. For instance, the cylinders and pistons were so accurately ground that all packing and stuffing boxes were omitted and friction was reduced by using oil film lubrication. In this dynamometer there are two rams of polished steel projecting into two cylinders, which open outward on opposite faces of a single block of forged steel. The pressure exerted on the rear piston is given by the tractive effort of the engine, while

the front piston receives the braking effect as felt on the bumpers. The pressure in the dynamometer cylinders is transmitted by pipes to a pair of small recording cylinders arranged in tandem, with the piston ends extending opposite to each other. The pressure acts on two differential pistons, permitting the use of either of two piston areas, depending on the setting of the distributing valve. A calibrated helical spring is located between the two pistons and the amount of its compression indicates the load acting on the small pistons. Then, when the ratio of these piston areas to the area of the dynamometer pistons is known the drawbar pull or braking load is readily determined.

A special type of tachometer is used on the car which continuously records the train speed. It is so sensitive that practically no time elapses between a change of speed and the action of the instrument. Among other special devices used are the ergometer, for determining the inertia forces and work done in overcoming train mass, omitting air and frictional resistance; a drawbar-pull meter, which works on the same principle as the ergometer; a horsepower meter, for getting the drawbar horsepower; a Kapteyn apparatus, for determining brake performance, and a special device for "indicating" the cylinders of a steam locomotive when the car is used for steam locomotive testing.

All of the apparatus and registering devices are mounted on a cast-iron table 69 in. x 35 in. and all the records are made on a continuous chart, using paper rolls about 2 ft. wide. This car is used on all the steam and electric lines and has proved to be very satisfactory.

Stimulating Freight Car Movement

"MORE Transportation" is the title of a bulletin now being issued by the Association of Railway Executives, the first number being dated Aug. 20. The advisory committee of the association, of which Daniel Willard is chairman, has set for its goal in the improvement of transportation service the following definite ends: (1) An average daily minimum movement of freight cars of not less than 30 miles; (2) an average loading of 30 tons per car; (3) reduction of bad-order cars to a maximum of 4 per cent of total owned; (4) an early and substantial reduction in the number of locomotives now unfit for service; (5) the making of more effective efforts to bring about the return of cars to the owner roads.

Cincinnati Director Reports

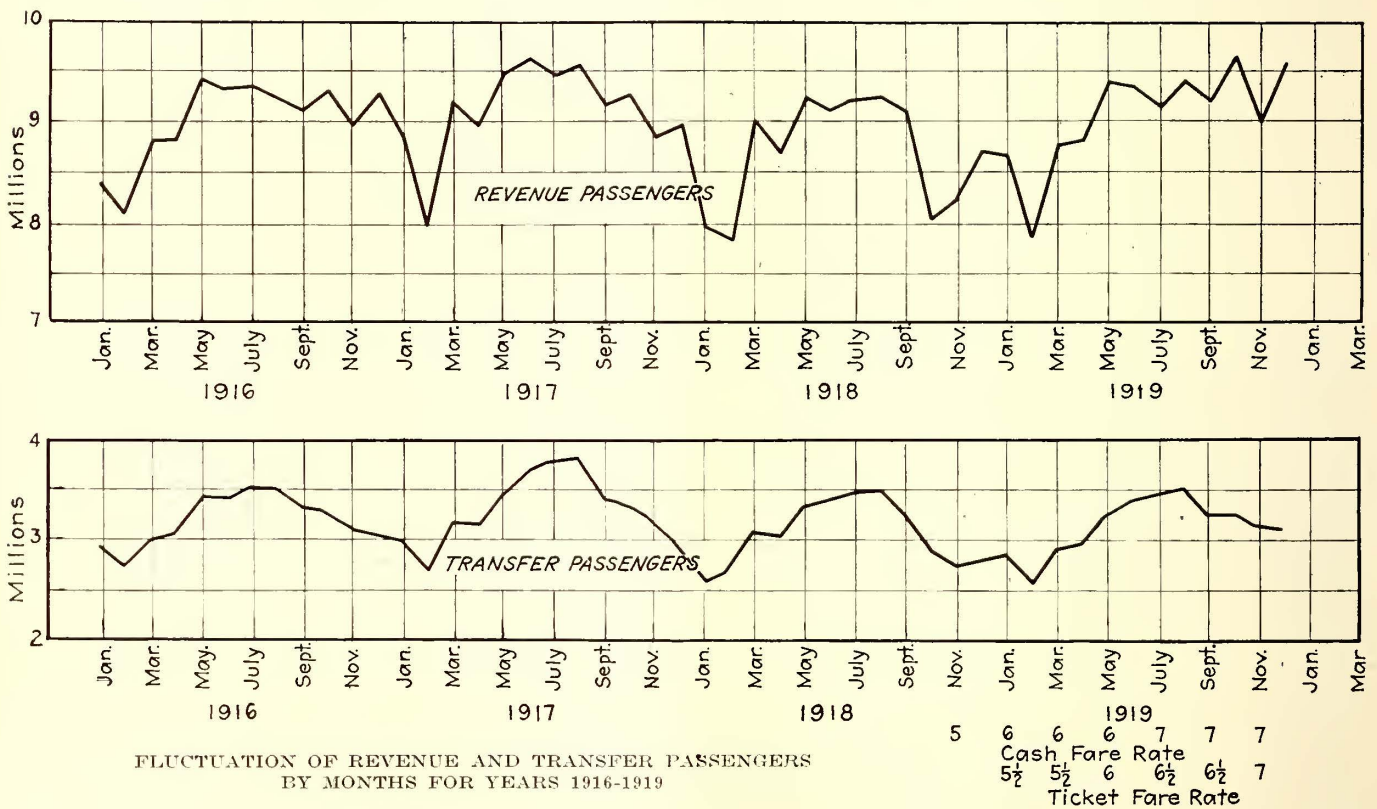
First Annual Report Under the New Service-at-Cost Franchise Gives Opportunity to Analyze the Effect of Many Items—Some Faults of Present Franchise Show Up

THE Director of Street Railways of the city of Cincinnati, W. C. Culkins, has just issued his report for the year 1919. This is the first full year under the Cincinnati service-at-cost franchise and also the first complete year following the World War.

One of the problems of the year was the elimination of what Mr. Culkins calls the "inadequate and uncomfortable type of box car operated on many lines." The question in Cincinnati is complicated by the inclined planes and certain heavy grades over which the cars must operate, the company holding that no larger type could be used, but the Department of Street Railways

The report outlined the work which was done on extensions during the year. One extension, referred to the department by the City Council, was disapproved against because it would probably result in a net loss of all the cost of its operation.

The effect of fare changes is one of the interesting items of the report. The first two months created a deficit and under the terms of the service-at-cost franchise this necessitated a change in rates. Each subsequent two months' period, that being the length of the test period in each case, failed to show the necessary gain, and consequently there were periodical fare



does not agree. After a consideration of the question, agreement was made on the adoption of a type of four-motor, double-truck equipment and the purchase of one hundred and five new cars of this type. One element of this consideration was that the maximum operation of small cars had been reached on some lines and the service was still inadequate.

Elimination of some serious grades, such as the Milton Street hill, having a grade of nearly 12 per cent, was one of the problems of the year, and it was finally decided to widen Liberty Street in order that double tracks be laid there and the use of Milton Street avoided.

Efforts of the department have also been directed to improving the power supply conditions. Low voltage in some of the outer zones of many of the long lines resulted in slow movement of cars, with consequent delay. Solution of this problem is expected in 1920.

changes. Mr. Culkins states that the mistake was made in putting the fare too low to start with, but this was set at 5 cents upon the urging of a committee of citizens, even though a deficit was expected. Although the next two months' period indicated that receipts were entirely inadequate, it was impossible to adjust the fare to a satisfactory figure because under the terms of the franchise the only adjustment which can be made is to go to the next higher fare.

Contributing to the other elements which tended to make the income from the rates of fare used ineffective were the decisions of the War Labor Board increasing the wages of conductors and motormen and shortening the time limit in which the maximum rate of pay should be reached from five years to two years. Coal prices also rose and certain track relaying was called for, all of which increased expenses. Each step in fare which

was made to meet increases in costs was followed by further increases in cost of certain items.

The following table shows the effect of varying conditions upon the income and cost of service per revenue passenger:

	Total Income	Cost of Service	Surplus or Deficit
October, 1918.....	5.11	6.56	-1.45
November.....	5.13	6.20	-1.07
December.....	5.11	6.76	-1.65
January, 1919.....	5.75	6.96	-1.21
February.....	5.09	6.99	-1.30
March.....	5.63	6.89	-1.26
April.....	6.09	6.84	-.75
May.....	6.09	6.56	-.47
June.....	6.10	7.22	-1.12
July.....	6.71	7.27	-.56
August.....	6.76	7.09	-.33
September.....	6.74	7.05	-.31
October.....	7.04	6.79	.25
November.....	7.03	7.02	.01
December.....	7.08	7.07	.01

The average fare per revenue passenger for the year was 6.28, as compared with 4.98 in 1918, and the average for all passengers was 4.67, as compared with 3.71 in 1918. Under the 7-cent rate the average in December was 6.92 per revenue passenger and the average per passenger, including all passengers, was 5.23.

For two periods of three months each there was a saving of ½ cent made by the purchase of tickets. There were two similar periods, in which no discount was obtained by the purchase of tickets, and this situation afforded an unusual opportunity to study the public tendency in this regard. The ratio of cash fares and tickets throughout the year was as follows:

	Cash Fares		Ticket Fares	
	Rate per Cent to Total	Rate per Cent to Total	Rate per Cent to Total	Rate per Cent to Total
January, 1919.....	6 cents	18.62	5½ cents	81.38
February.....	6 cents	18.86	5½ cents	81.14
March.....	6 cents	24.17	5½ cents	75.83
April.....	6 cents	77.53	6 cents	22.47
May.....	6 cents	82.28	6 cents	17.72
June.....	6 cents	86.67	6 cents	13.33
July.....	7 cents	31.63	6½ cents	68.37
August.....	7 cents	30.83	6½ cents	69.17
September.....	7 cents	32.33	6½ cents	67.67
October.....	7 cents	74.96	7 cents	25.04
November.....	7 cents	76.66	7 cents	23.34
December.....	7 cents	78.32	7 cents	21.68
Twelve months average.....	6½ cents	53.54	6¼ cents	46.46

To attempt a direct answer to the question, "What has become of the money produced by the increase in fare?" he gives the following table to show the increase in earnings and increase in expense in 1919 as compared with 1916:

Increase in earnings.....	\$1,531,505.25	
Increase in total income.....	1,578,620.09	or 26.52 per cent
Increase in expenses—wages and salaries.....	\$1,485,794.55	or 66.54 per cent
Increase in materials and supplies.....	271,570.11	or 100.27 per cent
Increase in coal.....	222,816.01	or 73.21 per cent
Increase in valuation expenses.....	20,710.17	or 100.00 per cent
Increase in depreciation.....	35,000.00	or 26.52 per cent
Increase in insurance.....	10,302.02	or 37.77 per cent
Increase in other expenses.....	49,092.73	or 28.27 per cent
Total increase.....	\$2,095,285.59	or 66.70 per cent

In addition, general taxes increased \$152,726.97, or 37.46 per cent; taxes for city of Cincinnati and Norwood increased \$17,451.92, or 5.15 per cent. Since the total expenses exceeded receipts, the company was compelled to borrow and became liable for interest charges amounting to \$57,464.69, an increase of 100 per cent, since there was no similar charge in 1916. The story in three lines is this:

	Per Cent of Increase	Ratio to Income
Increased income over 1916 from increased fare and all other sources.....	26.52	100 per cent
Increase in expenses over 1916.....	45.14	147.51 per cent
Excess of increase in expenses over increase in income.....	47.51	47.51 per cent

At the end of the year 1919 there was an accumulated deficiency of \$1,669,567.35 in unpaid obligations and moneys owed to the bank. The provisions of the franchise require that fares be increased successively until gross receipts provide for cost of service and all accumulated deficits are paid. Notwithstanding the fact that for three months the 7-cent fare produced the current cost of service, further increases would be necessary to pay off deficiencies for previous months and years, and this alone would require increases by successive stages to 9½ cents.*

It was, therefore, decided that it would be fair to the public to fund deficits by issuing securities which would be amortized in a period of years at a rate which could be absorbed by the current operation of the company.

Authority was, therefore, granted by the Public Utilities Commission of the State and the Director of

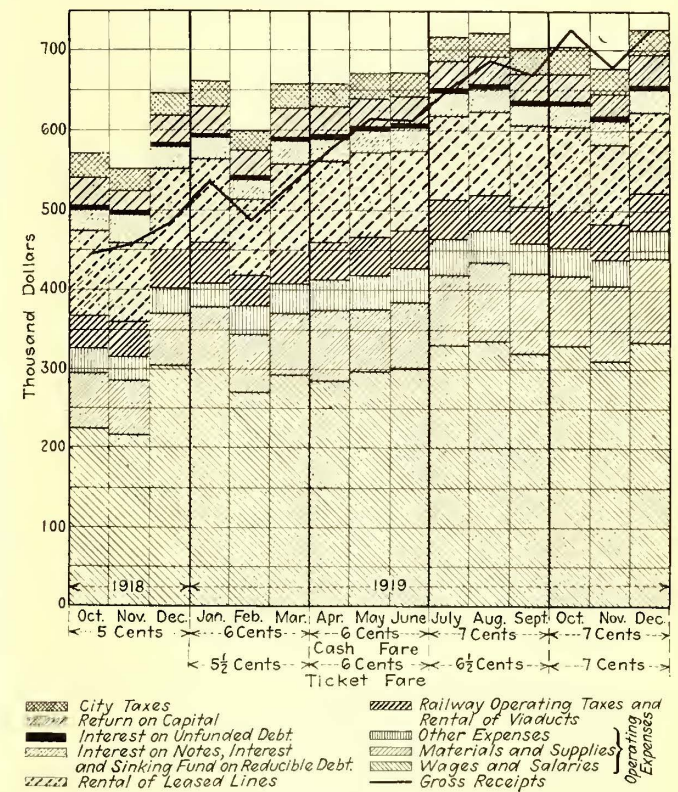


CHART SHOWING ANALYSIS OF COST OF SERVICE AND ITS RELATION TO GROSS RECEIPTS FROM OCT. 1, 1918 TO DEC. 31, 1919

Street Railways to issue \$4,650,000 in bonds bearing 6½ per cent to be sold at not less than 95 per cent, and also \$2,100,000 in 6 per cent debenture notes, each maturing in twenty-five years, a sinking fund being provided to meet these maturities. But even these issues were impossible to market and the plan was modified so that there were issued \$2,250,000 of three-year notes bearing 7 per cent interest sold at 96½ and \$2,250,000 debenture notes, bearing 6 per cent, in lieu of the accrued dividends and payments allowed to the stockholders under the ordinance and to provide the initial \$250,000 of the reserve fund. The company was also permitted to sell an additional \$1,500,000 of three-year notes to provide for improvement on the property, and further \$1,250,000 of 6 per cent equipment notes for the purchase of additional cars.

*The present fare is 8 cents cash, 7½ cents ticket.—EDITORS.

Another interesting opportunity for study was the effect of increased fares upon the car-riding habit. Mr. Culkins concludes that there seems to be no considerable number of passengers who were influenced to walk short distances, because the percentage of increase and gross receipts in each case was greater than the percentage of increase in fares. Apparently the rate of fare has had little, if any, effect upon the number of passengers. The trend of traffic, however, did not show the increase that has been found in other cities, but this is not difficult to understand when it is realized that the late census shows Cincinnati not to have grown as did other cities.

The following table shows the number of revenue passengers for the last four years:

1916	116,599,800 revenue passengers	1918	112,525,698 revenue passengers
1917	118,152,860 revenue passengers	1919	117,495,936 revenue passengers

Density of traffic is of course a large item in the cost of service. Cincinnati, by reason of the long hauls through sparsely settled territory, has a very low density of traffic as compared with other cities. The standard of service furnished in Cincinnati in 1919 was .184 car-miles per revenue passenger. Comparing Cincinnati's density of traffic with other cities, he finds the following, the figures indicating passengers per car-mile:

Cleveland	8.73	Kansas City	4.94
Detroit	7.41	St. Louis	5.98
Boston	5.95	Cincinnati	5.55
Baltimore	6.83		

Mr. Culkins also analyzes the cost of labor, material and coal. Bringing the labor figures to a table, the results are about as follows:

Year	Minimum Rate per Hour Cents	Maximum Rate per Hour Cents
1901-1906	19	21
1907-1909	20	22
1910-1913	20	25
1914	20	27
1914-1915	20	27
1915-1916	20	27
1916-1917	23	30
1917-1918	24	30
1918-part	26	32
1918-(latter part)	31	37
Nov., 1918, to June, 1919	43	48
July 1, 1919, to date	45	50

The following table of material increases will be of particular interest:

Material	1914	1915	1916	1917	1918	1919
Iron poles (line) 6 in.x7 in.x30ft.	Each \$20.70	\$20.70	\$27.60	\$55.20	\$41.40	\$48.50
Wood poles (line) 8 in.x35 ft.	Each 6.80	6.80	6.80	7.60	11.55	13.86
Steam pipe	%* 78.00	77.00	74.11	42.30	42.30	49.11
Fittings	%* 60.00	60.00	60.00	List	List	10.00
Rails	Ton 38.10	38.10	38.10	69.30	69.30	64.70
Switches	Each 164.00	164.00	164.00	284.00	284.00	375.00
Mates	Each 109.00	109.00	109.00	198.00	198.00	225.00
Ties	Each .70	.67	.67	.78	1.00	1.30
Cement	Barrel 1.73	1.69	1.84	2.09	2.79	2.90
Sand	Ton .50	.50	.50	.70	1.20	1.15
Gravel	Ton .60	.60	.60	.90	1.40	1.15
Track bolts	Cwt. 2.05	2.34	2.20	5.55	5.55	4.88
Cast iron wheels	Cwt. 1.42	1.42	1.42	1.52	2.50	3.19
Brake shoes	Ton 28.00	28.00	28.00	31.65	74.50	65.00
Axles	Cwt. 3.50	3.50	3.50	6.00	7.00	6.00
Trolley rope	Pound .20	.19	.26	.35	6.47	.62
Bell cord, 1/4 in.	M. ft. 13.75	13.75	13.75	27.50	30.60	32.42
Manila rope	Pound .12 1/2	.14 1/2	.18	.26	.33	.35
Dry batteries	100 14.50	14.50	14.50	29.70	28.85	33.05
Gears—W. H.						
No. 22	Each 23.05	22.50	22.50	36.45	43.15	42.50
Armature coils	Set 27.50	33.20	30.35	51.70	51.70	35.00

*Figures given are per cent discount from list prices.

One of the efforts of the department is to maintain service and to allow the service-at-cost principles of the

franchise to work to repay the company, along the proper lines.

The standard adopted is based upon the principle that during the non-rush hours there should be supplied during each half hour as many seats as there are passengers in that period and during the rush-hour period, from 6 to 9 a.m. and 4:30 to 6:30 p.m., there shall be a sufficient number of cars to provide 4 sq.ft. of floor space for each standing passenger during each fifteen-minute period. The department made forty-three careful checks of service and traffic at given points and fifteen platform checks. The information thus obtained furnished the basis of various improvements in the service. Mr. Culkins gives a rather complete survey of the results of these inspections on each of the lines in the city and from this shows up the necessity of increased or better distributed service on these various lines. He then makes recommendations with reference to relief in many parts of the city.

With reference to rail, he states that the custom in Cincinnati has been to require grooved rails in all kinds of track construction, but that inquiry shows where the "T" rail had been used the engineers of the cities and companies favored it strongly and where it had never been used there was strong opposition. In some places the department has been able to get agreements, to a limited extent, for the use of the "T" rail in Cincinnati.

NEW FRANCHISE AUTHORIZES FREIGHT HAULING

With reference to freight hauling, it is stated that the new franchise authorizes the use of tracks and equipment for hauling of freight and express matter, but that not much progress had been made with the subject in Cincinnati during the past year. It is believed, however, that it offers an opportunity for additional earnings, which, under the ordinance, would be of immense benefit to the car-riding public.

In connection with the accident record of the company, satisfactory progress is being made in reducing the number of accidents and the seriousness of the accident account. Complete statistics of the accident record for the year 1919 and also the two previous years are given in the report. Another table shows that the percentage of injuries and damages totaled 2.13 of the total passenger earnings for 1919, whereas in 1914 the percentage has been 3.10. The statistics also indicate that during the skip-stop régime the accidents were lower than before this skip-stop was inaugurated and also lower than after the skip-stop was discontinued.

The report also includes an analysis of car inspections, defect reports, supervision of accounts and many financial items, as well as a résumé of suggestions and recommendations made by the director during the year; also discussions of the probable replacement of the double trolley system with the present heavy cars by one-man cars, with single trolley.

Other points covered were traffic congestion, cleaning and ventilating of cars, the suggestion of a standard parade route and regulations to give minimum interference with street traffic, fare boxes, departmental expenses, and the interurban situation with respect to city terminal facilities.

The report closes with a discussion of the service-at-cost franchise, parts of which have already been included in the abstract, and a comparative statement of revenues, expenses and incomes, details of operating expenses and other financial analyses.

Accidents Lessened by Safety Cars

Statistics from Group of Stone & Webster Properties in Widely Separated Sections of Country Show Accidents on Basis of Car-Mile or Passengers Carried Far Less with Safety Cars Than with Two-Man Cars—Other Statistics Given

BY W. H. BURKE

FROM time to time some of the newspapers have given considerable publicity to a few more or less minor street railway accidents in which the safety or one-man car has happened to be involved. In most cases these accounts have not been unfriendly to the car. The press in general has been among the first to see the tremendous advantages which the safety car has over the older type of rolling stock in the way of faster and more frequent service. Hence it is clear that any exaggerated impression of the accident hazard which these newspaper reports may have conveyed has been the result of a misunderstanding of the facts in the situation and that they were not in any sense prompted by a feeling of hostility. Nevertheless, in many cases they have laid a great deal more stress on the one-man feature of the car than the importance of the particular accident or the circumstances surrounding its occurrence would warrant.

In the early days of the safety car it was not unnatural for the layman to feel that there was an inherent accident hazard in a car operated by one man which would not be present in a two-man operated car. The safety car was an entirely new departure, and naturally the public did not understand its mechanism nor the fact that the safety features embodied in its design, with the added advantage of responsibility for its operation being lodged with one man instead of two, were bound materially to reduce the accident hazard rather than increase it. Unfortunately, however, there were no tangible results or actual figures available in the early days to prove this, and in the circumstances it is remarkable that practically no popular opposition developed on this score.

The answer is to be found, of course, in the appeal which the car immediately made to the public on account of the faster and more frequent service which it made possible. Its popularity is best evidenced by the fact that, although it was not developed on a commercial scale until late in 1916, more than 5,000 safety cars were in use or on order by the end of May this year, and this number of course is considerably greater at the present time. One of the large car builders is authority for the statement that more than 75 per cent of all the cars purchased in 1919 by the electric railways of the United States were of the safety type. Furthermore, this record has been made in the face of the most serious financial conditions which have ever confronted the street railway industry.

Practically all of the Public Service Commissions which have passed on the matter have indorsed the car, and in at least one recent case a commission criticised the management of a large Western property for not having taken advantage of the safety car and the economies in operation which it makes possible.

The simplicity of the car's operation is evidenced by the fact that in one Middle Western city, where the Birney safety car is used exclusively, the service was

operated entirely by women during the war and with wholly satisfactory results from an accident as well as from every other standpoint.

ROADS SELECTED FOR COMPARISON

In spite of the fact that the car has already sold itself to the public and is now generally accepted as the greatest advance step in street railway transportation since the electric railway motor was first developed, it is worth while to consider the actual results which have been achieved from an accident standpoint, if for no other reason than to vindicate the judgment of the early advocates of the safety car idea. With this thought in mind a careful analysis has been made of the accident records of thirteen representative street railway companies covering the first five months of the current year.

All of these companies are under Stone & Webster management and are widely scattered, their geographical location being as follows:

Texas	4	Iowa	1
Washington	3	Kentucky	1
Florida	1	Louisiana	1
Georgia	1	Canada	1

These thirteen companies serve a combined population of about 1,000,000 people and during the period in question operated more than 12,000,000 car-miles and carried more than 70,000,000 passengers, exclusive of those using transfers. The safety cars in these cities are operating under all kinds of conditions as regards street and traffic congestion, and in at least two of the cities this congestion is as serious in sections of the business district during rush hours as will be found anywhere in the country. As of May 31, these companies owned approximately 400 cars equipped for one-man operation.

It should be stated further that the figures used herein are not for any group of especially selected companies, nor are they for certain selected lines of any particular companies. On the contrary, they include all of the companies under Stone & Webster management where any appreciable number of safety cars are being operated.

These facts are set out to show that the data given are representative, and if the accident record of the safety car as compared with the ordinary two-man car is favorable under these circumstances it would seem to be pretty conclusive proof that from an accident standpoint alone, and entirely aside from its many other advantages, the car has vindicated the judgment of its many advocates; also that it is reasonable to expect similar average results on any other street railway property as far as the accident situation is concerned.

The summary in Table I shows the passenger car mileage and passengers carried (excluding transfers) divided as between safety and two-man cars. These

TABLE I—CAR-MILES AND PASSENGERS CARRIED ON SELECTED GROUP OF THIRTEEN STONE & WEBSTER PROPERTIES, FIRST FIVE MONTHS OF 1920

	Passenger Car-Miles Operated		Passengers Carried (Transfers Excluded)	
	Safety Car	Two-Man Car	Safety Car	Two-Man Car
Baton Rouge, La.*	120,700	0	1,006,700	0
Beaumont, Tex.	325,000	192,700	1,439,600	1,537,800
Bellingham, Wash.	379,500	58,800	1,467,000	256,300
Columbus, Ga.	240,200	167,600	1,107,300	1,192,100
El Paso, Tex.	736,700	478,000	3,731,300	3,140,200
Everett, Wash.	352,900	15,200	1,821,600	213,200
Fort Worth, Tex.	924,600	1,407,500	5,037,900	10,715,400
Halifax, N. S.	134,400	631,500	947,100	4,618,000
Houston, Tex.	731,300	1,616,800	3,625,200	11,595,300
Keokuk, Iowa*	109,700	0	508,900	0
Paducah, Ky.*	759,400	0	1,036,300	0
Tacoma, Wash.	952,700	953,800	4,035,700	5,122,500
Tampa, Fla.	685,600	557,400	3,407,900	3,222,400
Total	5,962,700	6,079,300	29,172,500	41,613,200
Per cent of total	49.5	50.5	41.2	58.8

* 100 per cent safety-car operation.

figures are reproduced merely to emphasize the widely varying conditions under which the safety car is being operated on the thirteen properties under consideration.

ACCIDENTS, TOTAL AND PER 200,000 PASSENGERS, COMPARED

In reporting accidents all of these companies use the classification of "accidents and occurrences" adopted at the 1916 convention of the American Electric Railway Association. Under this head is included every accident or happening on which an accident report is turned in. These, in turn, are segregated as between "important" and "trivial." Accidents reported as "trivial" are those where there is no injury or damage, or where the injury or damage is very small. Generally speaking, "trivial" accidents cover those where there appears to be no liability on the part of the company and which would hardly be considered important enough to report except as a matter of protection in case a claim should later result. All accidents other than "trivial" are classified as "important." A similar plan is followed in classifying personal injuries.

The total number of "important" accidents on all of the properties segregated as between safety and two-man cars and the number per 50,000 car-miles operated by each type of car were, for the first five months of 1920, as shown in Table II.

These figures show that on a car-mile basis the average number of accidents for the two-man car is substantially 70 per cent greater than for the safety car. Except for collisions with automobiles, where the figure for the two-man car is somewhat lower, the comparison is overwhelmingly in favor of the safety car. Furthermore, even in the matter of collisions, the showing favors the safety car slightly when collisions of all kinds

TABLE II—ACCIDENTS CLASSIFIED AS "IMPORTANT" ON THIRTEEN SELECTED PROPERTIES DURING FIRST FIVE MONTHS OF 1920

	Total Number		Number per 50,000 Car-Miles	
	Safety	Two-Man	Safety	Two-Man
1 Collisions with pedestrians	20	37	0.17	0.30
2 Collisions at railroad crossings (other than company's)	1	0	0.01	0
3 Collisions between cars of company	17	24	0.14	0.20
4a Collisions with automobiles	178	154	1.49	1.27
4b Collisions with vehicles	14	21	0.11	0.17
4c Collisions with animals	4	6	0.03	0.05
5 Derailments	9	12	0.08	0.10
6 Equipment	2	12	0.02	0.10
7 Boarding cars	3	52	0.03	0.43
8 Injuries on cars	16	41	0.13	0.34
9 Alighting from cars	25	120	0.21	0.99
10 Falling from cars (not purposely alighting)	1	3	0.01	0.02
11 Stealing rides	1	2	0.01	0.02
12 Doors, gates and guards	6	9	0.05	0.07
13 Miscellaneous	32	71	0.27	0.58
Total	329	564	2.76	4.64

TABLE III—ACCIDENTS CLASSIFIED AS "IMPORTANT" PER 200,000 PASSENGERS ON THIRTEEN SELECTED PROPERTIES DURING FIRST FIVE MONTHS OF 1920

	Number Important Accidents per 200,000 Passengers (Transfers Excluded)	
	Safety	Two-Man
1 Collisions with pedestrians	0.14	0.18
2 Collisions at railroad crossings (other than company's)	0.01	0
3 Collisions between cars of company	0.12	0.12
4a Collisions with automobiles	1.22	0.74
4b Collisions with other vehicles	0.09	0.10
4c Collisions with animals	0.03	0.03
5 Derailments	0.06	0.06
6 Equipment	0.01	0.06
7 Boarding cars	0.02	0.25
8 Injuries on cars	0.11	0.20
9 Alighting from cars	0.17	0.57
10 Falling from cars (not purposely alighting)	0.01	0.01
11 Stealing rides	0.01	0.01
12 Doors, gates and guards	0.04	0.04
13 Miscellaneous	0.22	0.34
Total	2.26	2.71

are considered (Items 1 to 4c inclusive), the number per 50,000 car-miles being 1.95 for the safety car and 1.99 for the two-man car.

The figures show in a striking manner the advantage which the safety car has as regards boarding and alighting accidents, the number of these two classes of accidents per 50,000 car-miles being 1.42 for the two-man car as compared with only .24 for the safety car. The two-man car operated an average of 35,300 miles for each boarding and alighting accident, while the safety car operated 213,000 miles; the two-man car carried 241,900 passengers (transfers excluded) for each boarding and alighting accident and the safety car 1,042,000 passengers.

STEP ACCIDENTS MATERIALLY REDUCED

Step accidents have always been the bane of the claim agent's existence. They are not only costly but they involve life and limb to a much greater extent than does any other common form of street railway accident and therefore they are of greatest moment to the car rider. The fact that they are all but eliminated with safety-car operation is a tremendously strong point in its favor.

Out of 329 important accidents with the safety car there were 207 personal injuries, while with the two-man car with 564 important accidents there were 446 cases of personal injury, the percentage of personal injuries being 63 for the safety car and 79 for the two-man car. This indicates, as would be expected, that the accident results are likely to be less serious with the light-weight car than with the heavy two-man car.

The accidents classified as "trivial" are not of sufficient importance to warrant showing the results in detail here. The figures show an average of 16.2 trivial accidents per 50,000 car-miles for the safety car and 24.9 for the two-man car.

Based on the comparative number of passengers carried, the showing as to number of important accidents is again very materially in favor of the safety car, as is shown in Table III.

Expressed in another way to show the average number of car-miles operated and passengers carried for each important accident the combined results for the thirteen companies are:

	Number Car-Miles per Accident	Number Passengers Carried per Accident
Safety car	18,124	88,670
Two-man car	10,779	73,782
Total	13,485	79,267

In some of the more recent wage arbitration proceedings it has been contended that the safety car introduces an additional hazard for the operating employee and this has been used as an argument for higher wages than might otherwise be justified. As an example of the extreme to which such a claim may be carried, considerable stress was laid on some testimony in a recent wage case of a large Eastern property to the effect that a safety car had skidded for some distance on a bad rail because the emergency sander had failed to operate. The fact was later developed that no damage had resulted and that the failure was due to the sandpipe having been clogged with stones. Under similar circumstances a heavy two-man car would probably have skidded considerably further and the chances of a serious accident would certainly have been greater. In other words, the argument in this case was, if anything, in favor of the light-weight car rather than against it.

The detailed figures from which the data as to the number of accidents were compiled show the following as to employees' injuries for safety and two-man cars:

	Car-Miles per Employee	Injured
	Important	Trivial
Safety car.....	542,075	156,917
Two-man car.....	129,349	51,961

As far as the hazard to the employee is concerned it appears that disregarding trivial accidents the odds are more than four to one in favor of the safety car.

As regards the comparative money cost of accidents for safety and two-man cars the records of the companies in question show that for the first five months of the current year they paid out 4.16 per cent of their combined passenger revenue for accident settlements. These payments do not, of course, correspond exactly with the accidents occurring during this period. Some of them applied on prior claims, while on some of the accidents which have occurred during this period claims are still pending. However, with as large a group of companies as is being considered here the effect of this difference should affect the results but little if at all, and the fact that the percentage of earnings paid out for accident settlements during this period corresponds almost exactly with the average for the entire year 1919 indicates that this assumption is a reasonable one.

The amounts paid out in settlements per 1,000 car-miles for the five months period are as follows:

Safety car.....	\$10.60
Two-man car.....	15.00

The thirteen companies operated an average of 255 eighteen-hour safety cars and 245 eighteen-hour two-man cars during this period. On this basis the safety car shows an annual saving of \$300 per car per year in accident cost, or substantially \$75,000 for the 255 eighteen-hour cars in operation on a car for car basis, compared with two-man equipment, quite a respectable sum in these days of high operating costs.

Briefly, the above analysis, covering operations under such widely varying conditions as to make the information thoroughly representative and extending over a sufficient period of time to make it conclusive, shows:

(a) That the average number of accidents on a car-mile basis is about 70 per cent greater with the heavy two-man car than with the light-weight safety car.

(b) That the average number of accidents on the basis

of passengers carried is 20 per cent greater with the two-man car.

(c) That the accident risk from the standpoint of the car operator is overwhelmingly in favor of the safety car.

(d) That the accident cost is about \$300 greater per car per year with the two-man car.

(e) That in proportion to the number of accidents the number of personal injuries is 25 per cent greater for the two-man car.

As the use of the car is still further extended, sporadic attempts may be made in some cases to show that the term "safety car" is a misnomer. This need occasion no great concern provided the car is being properly operated, because it is then its own best and most convincing argument against claims of this nature. Furthermore, those responsible for such claims can make no great headway without the support of the car rider, and this, judging from past experience, will not be forthcoming.

Like any other mechanical equipment the safety car requires a reasonable degree of care and intelligence on the part of the organization which is responsible for its operation. In the hands of a prejudiced operator, favorable results are not to be expected. Careless and reckless operation will involve accidents with any type of equipment, and in this respect the safety car is no exception to the general rule. Run at high speeds in heavy traffic, any car will, sooner or later, kill some one. Operated at dangerous speeds over bad track, any car will sooner or later be ditched, with the usual attendant results. The safety car is not infallible. No one who understands the situation, and least of all the operating men, who have been largely responsible for its success, and to whom the lion's share of the credit belongs, will claim that it is immune from accidents. They will contend, and with good reason, as the figures given above amply prove, that given a square deal and operated according to the dictates of ordinarily good street railway practice its accident record is decidedly better than that of any other type of car developed.

Great Britain's Tramways Hard Hit

THE present condition of the city electric railways is editorially summarized thus in a recent issue of the *Electrician*, London:

The lot of the present-day tramway manager is not a happy one. Faced with frequent demands for increased wages and with steadily advancing prices of materials for repairs and track reconstruction, he has been compelled to resort to increases of fares in order to balance his accounts. In some cases these increases have amounted to as much as 100 per cent of the pre-war figures. Just as in taxation, there is a limit in tramway charges beyond which it is useless to go, and there are indications that this limit has been passed in some undertakings, though, unfortunately, there is no guarantee that finality has been reached in demands for advances in wages or in the upward movement of other items in the working costs. In many provincial towns the minimum fare is now 1½d., and in some cases it is 2d. The effect has been a great reduction in the number of passengers carried, and though there has been an increased gross revenue in some cases this has not been as high as was anticipated. People prefer to walk or to patronize rival motor omnibus or char-a-banc services rather than pay the higher fares. For instance, at Portsmouth there was a reduction of 1,500,000 passengers in eight weeks after the abolition of penny fares. At Glasgow, which possesses the cheapest and probably the best tramway service in the United Kingdom, the disappearance of the half-penny stages has caused a weekly drop of more than 1,100,000 passengers, but the net result is a substantial increase of revenue.

Wilcox Issues Statement

Criticises Federal Commission Report for Rejecting Public Ownership and Not Publishing His Analysis—Effect of Fare Increases

SEVERELY criticising some aspects of the Federal Commission report, Dr. Delos F. Wilcox has made a statement which he has widely distributed to the daily press. This statement to the press, some eleven pages in length, is almost wholly devoted to arguments supporting public ownership as the logical conclusion of the commission's investigation. Dr. Wilcox believes municipal ownership less experimental than service-at-cost, recommended by the commission. He regrets that the meagerness of the federal appropriation of \$10,000 makes it impossible for the commission to publish the entire record and closes with the discussion of the traffic analysis showing the effect of fare increases which he made. From this analysis Dr. Wilcox would conclude that the fare increases had caused the railways to be less useful to the public. The summary of this analysis is given in the accompanying table.

Dr. Wilcox accompanies his statement with his nine-page letter of June 8 to Chairman Charles E. Elmquist

3. The cost of labor has been determined by supply and demand. If labor ever entered into management in any degree it would demand something in addition to a fair return.

4. The public has so fundamental an interest in electric railway service that it cannot permit itself to be the victim of the vicissitudes of an unregulated struggle between capital and labor. Therefore, it is necessary that a direct relation between the public and labor be established.

5. With the establishment of these relations the responsibility of capital for management is undermined and its motive for efficiency in management weakened if not destroyed. With the assumption of direct responsibility for labor conditions and for continuity of service, the next step, logical and necessary, is assumption by the public of complete responsibility for management and the limitation of capital to its true function of supplying funds.

6. The problem of credit can most effectively be solved by public ownership undertaken through the acquisition of the existing electric railway properties at a fair price. Upon this basis capital will retire from the management and will assume the same subordinate

GENERAL SUMMARY OF ANALYSIS OF EFFECT OF FARE INCREASES UPON TRAFFIC AND REVENUES OF PRINCIPAL STREET RAILWAY SYSTEMS OF THE UNITED STATES—COMPILED FROM DATA COLLECTED BY THE FEDERAL ELECTRIC RAILWAYS COMMISSION. THE CITIES OR SYSTEMS FOR WHICH STATISTICS HAVE BEEN COMPILED HAVE BEEN DIVIDED INTO CLASSES, ACCORDING TO THE PERCENTAGE OF INCREASE IN THE AVERAGE FARE PAID DURING THE FIRST NINE MONTHS OF 1919 OVER THE FIRST NINE MONTHS OF 1917

(Table VI of Analysis of Effect of Fare Increases on Traffic and Revenue)

Class	Number of Cities or Systems in Class (D)	Number of Revenue Passengers Carried First Nine Months of 1917	Per Cent of Total Electric Railway Traffic of Country	Average Fare per Revenue Passenger First Nine Months of 1917, Cents	Number of Revenue Passengers Carried First Nine Months of 1919	Average Fare per Revenue Passenger First Nine Months of 1919, Cents	Per Cent Increase in Average Fare Paid First Nine Months of 1919 Over First Nine Months of 1917	Per Cent Increase in Number of Revenue Passengers Carried First Nine Months of 1919 Over First Nine Months of 1917 (D—Indicates Dec.)	Per Cent Increase in Passenger Revenue First Nine Months of 1919 Over First Nine Months of 1917
A (2)	13	2,465,440,094	29.16	4.93	2,837,238,677	4.95	0.41	15.08	15.65
B (3)	11	908,511,165	10.74	4.98	1,005,987,031	5.31	6.63	10.73	18.11
C (4)	29	1,583,295,790	18.73	5.28	1,689,085,597	6.22	17.80	6.65	25.63
D (5)	15	1,521,714,987	18.00	4.62	1,406,987,088	6.55	41.77	7.54 (D)	30.97
ALL	68	6,479,462,026	76.63	4.95	6,939,298,393	5.64	13.97	7.10	21.96

(1) All systems operating in a transportation area where fares have not been substantially changed, or where fares have been changed uniformly, have been counted as a single system, as in New York City, where different systems in the same transportation area or different local divisions of the same system have had their fares raised in different proportions, so as to fall within different classes in Table IV and Table V, they have been counted as separate systems.

(2) Cities or systems upon which there was no increase of fare from the first nine months of 1917 to the first nine months of 1919, or upon which the increase in the average fare paid was less than 3 per cent.

(3) Cities or systems upon which the increase in the average rate of fare paid during the first nine months of 1919, as compared with the first nine months of 1917, was between 3 per cent and 10 per cent.

(4) Cities or systems upon which the increase in the average rate of fare paid during the first nine months of 1919, as compared with the first nine months of 1917, was between 10 per cent and 25 per cent.

(5) Cities or systems upon which the increase in the average rate of fare paid during the first nine months of 1919, as compared with the first nine months of 1917, was more than 25 per cent.

of the commission, in which he summarizes his conclusions.

From the analysis of this letter it appears that with reference to the facts of the situation and circumstances surrounding the industry in its present status, Dr. Wilcox is in thorough accord with the findings of the commission. It is only with reference to conclusions and recommendations for the future that Dr. Wilcox differs from the commission in that he would have the only solution municipal ownership.

Starting from the same point of agreed fact as the commission, Dr. Wilcox argues toward municipal ownership as follows, in brief abstract:

1. Local transportation is affected with a public interest.

2. Heretofore under private ownership capital has assumed the management. Speculation has been an incentive. Divorced from management, capital would ask only a fair return.

but useful position that it already occupies in relation to municipal improvements generally.

7. The assumption of management by the public will involve the definite public recognition and guaranty of the rights of labor to a living wage, reasonable hours and just conditions of work, and will, at the same time, place electric railway employees in the position of civil servants with the advantages and responsibilities which are implied in that relationship. Labor is different from capital. One of the principal jobs of public management will be to work out a better relation to labor.

8. The imperative need of the present time is the acceptance of public ownership and operation as a policy. Any temporary relief granted to the electric railways and any temporary readjustment of their public relations under private ownership and management ought to be consistent with and preparatory for the early and effective consummation of public ownership and operation as the ultimate policy.

Opinions from the Industry

Federal Electric Railways Commission Report Elicits Favorable Comments as to Its Value as an Aid in the Solution of Railway Problems—Some Critical Remarks on Certain Features

IN THE short time available since the Federal Electric Railways Commission report was received by most railway men it has been possible to obtain only a few comments, but those received are published herewith. The invitation remains open to add to the discussion on this subject, both as to how the report may affect the railway problem and as to how the railways may make use of the report, and it is planned to publish additional comment in the next issue or two.

Thomas S. Wheelwright

President Virginia Railway & Power Company,
Richmond, Va.

I am satisfied that the very excellent report made by the commission has a decided educative value not only with the public but with the local authorities to whom appeal must be made for improvement of the present status.

William G. Bliss

Chairman of the Public Utilities Commission
of Rhode Island

The report is a very comprehensive summary of the electric railway situation. The conclusions, while presenting nothing of a novel character to those who have been compelled to follow the changing character of the problem, should carry great weight because of the high character of the Federal Electric Railways Commission and because of the complete nature of its investigation.

Arthur W. Brady

President Union Traction Company of Indiana,
Anderson, Ind.

The report of the Federal Electric Railways Commission represents the result of the most comprehensive and impartial investigation ever undertaken of the electric railway field. While every conclusion reached may not command unanimous support, the report as a whole is a document of the greatest value. It should do much to clarify the atmosphere and to aid in establishing better relations between the industry and the public and thereby to render it possible for the industry to increase its field of usefulness.

Paul Shoup

President Pacific Electric Railway,
Vice-President and Assistant to the President
Southern Pacific Company,
San Francisco, Cal.

The Federal Railways Commission, in its report, states the case thoroughly in saying that such conditions must be created controlling the electric railway industry as will restore the confidence of investors therein. I concur in nearly all of the conclusions expressed in the report:

1. That the fares shall be responsive to the investment and operating expenses of the property concerned.
2. That motor vehicles operated as public utilities in competition shall be subjected to as great taxation as are the electric railways and made to bear a share of maintaining the public highways equivalent to that which the electric railways would bear if they occupied them.
3. That where good electric railway service is given motor vehicle competition shall not be permitted, which is to the public interest in preventing the destruction of highways and keeping them from, in time, becoming private roadways for commercial uses.
4. A definite agreement with public regulating bodies as

to the value of every electric railway property, whether determined by physical valuation or by conference, and a thorough understanding that thereafter rates will be such as to bring a fair return thereon, this being absolutely essential to the re-establishment of credit.

5. That electric railways shall not be called upon to bear extraordinary burdens in connection with public relations in the way of non-profitable investments such as grade separations, highly expensive paving, replacing wooden poles with metal and building unwarranted extensions under public direction.

To conclude, the relations between the public and the electric railways are local and must be so treated and established on such a permanent basis as will give a return on the investment in such properties.

John J. Stanley

President the Cleveland Railway Company,
Cleveland, Ohio

The report of the Federal Electric Railways Commission will help the industry if the country is sufficiently interested to heed it. It is too late to save those companies that are bankrupt or in the receiver's hands through public apathy. It will not help the industry now unless the public can be roused from its apathy on matters where public utilities are affected. Any community more interested in the rate of fare collected on its street railway than the development of the railway and the service given by it will be slow to follow the recommendations of the commission. Service-at-cost is not a panacea for all street railway ills. It can be effective only when a community knows what it wants in street railway transportation and is willing to pay for it. How the public generally is to be brought to a full realization of its transportation needs and costs I do not know, unless the complete breaking down of service throughout the country carries home the lesson.

C. L. S. Tingley

Second Vice-President American Railways,
Philadelphia, Pa.

I am in hearty agreement with the conclusions and recommendations, with the exception of those contained in Section 1, paragraph XVI, which, it would seem to me, would force the companies back into the realm of municipal politics, from which state regulation is intended to divorce them.

With respect to the uses to which the report can be put, it would seem to me that it should be given the widest publicity and should be referred to and made the basis of all public discussions of the question. It would have been desirable if they had placed more stress upon the necessity for the means of restoring credit.

It is quite apparent that the so-called universal 5-cent fare has in the past in many instances never provided a sufficient income to meet operating expenses, depreciation, taxes and security to the investor of the integrity of his investment and a fair rate of return thereon, for unless there be a reasonable margin over and above the fair rate of return, which not only need not but as a matter of fact should not be declared in dividends, there will not be that margin of safety which is necessary to insure the investor of the integrity of his property and attract new capital thereto. The lack of this margin in the past has compelled the electric railway to secure an undue proportion of the funds necessary for capital expenditure through the medium of bond issues, thus giving a distorted capital structure and inviting disaster in times of stress.

E. G. Connette

President United Gas & Electric Engineering Corporation,
New York, N. Y.

The report of the Federal Electric Railways Commission is more or less academic. It has no practical value except for reference.

The recommendations of the commission are not new. A service-at-cost plan might be acceptable with a fair valuation of the property and a rate of return allowed on invested capital, and for new capital, that would be attractive to investors.

The credit of street railroads is gone and can only be restored by recognition of public authorities that capital as well as labor is entitled to a proper wage. Capital cannot be coerced. It must be induced. Street railroads to give proper service must be able to provide for maintenance, renewals and replacements and for extensions of service. This requires capital.

Efficiency and initiative in operation and service should be recognized by making the rate of return flexible, as well as to take care of fluctuating interest rates.

Renewals and replacements must be made at the present day costs, and provision for a larger reserve on this account is necessary and to take care of accumulated wear and tear that must ultimately be replaced at the present high prices.

James P. Barnes

President Louisville Railway,
Louisville, Ky.

It is the best analysis of the country's street railway situation ever made, I believe. A glance at the personnel of the commission will show that it is peculiarly representative of the country in the wide variety of selections made for its membership. I think, therefore, that it is noteworthy that this commission agreed so exactly on the very thing which has been our program here in Louisville and is set forth briefly in paragraph 14 of the report:

"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."

W. Kesley Schoepf

President the Cincinnati Traction Company,
Cincinnati, Ohio

The report of the Federal Electric Railways Commission will be most beneficial to the public, the companies and employees, by having street railway problems and their solution presented so clearly by an impartial authority representing all interested parties. Recommendation of a service-at-cost plan is of particular interest to this company and Cincinnati because of the fact that this plan is in successful operation here. Consideration given to restoration of credit, relief from special assessment, non-paying extensions, jitney and private automobile business and an understanding and co-operation between the company, the public and the employees is especially valuable.

C. D. Emmons

President United Railways & Electric Company,
Baltimore, Md.

The committee has succeeded in stating in a very concise form its summation of a mass of testimony which, under the very nature of the testimony and the divergent sources from which it was ascertained, must have been more or less confusing and contradictory to it. On the whole, I feel the report should be very helpful to street railway interests throughout the country and it is to be hoped that wide publicity will be given to it.

Of particular interest to the writer is the treatment of the question of taxation, as in a great many cities, especially in Baltimore, the street railway company is to a large extent the collector of taxes for the city itself. Through our park tax, which is 9 per cent of our gross city revenues, we will collect for the Park Board of the city of

Baltimore during the year 1920 more than \$1,250,000; this in addition to all other forms of taxes known to the industry, including assessments for sprinkling and street paving.

The suggestions as to the regulations of competitive automobile, motor bus and jitney service and their being required to pay a tax comparable to the taxes paid by the street railway company are extremely timely and pertinent. Almost every one of the twenty-two conclusions and recommendations is interesting and will, no doubt, bring before the public at large some of the many interesting intricate problems that confront the industry.

J. H. Hanna

Vice-president the Capitol Traction Company,
Washington, D. C.

The report of the Federal Electric Railways Commission puts before the public fairly and definitely, and with official authority, the very facts concerning the industry which the companies, individually and through the American Electric Railway Association, have been endeavoring for many years to make known.

The fact that this report makes definite statements on conditions and recommendations for their improvement and is made unanimously by men chosen from every interest represented should assure it the serious consideration of regulatory bodies and do very much to bring about the co-operation of the public in electric railway matters, which, as the report itself states, is the most essential thing to be accomplished in remedying the situation.

A Model Traffic Law

SESSIONS of the annual meeting of the National Traffic Officers' Association, held at San Francisco, Aug. 23-27, were devoted largely to separate meetings of ten committees, each of which was instructed to prepare recommendations on how matters in its field should be covered in a model traffic law. An electric railway representative served on each committee. W. H. Maltbie, general counsel of the United Railways & Electric Company of Baltimore, Md., presented a proposed traffic ordinance which had been drafted by the committee on code of traffic principles of the American Electric Railway Traffic & Transportation Association. A full report of the meeting and a digest of the A. E. R. T. & T. A. ordinance will be presented in an early issue.

Coal Reports to Cease

THE Federal Trade Commission in a late bulletin on the bituminous coal situation threatens to suspend publication in the future as only about one-fourth of the operators are reporting operating figures to the commission. The reports would be useless or at least untrustworthy and misleading, if based on too small a number of operators reporting and there is no way to force reports to be made.

The figures from the 680 operators voluntarily reporting show an f.o.b. average mine cost per 2,000 lb. of \$2.77 and an average sale price of \$3.31 per ton. Of the cost \$2.07 represents labor cost, 31 cents supplies and 39 cents overhead. The margin of 54 cents is not all profit, as other deductions or additions must be made. The margin for the first three months of 1920 was 38 cents, as compared to 54 cents for May.

If the operators in the West Virginia field report correctly coal should have been available f.o.b. cars at Hampton Roads at about \$5.40 per net ton. The operators reporting mined about 20 per cent of the bituminous coal produced in May.

Track Evolution in Edmonton

A Description of Several Years' Experience with Various Types of Track Construction in Edmonton, Alta., Canada, Reviewing Factors Determining the Design of Paving Base, Track Drainage and Paving

EDMONTON, ALTA., is a young, vigorous Canadian frontier city in which electric traction history is short but instructive. As in many Canadian cities, the electric railway system is municipally owned and operated. The story of track development in this city is told in an article printed in the *Canadian Engineer*, April 22, 1920, and written by C. C. Sutherland, assistant roadways engineer of the city engineer's department of Edmonton. Mr. Sutherland's article is entitled "Street Railway Permanent Track Construction."

The article gives a review of matters of interest in connection with track drainage, paving base, paving, track construction and maintenance, covering several years' experience in the city of Edmonton with these important items. The following abstract of Mr. Sutherland's article should be of interest. After a résumé of the history of track design in general, the writer says that while there are many methods of transmitting the loading of the rail to the subgrade below, they may be divided, generally speaking, into (1) girder type, (2) slab construction, (3) ballast base construction and (4) monolithic concrete construction.

The girder type of trackwork carries its load on a continuous concrete girder underneath the rail, with a cross girder under each tie. The pavement base is poured at the same time as the girders, but where the rails are 7 in. or less it cannot be expected that this thin slab will carry a part of the loading. Steel ties are invariably used with the girder construction and are placed from 6 to 10 ft. apart. They serve only as tie rods in holding the rails to gage, taking very little part in supporting the load.

The slab construction carries its load on a 6-in. or 8-in. concrete base, extending the entire width of the track, which may be brought to grade by using a light sand cushion or by shimming up the ties with wooden wedges and pouring a weak concrete filler or placing a 4-in. or 5-in. layer of rock ballast around and under the ties.

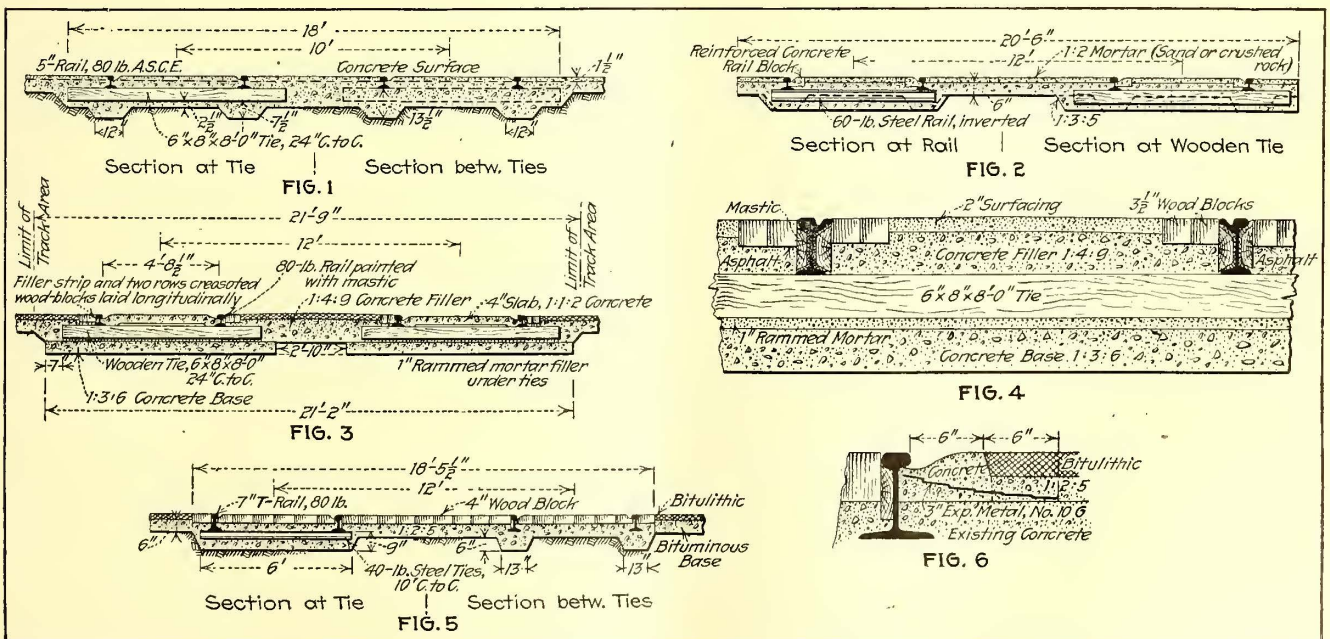
In the case of ballast base construction the load is carried on a 6-in. to 10-in. gravel or crushed rock base which extends well out at each end of the ties. Some railway companies lay a ballast base, but bring the concrete which supports the pavement down under the base of the rail, thus making a combination girder and ballast construction.

The monolithic concrete construction, as the name implies, is poured in one operation. It carries its load, however, in much the same way as the slab construction, the concrete under the slabs varying from 6 in. to 8 in. in depth.

VARIOUS TYPES OF PAVEMENT LAID

In Alberta, where local clay does not make a paving brick and where there is no granite to be obtained, the choice of a pavement is restricted to materials that may be shipped at a reasonable cost, or to local materials. The selection is limited to wood block, bituminous pavement, concrete or some combination of two or more of these materials. A description of each class of pavement will be included in the following résumé of the different types of trackwork laid in Edmonton.

The first permanent street railway track in Edmonton was laid on Jasper Avenue, between 101st Street and



VARIOUS DESIGNS OF TRACK CONSTRUCTION IN EDMONTON, ALTA., CANADA
 Fig. 1. Design for 1910 construction.
 Fig. 2. Design for 1912 construction.
 Fig. 3. Design for 1916 construction.
 Fig. 4. Another design prepared in 1916 for future construction.
 Fig. 5. Design for 1907 construction.
 Fig. 6. Replaced 1907 design in 1910.

109th Street, in 1907. Fig. 5 is a cross-section through this construction. The section is a girder type, having a 13-in. bearing at the bottom of the girder, with a depth of 9 in. under the base of the rail. The rails are held together every 10 ft. with 40-lb. inverted steel ties, fastened to the rail flange with bolts and clips. Each cross-tie is supported by a cross-girder 6 in. deep. Sixty-foot 7-in. 80-lb. Lorain-section rails were used, and heavy Atlas joints, which were bolted to the web with sides well up under the head and with the lower part of the joint carried under the flange where it acts as a girder in supporting the rail ends.

Concrete was poured to within 4 in. of the top of the rail and allowed to set. A wood-block pavement was laid down between the gage lines and in the devil strip, the blocks next to the rails on the outside being kept vertical by the use of a treated wooden filler strip laid against the web, while the blocks laid on the gage side of the rail were notched to allow for the wheel flange clearance.

After two years of comparatively light traffic it became apparent that the wood blocks between the gage

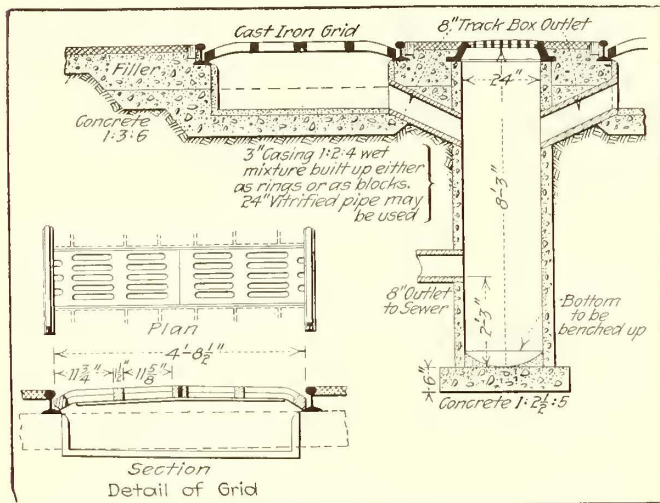


FIG. 7. DESIGN OF TRACK BOX PREVIOUS TO 1915

lines would not stay down. The flanges of the wheels first split the blocks, and as dirt and water were forced into the cut the blocks arched up until they caught on the fenders of the car.

During 1910 all wood blocks were removed from between the gage lines and replaced by a reinforced concrete rail stretcher, with a 2-in. bituminous surface between the stretchers. Fig. 6 shows a detail of this reconstruction.

The surface of the existing concrete was fully cleaned off with steel brooms and a rich concrete rail block, 6 in. wide and 4 in. deep, was laid at the gage side of each rail. Before the initial set had taken place the intervening space was poured with concrete mixed in the proportion of one part cement, two parts sand and five parts washed gravel or crushed rock. Strips of expanded metal were placed in the rail block, with one end embedded in the pavement base. After sufficient time had elapsed for the concrete to set the 2-in. bituminous surface was laid.

When the track on Jasper Avenue had been subjected to heavy traffic for four years it had become evident that the girder would not hold. The joints settled first, followed by other portions, and in 1915 it was found necessary to replace several hundred feet of the worst

parts by a later design. In 1916 most of the pavement was removed and the joints blocked up.

From the fact that this kind of construction carried a fairly heavy traffic for four or five years on a partially saturated subgrade it would seem reasonable to expect that for moderate traffic on a well-drained subsoil, such as gravel or coarse sand, this type would give satisfaction. In connection with the two rows of wood blocks, which insulated the bituminous pavement from the rail, it was a noticeable feature that the block next to the soil followed the rail down 2 in. or 3 in. as the girder sank, while the other block remained intact with the surface, the two blocks sliding on each other.

The next type to be constructed was on Namayo Avenue. The loading was carried on two concrete girders and the rails were held together by tamarac ties spaced at 2-ft. centers (see Fig. 1). The rails used were 5-in. 80-lb. A. S. C. E. sections, held together by continuous joints. After the trenches had been excavated the skeleton track was blocked up and the base poured. In this case the track pavement was a two-course concrete slab, and it was possible to pour the track base and paving base in one operation. The top surface was added before the base had taken its initial set.

The track was constructed in 1910, but did not carry traffic until two years later. After eight years of service the track is in good alignment and grade, but has a tendency toward raveling on the inside and outside of the rail, and in one or two places the slab between the gage lines has raised. It is thought that a great deal of the success of this type of construction lies in the fact that as operation did not commence until two years after construction the concrete had every opportunity to develop considerable strength.

NEW DESIGN OF CONSTRUCTION PREPARED IN 1912

In 1912 an extensive program of street railway track construction was planned and a new design was prepared, as shown in Fig. 2. The construction is somewhat similar to the Jasper Avenue type, but, in order to decrease the unit pressure on the subsoil, cross-ties and cross-girders were placed at 5-ft. instead of 10-ft. centers. It was planned to use 60-lb. steel rails alternately with wooden ties, but as the steel rails were not obtainable wooden ties were used throughout the construction. The specifications called for two bids, one for the completed 10 and 12-ft. center tracks with a pavement wearing surface of 1:2 mortar, and a second bid for the completed tracks ready to receive a 2-in. bituminous surfacing between the gage lines, in the devil strip and on the outside of the rails. In this latter construction reinforced concrete rail blocks were to be constructed to form the flange clearance and act as a shoulder for the bituminous surface. On certain streets work was started late in the fall, with the result that the concrete rail blocks were caught by the frost and had to be removed. They were replaced by a concrete slab 4 in. thick. Before this work had been down five years the surface was badly cracked and broken up at a number of places, especially at the joints. A slight settlement in the girders was followed by a breaking up of the concrete pavement.

In 1913 a radical change was made in the track design. It was thought that the track construction did not give sufficient bearing surface and, working toward that end, the old style of girder construction was abandoned and a 6-in. slab built completely across the track area. In case of a cut a burm 2 ft. 10 in. wide was

usually left between the base slab in the 12-ft. center construction, but in fills the difficulty of forming this burm offset the saving of concrete. After this base had set the tracks were assembled and bonded. Fig. 3 shows the general cross-section of the 1913 construction, with the difference that a 1-in. sand cushion was placed under each tie instead of the mortar, as shown; the wood blocks were not laid on the outside of the rails, and the slab between the gage lines was reinforced.

Some of this construction showed signs of failure after four years' usage, and the most noticeable failure occurred on Alberta Avenue, where there had been constructed a double line of car tracks, built at different times. On the south track the joints were made of ordinary four-hole splice bars and with little or no attention paid to the spacing of the ties at the joints. On the north track the joints were made with four-hole continuous joints. Both tracks were subjected to the same traffic, yet the south track gave way at the joints, while the north track remained in good condition.

On other streets the results were more satisfactory excepting that in some places the bituminous surfacing at the outside of the rail broke away, and in a number of places the concrete slab between the gage lines raised, due to dirt and water finding their way under the slab, through a crack just inside the gage lines, where the slab sheared.

The cause of failure of the slab was thought to have been partly due to the giving of the sand cushion under the tie. It would seem better practice to construct a good sound support for the ties and depend on wooden ties for resilience.

CONSTRUCTION ACCEPTED AS STANDARD IN 1915

With the experience now obtained, the track design as shown in Fig. 3 was accepted as the standard construction for 1915 and 1916, when 2.8 miles were constructed. The 6-in. concrete base of the 1913 construction was retained, but the sand cushion was replaced by 1-in. of rammed mortar under the ties, which were shimmed up with wooden shims placed near the end of the ties.

Before the filler had time to set the concrete slab between the gage lines was poured, precaution being taken to paint the rail with an asphaltic compound to prevent the bonding of the concrete to the rail. On the outside of the rail were placed two rows of treated wood blocks with a treated wood filler strip to fill the web. In forming a base for the two blocks the rough filler was leveled with a mortar and painted with an asphaltic paint.

In this type of construction the ties are supported on a rigid bearing, but the wood blocks and mastic joints leave the rail free to move up and down to give a certain resilience to the track, but without affecting the adjoining pavement.

To review the condition of the various types of trackwork under operation: The girder type has not held up under Edmonton conditions, especially at the joints and at street intersections. In the later design, where the bituminous surfaces were laid against the rail, it usually raveled, but this has been overcome by the wooden tail blocks. The biggest trouble has been caused by the flange of the wheel cracking the concrete slab just inside the gage line. These cracks soon became large and water found its way down under the slab, with the result that hundreds of feet of this slab had to be removed.

The results from operation on the various types of track construction described have certainly demonstrated the fact that it is almost impossible to construct a permanent pavement around the T-section of rail.

DETAILS OF EXCAVATION, CONCRETING AND DRAINAGE

In preparing the subgrade for a street railway track, ready to receive the concrete base, it may be possible under some conditions to take out most of the rough grade with drag scrapers, but under most conditions this dirt must be hauled off the streets to some suitable dumping place in dump wagons. After the rough grade is taken out the subgrade is trimmed, leaving the loose dirt from $\frac{3}{4}$ in. to $1\frac{1}{2}$ in. above the final grade, to allow for setting under the roller. All soft spots should be made firm with new material. This work may be paid for on a cubic yard basis, which will include "rough grade" and "fine grade" rolling and carting of all surplus materials.

In preparing to lay concrete, consideration should be given to the selection of material, methods of mixing, methods of placing and the care or "curing" of the green concrete.

The coarse aggregate may be obtained from well-graded gravel or a hard, tough material suitable for

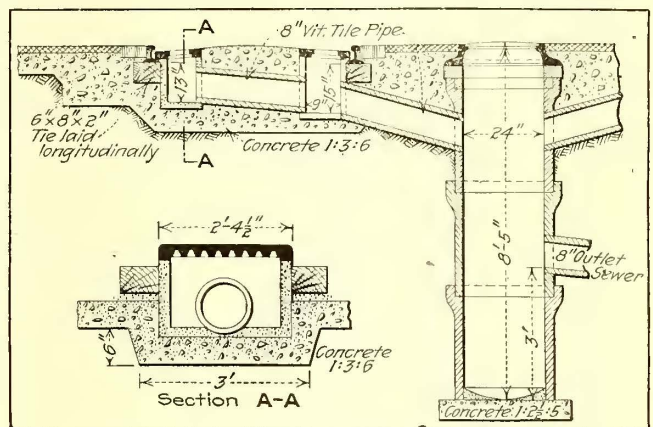


FIG. 8. DESIGN OF TRACK BOX IN 1915

crushing and graded to pass a 2-in. ring. The fine aggregate may be any well-graded clean sand or crusher screening from a durable material. Experience at Edmonton has shown that "pit run" gravel—that is, a mixture of coarse and fine aggregate coming direct from the pit—has too great a variation between the percentage of fine and coarse aggregate to make good concrete, and the specifications require that "only segregated materials shall be used." The cement used should conform to the standard of the Engineering Institute of Canada, but may be released on passing the seven-day test.

The concrete should be mixed in some form of "batch" mixer where the materials are measured separately for each batch. It is not necessary actually to measure all the materials in a measure, but good results may be obtained by using small wheelbarrows. It is usually a good plan, however, to have a bottomless measure on hand to place over the wheelbarrow as an occasional guide to the laborer. Under no consideration should material be shoveled directly into the hopper. The mixing should continue long enough and with sufficient water to insure that all the particles have been coated with a cement film. Excess water should be avoided so that the concrete will leave the mixer in as stiff a condition as it can be conveniently handled.

In placing concrete on the subgrade some engineers recommend the use of "open chutes" or the "boom and bucket" method, but experience on street railway work in Edmonton has shown that good concrete can be laid with dump carts, provided the concrete is raked or shoveled into place after it has been dumped. In placing the filler concrete between the tracks in the 1916 standard construction a special gangway was built which enabled the carts to be backed out over the first track to fill in both tracks in one operation.

In hot weather the surface of the green concrete should be kept moist by sprinkling with a hose, and after a day or so covering with earth. The covering should be kept moist for at least two weeks. To get good concrete it must be protected from the drying out effect of the sun and wind, and more especially will this be true in countries of high altitude where the rate of evaporation is high.

Track drains, which are provided to catch the rain and melting snow that runs along the track allowance and carry it into the sewer system, should be placed at least every 800 ft. on a long grade and at the intersection of descending grades.

Fig. 7 shows the older type of track box built in Edmonton previous to 1915, in which the grill casting was made in two pieces, with the grills at right angles to the traffic. The water drops into a concrete box with an outlet pipe to the silt well, which is connected to the sewer.

The silt wells may be built of concrete blocks, brick or vitrified cull tile pipe. It has been found that excellent results may be obtained by using three pieces of 22-in. or 24-in. vitrified pipe standing on end in a concrete base. The casting of the top is usually a standard man-hole frame and cover made to fit on the tile by corbeling up with brick.

This type of track box has given satisfaction with the exception of the grill, of which a large number of the old type were found with one or more bars broken off by the traffic. In making a new design it was decided to lay the grill lengthwise along the rail, thus greatly increasing the inlet capacity. Fig. 8 shows a section of the new type in use since 1915.

PRACTICE FOR PAVEMENT MAINTENANCE

The question of who should maintain the pavement on the street railway allowance has received a great deal of attention, and usually it is required that the street railway company should keep the pavement on the railway allowance in good repair. In the city of Strathcona, prior to its amalgamation with the city of Edmonton, the street railway department paved and maintained a strip 8 ft. wide over a single track, the remainder of the cost being assessed on the abutting property. In Edmonton abutting property is assessed for the pavement on the street railway allowance. The railway department usually constructs the completed permanent track and is reimbursed for the pavement at the same rate per square yard as the contract price of the adjoining pavement. The most common practice is to require the street railway company to construct and maintain a pavement equal to that on the adjoining roadway, the limits of the street railway allowance being defined by the area covered by the overhang of the cars or by some given distance such as 18 in. or 24 in., outside the outer rail.

During 1913, when a large program of permanent track construction was carried out, several miles of

track were constructed on streets where the adjacent roadways were not paved. Traffic kept to the paved strip, with the result that from the mud and concentrated traffic the bituminous surface in the devil strip soon developed holes and ruts. In this case the city commissioners decided that the street railway department should pay one-third of the cost of maintenance and the street department the other two-thirds.

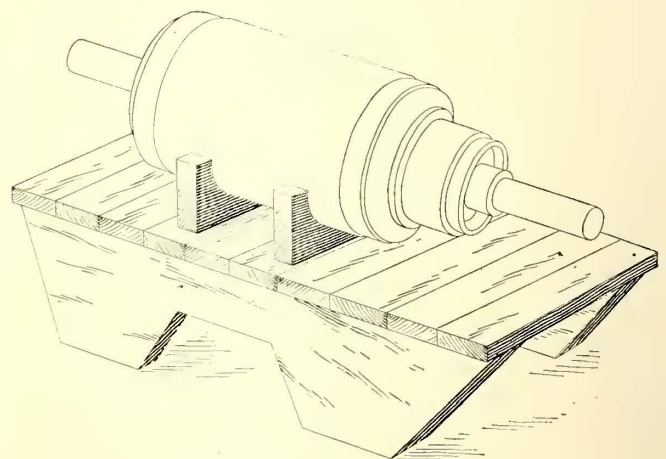
Pavement replacements or repairs may usually be carried out without interruption to traffic, but where the track base gives way considerable difficulty may be experienced in making repairs. The method that has been adopted in Edmonton is as follows:

Where a track has settled the pavement is first removed and piled in a convenient place and the rails and ties are cut free from the concrete base and jacked up on runners made of 6-in. x 6-in. timber of various lengths. The subgrade, having been cleared of the old base, is then refilled and tamped with a suitable material and the new concrete base is poured. When this has set sufficiently the track is shimmed up into the base and runners removed and concrete filled up to the pavement line.

Edmonton has taken up a large area of bituminous pavement in recent years, and it has been found that by heating this on a plate of sheet iron and mixing while hot the retempered material gives satisfaction as a new surface.

Supporting Cradles Reduce Damage to Armatures

THE officials of the Pittsburgh Railways believe it worth while to keep armatures in their repair shop off the floor, as any rolling is liable to damage the coils and there is danger of small particles of metal being picked up, which would result in a short circuit. They have made cradles of rough 2-in. lumber of the type shown in the accompanying illustration.



CRADLES FOR KEEPING ARMATURES OFF THE FLOOR

Armatures are placed on these whenever they are not actually in machines or being worked on and before they are ready to be put in storage racks. The type of construction used permits of lifting the armature, together with its cradle, by a crane or hoist by passing the chain or rope used as a sling underneath the cradle and around the ends of the armature shaft. The resulting reduction of damaged armatures is said to have been considerable since this method has been put into practice.

"Omnibus Automobiles" in Rio de Janeiro

Storage Battery Bus Used by the Local Tramway,
Light & Power Company on Chief Business
and Pleasure Avenue of City

By V. L. HAVENS
Editor *Ingeniería Internacional*

TO THOSE whose experience has been limited to the cities where omnibus service has been introduced only because of the congestion of the tramways it is a surprise to see the excellent public automobiles along the main avenue of Rio de Janeiro, but there is, as always, a reason for handling the traffic in a certain manner.

The tramway system of the capital of Brazil is excellent and the cost of passage, based on the zone system, is very reasonable. There is some satisfactory method of reaching every corner of the city by means of the coaches of the company, locally referred to as *bondes*, with the exception of the Avenida Rio Branco, the main artery of pleasure and commerce.

This avenue may well be compared with Fifth Avenue of New York, San Francisco of Mexico City, Prado of San Martín in Habana or Buenos Aires, but is much wider than any of the streets mentioned, and in addition to the pleasure seekers who throng the thoroughfare at certain hours of the day one also finds here the principal banks, newspapers, hotels, cafés and theaters, as well as some of the offices of the government.

The need of an adequate transportation system is obvious to any one, but the laying of street railway lines in this street has never been permitted because of the inflexibility of traffic along such lines, and also because of the opinion held by some people that the æsthetic qualities of the avenue might be damaged by such a procedure. The real and serious criticism directed toward the laying of tracks has of course been the *motif* for the introduction of the omnibus, and the possibility of a trackless trolley has received less consideration than it merits because of the natural tendency in one's mind to think of the track and the trolley simultaneously, although many European cities have found it possible so to construct the trackless trolley system as to make the overhead center pole type an adornment rather than a defect. There are many people in the city who feel that the time must come when a more rapid means of transit along the avenue will be necessary, but since the authorities prefer the omnibus system, for the present, the Rio de Janeiro Tramway, Light & Power Company, Ltd., has adapted its methods to that plan and offers a service, from 7 in the morning

until 7 in the evening, which compares very favorably with that of any other part of world, having carried more than 1,250,000 passengers in 1919 without a serious accident. Of course there is competition from time to time, as many persons find an apparent opportunity to operate motor buses in competition with established systems, but the competition is not serious and the cars are small in comparison. The tendency of competition of the smaller lines is to assist in handling the peak loads, or the maximum which occurs at certain hours of the day, and in this sense they are beneficial to the city and work no serious harm to the principal system, although there is of course a marked advantage in any city to have the transportation facilities work in as close harmony as circumstances will permit. The smaller competing jitney buses mentioned only carry about ten passengers, are very light in construction and

use gasoline for motive power. The regular omnibuses seat thirty-two passengers.

The route of travel of the auto omnibus line of the Rio de Janeiro Tramway, Light & Power Company is 2,100 meters (1.3 miles), from Praça Maua to Passeio Publico. The return distance traveled is the same and along the same route. There are seven coaches, each with a dead weight of about 15,000 lb., employed, having J. G. Brill Company bodies, with Edison or Oxide batteries and four-wheel drive, on chas-



TRAMWAY COMPANY BUS ON AVENIDA RIO BRANCO, BEFORE
FAMOUS MONROE PALACE, RIO DE JANEIRO

sis of the Commercial Truck Company of America. The maximum in service at one time is four, although all seven may be in service some time during the day.

The power consumed per bus-mile is approximately 2.328 kw.-hr. alternating current or 1.701 kw.-hr. direct current. The corresponding amounts per bus-kilometer would be approximately 1.46 kw.-hr. a.c. and 1.06 kw.-hr. d.c. The amount varies somewhat from month to month. The amount of power consumed is infinitesimal when compared with the total output of the generating plant, amounting to about 0.15 per cent. When charging the direct current is supplied from a 110/150-volt 760-amp. generator, this being driven by a 150-hp. motor. The charging rates are controlled by resistances, and the omnibuses may be brought in to have their batteries charged during the night.

The normal rate of fare on the tramway company omnibus is about 5 cents (United States currency equivalent) and on the private competing buses also about 5 cents; on the tramway itself the normal rate of fare is about 5 cents for the first zone and about 7½ cents for the second zone. These fares are relatively very low in a city where the first charge for one or two automobile passengers is 50 cents for the first kilometer and then 5 cents per 100 meters after that.

The fact that public carriages are practically unknown in the city is in itself a fair indication of the excellent

service rendered by the tramways, omnibuses and taxicabs, each type of conveyance encountering very little competition from the other types. The accompanying illustration shows one of the omnibuses of the tramway company near the famous Monroe Palace at the foot of Avenida Rio Branco. It is notable that the so-called "imperial" or second floor so well known in London, Paris and New York is lacking here because of the comparatively short haul and the time lost in climbing up and down. Persons carrying bundles cannot ride in these omnibuses, and it is not permitted that any person ride in a first-class omnibus or tramway coach in Rio de Janeiro unless he is properly clad, with a collar, necktie, shoes and other habiliments generally worn by self-respecting people.

New Heavy Energy Air-Break Switch



HEAVY ENERGY AIR-BREAK SWITCH

A NEW air-break switch is now being placed on the market by the High-Voltage Equipment Company, Cleveland, Ohio. The switch is designed to break heavy energy loads or line charging currents and is so constructed that the arc is lifted by the horns as rapidly as the switch arm is raised in opening. Any part of the switch can be removed without removing the switch from the pole or substation structure. The insulators are fastened to forged steel pins by threaded steel thimbles cemented into the insulators. The insulators are securely locked or keyed to the pins and can be readily removed by disengaging the locks.

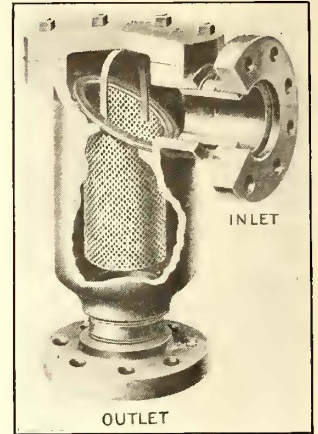
The contact is of the self-adjusting type, which aligns itself with the contact blade. It is covered by a sleet hood and protected against burning by auxiliary contact horns. Among the special features claimed for the design are the elimination of all torsional strains on the insulators and the provision for a great rupturing capacity and an absolute waterproof construction.

Using Up Broken Drills

A NOVEL form of tool holder designed by the Martin Tool Holder & Machine Company of Jackson, Tenn., permits of the use of drill bits and other short lengths of high speed steel as the cutting elements in lathe tools. The holder consists of a block of steel of suitable size in which is drilled a hole in a diagonal position and of a size corresponding to the size of the drill bit to be utilized. The holder being slotted in the axis of the drill allows sufficient flexibility to insert the cutting tool and firmly to clamp it in place by means of the tool post on the lathe. These holders are provided for carrying round bits up to $\frac{3}{4}$ in. in diameter, in addition to which other holders are made to accommodate bits of square sections of varying sizes.

Convenient Strainer Set

THE various oil discharge lines used in power houses as well as the intake for water supply require strainers. To meet this demand the Griscom Russell Company, New York, N. Y., is marketing a strainer with the construction shown in the accompanying illustration. The body is made of cast iron and the strainer basket of perforated sheet steel and lined with wire mesh when the strainer is to be used on an oil line. This strainer may be installed either as a single unit or as a strainer set. The strainer set consists of two of these strainers connected complete with two three-way valves and necessary connecting elbows, unions and nipples. The set permits the cleaning of either of the two units without interruption of service.

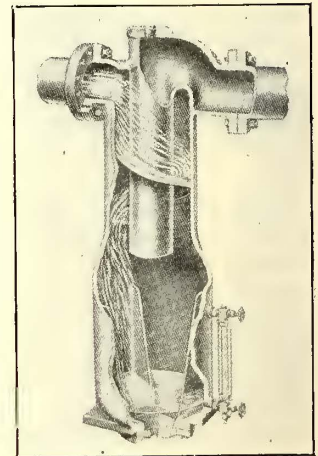


NEW TYPE STRAINER

Obtaining Dry Compressed Air

THE presence of water in compressed air is a source of much trouble, not only in connection with the operation of car equipment but also in the use of air in shops for blowing out and cleaning equipment parts and in operating pneumatic tools. In the usual installations cooling coils are installed between the compressors and reservoirs. These serve to condense the water vapor so that it will be deposited to a certain extent in the reservoir and can thus be drained off.

An air separator for use in freeing compressed air of water is being placed on the market by the Griscom-Russell Company of New York City. The general construction of this separator is shown in the accompanying illustration. The centrifugal force of the moving air is utilized as a means of freeing it from water; as the air and water pass through the separator they follow a helical path



CONSTRUCTION OF AIR SEPARATOR

formed about a central core, which causes a swirling motion. As water is much heavier than air, it does not take the turns so readily and it is thrown out of the path of the air against the outer wall. From the wall it trickles down slowly and accumulates in a receiver.

This type of separator has been found particularly suitable for use in connection with sand blast machines. Electric railways that sand blast glass or castings have found that water in the air causes the sand to pack and thus prevent free operation.

The Griscom-Russell Company has just published a bulletin, No. 1111, which gives additional information regarding the separator, together with sizes available.

Letters to the Editors

Relation of Tie Life to Track

THE INTERNATIONAL STEEL TIE COMPANY
CLEVELAND, OHIO, Aug. 31, 1920.

To the Editors:

We are heartily in accord with the suggestion contained in your editorial on "Substitute Ties," in the JOURNAL of Aug. 21, that the relation of the tie, of whatever type, to the track as a whole needs to be considered in the light of information made available through the report of the American Railway Engineering Association. To further the tests and investigation along these lines, either by the American Railway Engineering Association or by individual companies, we will be glad to place at their disposal, without charge, our shop facilities and the assistance of our engineers.

For the more complete information of the readers of your editorial, particularly with reference to the Chicago study of results with steel ties, may we state that the steel twin ties were never used in that city?

T. L. LAVAN, Assistant General Manager.

Detroit Does Not Play with the Bus

NEW YORK, N. Y., Aug. 26, 1920.

To the Editors:

If the municipal agitators of the Hylan type, who harp on buses as the sole solution of our surface transportation problems, would pay heed to real economic considerations they would soon realize that the conducting of transportation *en masse* can best be accomplished only by means of vehicles, large in size, safely constructed and run upon rails.

Walter Jackson's recent report on Bridgeport's transportation problems, made to the Chamber of Commerce of that city, does not call for the elimination of the rails. On the contrary, it emphasizes the need for them, just as any sane analysis must do. But the city of Detroit has gone much further than Mr. Jackson in placing the rails where they properly belong in our scheme of transportation. While the Hylan busy buses buzz wherever the courts have not put them out of business, Detroit has gone in deeply for a municipally owned street railway system, tracks and all.

We wonder if Mr. Hylan has heard of this flouting of his pet theory of bus or bust by Mayor Couzens, who may be classed as one of the fathers of the automobile industry. If so, New York's Mayor must be making faces at Mayor Couzens for spoiling the bus propaganda as the best means for pursuing a policy of municipal ownership, down-with-the-street-railways program. This must hurt all the more because both Mayors appear to have the same general object in view—namely, municipal ownership at any cost. Certainly the records of both men make it clear that Mayor Couzens has the better of Mayor Hylan in successful business experience.

The foregoing comments are but a means of calling attention once more to the fact that adequate transportation in great cities must be conducted upon rails, whether in streets, subways or on elevated structures.

It is of interest, while speaking of the busy (?) Hylan bus, to call attention to the Mayor's most recent effort

in this line over in Queensborough, where the buses are being run along a 5-cent trolley route (in absence of cars withdrawn because of exorbitant demands of the carmen for higher wages) with a charge of 10 cents for the bus ride. This is in territory where Mr. Hylan refuses to admit that street railways cannot be run at a profit at 5 cents! Where is your 5-cent bus fare slogan, Mr. Mayor?

Some day the people will realize that the way to secure adequate transportation lies in an insistence that our public officers shall cease agitation of impossible economic theories and get down to facts. It is time that the city of New York realized that the real interests of the people are the same as those of the investors in street railway enterprises, and the railways should have a chance to show what they can do with an adequate fare for the service rendered, just as the steam railroads are about to be permitted to do. "COMMENTATOR."

Association News

ATLANTIC CITY CONVENTION, OCT. 11 TO 15

Exhibit Committee's Report Encouraging

THE committee on exhibits for the association's convention to be held in Atlantic City the week beginning Oct. 11 met Wednesday, Sept. 1, at the association headquarters in New York City. Requests for space are coming in rapidly and 90 per cent as much space as was used in last year's convention has already been sold, which is far ahead of the amount sold at this date last year. Reports in regard to the co-operation with the freight departments of railroads and in regard to the haulage and handling of freight in Atlantic City give definite assurance that all exhibits will be handled and moved promptly and speedily.

The following manufacturers have engaged exhibit space, in addition to those listed in the ELECTRIC RAILWAY JOURNAL for Aug. 21: Bemis Car Truck Company, Differential Car Company, Economy Electric Devices Company, Hauck Manufacturing Company, Holden & White, Inc., International Motor Company, Johnson Fare Box Company, R. F. Johnston Paint Company, More-Jones Brass & Metal Company, Naugle Pole & Tie Company, Newark Cornice & Skylight Works, the Rail Joint Company, Safety Car Devices Company, Tool Steel Gear & Pinion Company, Tuco Products Company, Westinghouse Lamp Company, Westinghouse Traction Brake Company.

Additional Bulletins Now Ready

THE following bulletins have been prepared by the association's Bureau of Information and Service and may be had by member companies upon request:

MOTOR TRUCK OPERATING COSTS. This covers both passenger and commercial vehicles.

SUMMARY OF AUTOMOBILE ACCIDENTS. A classified, detailed list of accidents between street cars and automobiles.

FINANCIAL STATISTICS FOR A GROUP OF ELECTRIC RAILWAYS, compared for the first six months of 1920 and 1919.

THE PRESENT SITUATION ON SKIP STOPS.

LIST OF COMPANIES IN THE HANDS OF RECEIVERS; also those abandoned or junked, with details.

In addition to the above, the regular bulletins on fares, wages and cost of living have been brought up to date.

Recent Happenings in Great Britain

Higher Railway and Tramway Fares Considered—Glasgow Lifted to a Paying Basis—Dispute Over American Rail Purchases

(From Our Regular Correspondent)

Something approaching turmoil prevailed among a large section of the public in Britain during July over a proposal by the Government to make a further increase in railway fares. Tramways are not affected, though electric railways, apart from the London "tubes," are. The process of increasing tramway fares goes on in piecemeal fashion in the different localities under existing acts, but the proposal as regards railways was made wholesale for the country at large. It can be carried out in this way as the railways are under the control of the Ministry of Transport till August next year.

I THINK that the public generally recognized the necessity for raising railway fares in order to meet higher costs, but what brought about the storm was that the increase was timed for the beginning of August just when the holiday season was getting into full swing. People said that the change should have been made sooner or else later. The Government did not manage to make the change sooner, and they said that if it was made later the increases would have to be greater, as they are determined to put the railways into a solvent condition by August of next year when full control reverts to the companies.

It was while the Government awaited a report from the Railway Rates Advisory Committee that the agitation reached its hottest. At the end of July the Advisory Committee reported in favor of adding 2d. on the 1s. of all fares, raising the increase to 75 per cent above pre-war level. The previous increase was 50 per cent. The Government adopted the proposal and it came into operation on Aug. 6.

MINISTRY OF TRANSPORT'S GOOD WORK

A remarkable step was taken in July in connection with London passenger transportation authorities, and one that may lead to great benefits in the future. To see the point, it is necessary to bear in mind that the London County Council, as a municipal tramway authority, has always looked with a jealous if not a hostile eye on tramway and omnibus companies doing business in or near London, and has not been particularly cordial even to the underground railway companies. Of late the competition between the County Council tramways and the London General Omnibus Company's vehicles has become increasingly keen and the need for co-ordination more and more pronounced. Now the benefit of the new Ministry of Transport has made itself felt in the matter. The Minister arranged a conference between representatives of the County Council and of the underground group of companies (which includes the omnibus company) with the object of trying to arrive at an agreement for co-ordinating and improving transport facilities in London. As a result of the conference, it was decided to set up a committee on which representatives of both sides will sit with the object of discussing the subject in its widest aspect. Sir Alexan-

der Gibb, of the Ministry of Transport, has been appointed chairman. Something of value should be achieved by this committee, and it may lead the Government to proceed with the scheme for constituting a Traffic Board for London.

HIGHER FARES PROPOSED FOR LONDON

The London County Council on July 27 determined to take the bull by the horns in the matter of preventing the realization of an estimated deficit of something like £1,000,000 on the current year's working of the tramways. They agreed to apply to the Ministry of Transport for sanction under the Tramways (Temporary Increase of Charges) Act to raise the fares to the following level: One section (0.6 of a mile), 1d.; two sections, 1½d.; three sections, 2d.; five sections, 3d.; eight sections, 4d.; twelve sections, 5d.; any further distance, 6d. At present 1.2 miles can be covered for 1d. and highest fare is 4d. Workmen's fares are to be: 2d. return for three sections (3.6 miles double journey); 4d. return for six sections; 6d. return for any further distance. Children's fares: 1d. for three sections, 2d. for eight sections, 3d. for any further distance. The two-penny midday fares for any distance beyond the penny stage are to be retained. It will be noted that the ratio of increase for the shorter distances is enormous.

The effect of the recent increase of fare on the Glasgow tramway system is strikingly shown by some figures issued by Mr. Dalrymple, the tramway manager. It may be recalled that from the beginning of June halfpenny fares were abolished and all other fares raised, though a concession was given by selling twelve vouchers for 9d. covering the old halfpenny stages. The results have been worked out for the months of June and July along with a comparison with the corresponding months of last year. It is found that if things continue as they are now all objects in view will be attained. That is to say, the revenue will increase sufficiently to cover all expenses, and the number of passengers will be sufficiently reduced to remove congestion.

GLASGOW LINES SHOW GAIN

There has been an enormous decrease in the number of short-distance passengers, while the longer-distance journeys have increased. The total traffic revenue for June and July this year

was £368,938, compared with £273,473 in the corresponding months of last year. Passengers numbered 70,067,073, against 79,708,560. The miles run were 4,515,634, against 4,352,536. The receipts per car mile were 19.61d., compared with 15.08d., while the passengers per car mile numbered 15.52 against 18.31. Provided no further increases take place in wages and the cost of materials, the Glasgow tramways appear once more to be on a sound economic basis.

AMERICAN RAIL PURCHASE ATTACKED

The question of placing orders in the United States for tramway rails has again arisen in acute form in Glasgow. On July 29 the Tramways Committee brought before the Town Council a proposal to order from the United States Steel Products Company 10,000 tons of rail at £23 10s. a ton. The only British tender was £28. Much feeling was displayed against placing the order abroad. A labor member alleged that the American firm did not conform to trade union conditions and asked if a special guarantee as to those conditions required by the standing orders from foreign firms had been obtained. The chairman of the committee said that no special guarantee had been received, but the firm had signed the usual contract clause relating to standard rates of wages. The town clerk said that the contract was admittedly not in conformity with the standing orders. The Council unanimously agreed to send the recommendation back to the committee for further consideration. Early in August the committee resolved to reaffirm its recommendation, considering that the American company's statement as to conditions of labor was satisfactory and to proceed with the purchase.

TRACK EXTENSIONS COSTLY

The work of renewal of tramway track fell heavily into arrears during the war in other towns as well as Glasgow, and now the arrears have to be made up at heavy post-war prices. An example of what this means is given by the case of Liverpool. The city engineer has put forward a scheme of reconstruction to be spread over five years, and its estimated cost is £864,197. Over 60 miles of track are involved. There is a further estimate of £331,000 for renewal of rolling stock and overhead equipment.

The magnitude of the problem involved by the continued rise in wages is illustrated by the case of the London underground group of railways, which includes the General Omnibus Corporation. It is estimated that the wage bill for the current year will amount to more than £6,000,000. In 1913 it was only £2,000,000. As to taxation on the London omnibuses, the company pointed out that hitherto it has been £63 per annum per vehicle, while under the new finance proposals of the Government it will be £84. The tax hitherto on petrol is converted to a tax on engine power.

News of the Electric Railways

FINANCIAL AND CORPORATE • TRAFFIC AND TRANSPORTATION

PERSONAL MENTION

St. Paul Strike Averted

Council Passes Fare Measure Which Is Expected to Provide Funds to Increase Wages

Through the passage of an emergency ordinance by the City Council of St. Paul, Minn., granting a 6-cent fare to the St. Paul City Railway, a threatened strike by trainmen was averted. The ordinance was drawn by E. W. Bemis, Chicago, and Corporation Counsel A. E. Nelson. The ordinance becomes effective on Sept. 13 if the company shall actually furnish the service as prescribed in the service ordinance. With the fare increase the trainmen get the wage increase of 10 cents an hour such as had already been granted in Minneapolis, retroactive to July 20. This will cost the company about \$41,600.

CONDITIONS OF NEW ORDINANCE

The new ordinance provides that the railway shall add fifteen cars to those already in service before Sept. 13; that the company shall add four cars each week until a maximum has been reached that will provide for carrying all passengers from any point on the lines during the peak of the traffic and not average more than eighty-five persons to the car; that the average shall be computed on number of cars passing a given point in any fifteen-minute period of the day, and that except between 6 a.m. and 9 a.m. and 5 p.m. and 7 p.m. the company shall provide enough cars for every passenger to have a seat. The company must make reports before the first and fifteenth of each month showing revenue, expenses and net earnings.

In his preliminary report E. W. Bemis said that a 6-cent fare was necessary if the trainmen were to get an advance in wages and service were to be improved. Mr. Bemis is serving as utility expert for the city in making a valuation of the physical property of the company.

BACK PAY FOR MINNEAPOLIS MEN

Back pay for Minneapolis employees on the basis of the new schedule from July 16 to Aug. 16 is being figured for about 2,000 men, carrying out the recommendations of an arbitration committee, whose report averted a strike in Minneapolis. The distribution in Minneapolis will be about \$65,000.

When Minneapolis allowed the Minneapolis Street Railway to advance its fare to 6 cents, for the first time in thirty years the systems of the Twin Cities were separated. An order was issued to make the city limits the fare

limits, 10 cents being the fare between the two cities. Upon protest by the City Council this order was canceled as to change of fare limits, which now include a neutral zone in St. Paul permitting a passenger to ride for 6 cents from any point in the city of Minneapolis to Snelling Avenue, more than 2 miles.

CARING FOR NEUTRAL ZONE

The Council of St. Paul has been notified that an ordinance will be submitted abolishing that zone. Meanwhile business interests in the midway neutral zone are up in arms against the proposed change on the ground it will work a hardship on Minneapolis residents employed in the midway district, who now pay a 6-cent fare, but would have to pay 12 cents if the zone is abolished.

Board Reports to Governor on Labor Differences

Governor Alfred E. Smith has received the report of the State Labor Board, which made an investigation into the differences between the International Railway, Buffalo, N. Y., and its employees. After reviewing the report, Governor Smith is expected to name the third member of the board which is to adjust the grievances of the employees.

The board informs the Governor that the traction company is willing to have the arbitrators decide a scale of wages, but the scale should not be retroactive as to May 1, 1920, as demanded by the men. The company contends that if a schedule of wages higher than the maximum of 60 cents an hour granted by the International Railway is decided upon, the new pay schedule should not become effective until the Public Service Commission grants a higher fare to absorb the wage increase.

In a statement to the public, H. G. Tulley, president of the International Railway, says that if the board of arbitration decided that the men are entitled to a higher wage and no further increase in fares was authorized by the state utilities board, the company would be forced to curtail service. A similar statement was made by Elliott C. McDougal, chairman of the bondholders' protective committee, which is planning the financial reorganization of the company.

There has been a good deal of discussion over the mechanics of the settlement, but the negotiations have been conducted with the best of spirit prevailing.

New Orleans Hearings Close

Finding of Commission Inquiring Into Company's Affairs Likely to Go to City for Final Decision

The fourth week of the hearing before the special masters appointed by Judge Rufus E. Foster, of the Federal court, to solve the railway problems of New Orleans, gave promise of terminating with the Federal Judge himself on the stand. A peculiar incident of this new development in the controversy was the fact that Judge Foster has the final word in the Federal receivership of the New Orleans Railway & Light Company, and that the conclusion reached by the special masters, who have been hearing testimony in the matter, will have to be approved by Judge Foster himself before becoming effective.

QUESTION OF EMPLOYEES INCLUDED

The question which the contending parties in the controversy desire Judge Foster to answer is whether or not, at a conference in the judge's office on June 28 between the officers of the railway union and those of the railway company, Judge Foster did or did not state that any contract entered into between the employer and employee would or would not include all the employees enrolled under the Amalgamated Association.

The company contends that under Judge Foster's instructions the contract was to include only platform and carhouse men and was to be exclusive of gas, track and other employees not operating street cars. It is expected Judge Foster himself will be asked to settle this point.

The prevailing opinion among those qualified to speak is that whatever finding is reached by the special masters and approved or amended by Judge Foster will have to be referred to the Commission Council, as it is not unlikely that an increase in fare will be recommended. Should this be done, final disposition of the matter will be left to the new Commission Council to be elected on Sept. 14. The present Commission Council is not disposed to act in view of the very bitter municipal election contest now pending.

HEARING NEAR CLOSE

The hearing before the three special masters was expected to come to a close during the week ended Sept. 4. This is the fifth week since resumption of service by the trainmen under the "arbitration agreement." The five weeks during which the pay award will be retroactive expired on Sept. 2.

Brooklyn Men Strike

Quit Work on Wild Rumor Proved by Company to Be Unfounded— Surface Trainmen and Elevated Guards Out

Residents of Brooklyn were victims last week of an outlaw strike of the employees of the Brooklyn Rapid Transit Company. The strike became effective Sunday morning after two turbulent meetings of the employees had been held, at the second of which the men decided by acclamation to go out. At the early meeting order was preserved with great difficulty, and the men were urged by their officers and by Mayor Hylan to postpone action until further efforts toward an adjustment of the so-called grievances could be made. The Mayor retired from the meeting assured that the matter would go over. When the second group of employees convened, however, an unconfirmed report of a lock-out at one of the power stations had the effect of stampeding the meeting for a strike. Officials of the Amalgamated at a subsequent inquiry before the Public Service Commission admitted that the association's code of procedure provided for a secret ballot on the matter of a strike and that no effort had been made to confirm the lock-out story, but the organizer in charge at the meeting said that a secret ballot had not been necessary, as the members at the meeting had decided unanimously to go out. All of the Sunday newspapers contained stories to the effect that further negotiations would be carried on.

ON MONDAY afternoon the Public Service Commission began an inquiry into the strike situation under its powers of inquiry into situations in which service is curtailed or discontinued. The principal witnesses were Lindley M. Garrison, receiver of the railway, and Patrick Shea, organizer of the Amalgamated. Mr. Garrison reviewed the conditions existing previous to the strike of a year ago and cited from the text of the agreement of Dec. 16, 1919, between the company and the men. He said that in 1919 a committee which purported to represent the employees presented the demands of the men with regard to wages, reinstatement of the men who had been discharged, recognition of the union and an eight-hour day. He denied at the time that the committee which presented these demands represented the employees. A deadlock resulted and the men struck. The strike was settled under an agreement to the effect that if it appeared that the Amalgamated had enrolled more than 50 per cent of the men on the Brooklyn Rapid Transit System, Mr. Garrison would negotiate with them and settle by arbitration any differences that could not be adjusted in conference. As a result many new demands were added to the four presented originally by the men, but these were all disposed of in conference without resort to arbitration. Finally on Dec. 16 a written agreement was signed covering the settlement.

Mr. Garrison referred particularly to sections 2 and 3 of this agreement. They are as follows:

The receiver will receive the committee presenting the grievances, and take the same up with such committee, and with such advisers or counsel as such committee selects.

In the event that such grievances or any which may hereafter arise cannot be adjusted by and between the receiver and the committee, they will be arbitrated by a board to consist of P. J. Shea or his nominee, and Lindley M. Garrison or his nominee and if necessary by a third member to be mutually agreed upon by said Shea and said Garrison; and in the event of said Shea and Garrison being unable to agree upon a third member, and so stating to Mayor Hylan and Commissioner Nixon, the two gentlemen last named shall thereupon designate the third arbitrator.

Mr. Garrison pointed out that there

is no provision in the contract for subsequent arbitration. He also quoted from paragraph 12, which is as follows:

The terms and conditions of this agreement will remain in effect until July 28, 1920, and thereafter until terminated as herein provided. Any company or the receiver of any company, party of the first part to this agreement, may terminate the same so far as it affects such company or such receiver, by giving thirty days' notice in writing at any time after July 28, 1920, to the committee of such intention, and the committee, party of the second part, may terminate this agreement, by giving thirty days' notice

What the B. R. T. Men Demand

For surface motormen and conductors, from 84 cents to 92 cents an hour. The present scale is from 52 to 62 cents an hour. For Sunday and holiday work, 10 cents extra an hour. A six-day week and a twelve-hour rest period after each day's work.

For elevated conductors, 87 cents to 90 cents an hour. The present rates are from 54 to 57 cents. For guards on the elevated and subway lines from 82 to 85 cents an hour. The present pay is from 49 to 52 cents an hour.

written at any time after July 28, 1920, to each of the parties of the first part, of such intention, and this contract shall so terminate thirty days after the giving of such notice by either or any party. If either or any party shall desire to make changes in this agreement on or after July 28, 1920, during the continuance hereof it is understood that the party desiring such changes shall, on or after that date, give thirty days' previous written notice to the other party or parties, specifying the changes desired, and, if mutually agreed upon, such changes shall be incorporated in a new agreement.

Mr. Garrison stressed the clause about the thirty-day notice. He said that on July 24 Mr. Smith of the committee requested an interview for July 27. Mr. Garrison's reply was that Mr. Smith was in error about the expiration of the contract, but said that if the committee would state its conditions he would consider them. Accord-

ing to Mr. Garrison new agreements were suggested by the men, not modifications of the present contract. Among the obnoxious requests was the closed shop and the collection by the company of union dues. Mr. Garrison wrote in substance that the conditions were not changes but were new documents. The men then appealed to the Mayor to ask Mr. Delaney, the Transit Construction Commissioner, to confer with Mr. Garrison. Mr. Garrison wrote Mr. Delaney that he could not, under instructions from the court, consider the closed shop, but he was willing to take under consideration other matters mentioned.

Later Mr. Garrison was asked by Mr. Delaney if he would make a tacit understanding with the men if section 55, which was repugnant to the receiver, were eliminated. To this Mr. Garrison replied that he would not enter into any tacit agreement. Mr. Delaney then informed the receiver that the men had withdrawn the objectionable clause. The correspondence clearly indicated, however, that the men had not abandoned hope of the closed shop.

Shortly thereafter the matter was taken up with Judge Mayer. The judge agreed to modify his stipulation that in any arbitration the third member of the board should be a jurist, but insisted upon his right to review the arbitration finding with respect to wages if the award of the arbitrators should be beyond the financial ability of the company.

Mr. Garrison then asked Mr. Shea if he would negotiate on the basis Judge Mayer laid down and Mr. Shea said that the matter would have to go to the men. That was Mr. Garrison's last real knowledge of the situation. After that the question was taken up by the men direct with Judge Mayer. As a result the judge reiterated his previous stand.

Mr. Garrison told Deputy Commissioner Barrett, who conducted the inquiry, that the men had broken their contracts by going out and had also broken their faith with him. He had no real notice of a desire on the part of the men for the termination of the contract—a contract that could be terminated at the wish of either party on thirty days' notice.

Counsel Fridiger for the union asked Mr. Garrison whether he did not know that there was no legal obstacle to entering into arbitration. Mr. Garrison's reply was the matter rested with Judge Mayer. He was testifying to facts. He insisted that he had kept his agreement. Mr. Fridiger quoted clause 3 of the agreement. Mr. Garrison insisted that this clause related only to the settlement agreement of last year. Mr. Fridiger insisted that clauses 2 and 3 of the agreement of Dec. 16 were still operative. Mr. Garrison said that changes in the contract of Dec. 16 had never been asked. There had been, however, insistence from the men upon the acceptance of three new agreements.

Mr. Shea for the union testified, as before related, to the events which took place at the meeting by which the strike was decided upon.

Mr. Barrett explained the peculiarity of the case at some length, the road being in receivership, and said that he felt Judge Mayer, by whom Mr. Garrison was made receiver, would not be likely to modify any findings of an arbitration board that were at all reasonable.

In the interest of everybody concerned, Judge Mayer, late on Aug. 31, restated his position with respect to the matter of arbitration. This he did as a result of the conference attended by the Mayor and other members of the Board of Estimate, the Corporation Counsel, Mr. Garrison, Mr. Garrison's counsel and the judge himself. In his own words the conditions as restated by Judge Mayer follow:

In regard to working conditions, I am willing to have the receiver submit to arbitration the working conditions contained in the agreement proposed by the men, except those which the men have heretofore withdrawn.

In regard to financial questions, my position is stated in my letter to Receiver Garrison, dated Aug. 25, as follows:

I am willing that there shall be a submission to a board of arbitrators of the financial question involved in the requested increases and that the fullest opportunity be accorded to such board to ascertain the financial condition of the receivership. It must be understood that any and every award must be within the financial ability of the particular receivership to meet, and for this purpose the court must retain the right to restrict any and every award within such limits.

On Sept. 1 the men voted to reject the court's proposal for returning to work. They did, however, empower their representatives to present to the court the following propositions:

That Judge Mayer submit all questions, except those of a financial nature, to an arbitration board with the agreement to abide by the board's decisions.

That Judge Mayer make the men an offer of a flat wage increase over the wage scale that the men were receiving last Saturday just before they went out.

Mr. Garrison regards the strike of the surface trainmen and the elevated conductors and guards as a revolt. This was his characterization of the situation to the newspaper men when he saw them on Sept. 1. He pointed out that all the public officials had told the men they were in the wrong. The men had run amuck. Good faith was the basis of American life. This the men were seeking to destroy. He said the public should realize that the present controversy in Brooklyn was more than a dispute between employer and employee.

As regards service a few two-car rapid transit trains were run on Sunday. On Monday more than forty two-car trains were run on various branches of the elevated and rapid transit lines. On Tuesday more than seventy three-car trains were in operation and there was some service on all the subway and rapid transit lines. On Wednesday morning the company resumed service on the surface lines with seventy cars and planned to increase both rapid transit and surface-car transportation just as fast as it was physically possible to do so.

Ceremonies Attend Municipal Construction

Active Construction of Detroit's New Lines Started When Mayor Drives First Spike

The first spike in Detroit's Municipal Street Railway was driven by Mayor Couzens on the afternoon of Aug. 23. Work was started on the south track on Harper Avenue, where the Detroit United Railway is also constructing a line on the private right-of-way which it owns on the north side of the street. Carhouse sites have been considered and specifications for cars are being studied. If electricity is used as motive power current for the city's lines will be supplied by the Detroit Edison Company.

PARALLELING the efforts of the Street Railway Commission to add to the railway facilities, the Detroit United Railway, according to its publicity department, has built since the first of the present year sixty-five new motor and trail cars in its Highland Park shops and added them to the service on the Detroit city lines. By Jan. 1, 1921, the company expects that at least thirty-five more new cars will have been completed and added to the service, making a total of 100 or more new cars than were in service at the beginning of 1920.

150 NEW CARS UNDER WAY

The company's car construction program for the coming year contemplates the construction of 150 new motor and trail cars in the company's shops. Other cars are to be purchased from outside manufacturers. Some of the new cars will be of the so-called Peter Witt center entrance type.

Petition has been filed by the Detroit United Railway in the United States Supreme Court for a permanent injunction restraining the city of Detroit from proceeding with its municipal lines. This appeal from the decision of the United States District Court is based upon the claim that the election authorizing the \$15,000,000 bond issue to build city-owned lines was illegal. The company contends that the bond issue was invalid.

The judge in the District Court held that the city still had the right to oust the company from Fort Street, its franchise having expired, but it was admitted by city attorneys that under the ordinance of April 5 the city could only construct new lines with the \$15,000,000 voted and not take over any of the Detroit United Railway's lines.

COURT PROCEDURE LIKELY

Legal steps are also expected in opposition to the city's order issued to the Detroit United Railway directing the removal of the tracks on St. Jean Avenue, where the company started construction a short time ago. In reply to the order that tracks be removed within ten days to allow the city to construct its own line, the Detroit United Railway officials stated that the matter had been referred to their attorneys for action. According to Corporation Counsel Wilcox, the city cannot be prevented by the Detroit United Railway from putting a municipal line on St. Jean Avenue. It is claimed that the line on St. Jean Avenue built by the company is not much used, it being only a relief line from the carhouse while the city

is ready to construct its line over the same route.

The original proposal by the company was to build the loop, Elizabeth-Withual Street loop, and enter into an agreement that would protect the rights of the city. The Corporation Counsel maintains that the city has the right to go ahead with the work, but to allow the Detroit United Railway to build it would give the company the chance to use the loop as a basis for claims of new rights in Woodward Avenue where its franchises south of Pallister Avenue have expired. Similar claims were set up by the Detroit United Railway in the case of the Fort Street line when the company argued in court that the permit to do repair work gave it new rights where franchises had expired.

The Corporation Counsel and the City Comptroller both hold that it is lawful for the city to use tax money for financing the municipal street railway line, but that it is not intended to do so. In the suit brought by the Detroit United Railway to enjoin the city from using the city sinking fund for the Municipal street railway bonds, the Comptroller stated that the larger part of the bonds bought by the sinking fund commission had been sold to the public. It was stated that the sale to the sinking fund commission was only tentative to ascertain just what interest it would be necessary for the city to pay under present conditions. Further argument of the case has been postponed.

COUNCIL LACKING IN AUTHORITY

That the Council lacks the authority to change the routes designated in the municipal street railway ordinance adopted on April 5 unless the substituted lines are constructed from sources other than the \$15,000,000 voted, is the opinion of the Corporation Counsel, voiced in answer to protests against the construction of municipal lines in front of their houses, made by residents of streets along which it is planned to run one of the city lines. The fact was brought out by the Corporation Counsel that ample opportunity for protests had been allowed between Nov. 4, when the ordinance was introduced, and the election on April 5. It was stated that a provision whereby the Council was allowed to change the routes had been deliberately withdrawn from the final draft of the ordinance, in order to avoid criticism that the people were voting for a system which might be changed for some other system of lines when the actual time came for construction work.

Philadelphia Welfare Association Picnic

Mr. Mitten Encourages Thrift Program—Sees Universal Return to 5-Cent Fare and Lower Wages—Co-operative Program Successful

The second annual picnic of the Co-operative Welfare Association of the Philadelphia (Pa.) Rapid Transit Company was held at Willow Grove Park Aug. 31 and Sept. 1. It was followed by a dinner on the evening of Sept. 1 given by T. E. Mitten, president of the company, to all the Co-operative committeemen, representatives selected by the employees and a like number of representatives appointed by the company. Almost 500 guests sat down at the president's dinner in the large casino in the park.

PRACTICALLY all of the 11,000 employees of the company with their families participated in the festivities of the two days' picnic, the total attendance for the two days being estimated at 75,000. Well-organized picnic committees had arranged an interesting series of events, among which stood out prominently baseball games and other sporting events. Sousa's band, now at Willow Grove Park, added an especially enjoyable feature and Billy Sunday's Rodeheaver kept the crowd singing when there was nothing else to do, his favorite song, "Brighten the Corner Where You Are," being frequently heard. A nine-weeks-old band, organized among the employees, was a drawing card.

INTEREST IN "GET TOGETHER"

Great interest centered in the "get-together" meeting late in the afternoon of Sept. 1, when President Smith of the Co-operative Welfare Association, President Jackel of the Co-operative Saving Fund and President Mitten of the company all addressed the assembled members and their families. President Smith announced that more than 99 per cent of the employees of the company were members of the association. President Jackel announced that the employees' savings were going into the Saving Fund at the rate of more than \$1,000,000 a year. Eighty-five per cent of the employees are Saving Fund depositors, and it developed that of the other 15 per cent 14.2 are so heavily loaded with building and loan association obligations that they cannot carry both, leaving some 0.8 per cent of the employees of the company who may be said not to be following any organized or systematic saving scheme. A description of the Saving Fund scheme was given in last week's issue, page 421.

STOTESBURY CUPS AWARDED

President Smith awarded the Stotesbury cups to the departments having the highest percentages of employees enrolled as members in the association, the first prize going to the transportation department and the second to the electrical department. A large number of prize banners were awarded to various divisions.

Mr. Mitten directed his remarks of the afternoon largely to the wives of the employees, urging them to maintain their record for thrift. He urged the families to plan to save the 7½-cent differential, current payments of which the employees have consented to have deferred, and not to establish a 72½-

cent scale of living; rather to maintain the present 65-cent scale of living and saving. He predicted that there will be a drop in fares and wages in other cities, automatically returning the Philadelphia men's 65 cents under their agreement, for which they would be prepared, and in addition would have a nest egg for the future.

In his evening address Mr. Mitten referred to this again, saying:

I don't see how fares can stay up the country over. We have built up a 65-cent-an-hour wage by hard work and without raising our fares, while in other cities, when they get back to the 5-cent fare, their wages based on a fare higher than 5 cents will have to drop accordingly. In the meanwhile we shall be able to hold the 65-cent wage on the nickel rate.

He then touched on the money due the men in the deferred wage increase, which is retroactive to June 1.

We are waiting for that money, and we are going to get it, because no community, after it once recognizes what this organization of men means; when it compares what we are giving Philadelphia in peace, in good service; when it compares that with the things that are happening in our neighboring cities, and which have been happening ever since the war began; when they take time to think that their cars ran in war-times, while the cars of other cities were being held up because of disagreements between men and management; when they see that we are the one city that has doubled the rides in the last ten years—doubled the rides that each person in the population takes each year—do you get that?—will refuse to pay the cost.

ZONE SYSTEM COMING

Indications of the application of a zone system in Philadelphia were made by Mr. Mitten in referring to the necessity and ability of the company to obtain more revenue. He spoke as follows in this connection:

We don't care what anybody else did and failed; that is no mark for us; if it is right we will do it, and there is no such word as fail.

We have set a mark in co-operation. We may yet set a mark in our method of properly collecting from our passengers what they should pay for what they get. If any man knows that he is paying for what he gets proportionately with every other man, while he may kick and object at the outset, he knows full well that it is right and that he properly should pay just in proportion to what the other fellow pays. Therefore, having established that principle, if we do, and made it practical of operation, I haven't any doubt in the world that you men can make it comfortably effective to the people you carry, no matter what failures there are anywhere else.

What other people do is no measure for us at all in our method of operation any more than the degree of co-operation between men and management here can be measured by what we see elsewhere. When the method has been determined it will be made known to you; it will be explained to you, and then we will say, "Its right, let's show America how perfect this machine can be made to work."

Mr. Mitten praised the "smiling program" which the men are now carrying out 100 per cent. He said he credited the increased riding habit in Philadelphia to the attitude of the men.

Mr. Mitten was followed by various chairmen of the committees, who without exception gave praise to Mr. Mitten's management and to the co-operative spirit and resultant fine feeling among all the employees of the system. Other features of the evening were the rousing welcome given to H. G. Tulle, now of Buffalo, and musical numbers, including some more singing under Rodeheaver's leadership. One of these numbers was the following song, sung to the tune of "Oh, What a Pal Was Mary":

Oh, what a pal is Mitten,
Oh, what a pal is he,
He came from the West,
And gave his best
In handling the P. R. T.
"Keep down the fares," his motto;
Improve all along the line,
This is his pride,
Five cents a ride.
Oh, Mitten, a pal of mine

Denver Strike a Memory

Strike Breakers All Leave Denver—Old Men Make Overtures to Return to Work

All strike breakers on the lines of the Denver, (Col.) Tramway were replaced on Aug. 31 with new, permanent employees. Except for a few men, every strike breaker has left town. F. W. Hild, general manager of the tramway, who has been out of town on a vacation after a strenuous month, has not yet received the latest proposal of the union. This plan is that the men return in a body with full seniority rights.

Labor leaders are in a row over repeated assertions that they have proposed that the City Council grant a 7-cent fare, provided the strikers are taken back in a body and given a slight wage increase. A City Councilman stated that the president of the State Federation had asked him if he would favor a 7-cent fare on condition that the strikers be reinstated with their seniority rights.

The free jitneys started by the Amalgamated to compete with the Denver Tramway were discontinued on Sept. 1, and the union men were told that they could once more ride the street cars. William J. Lynch, who had charge of the bus lines, said:

We find we were hauling about 25,000 persons daily, mostly during the tramway rush hours. This was a great help to the Denver Tramway in the effort to give what it claims to be giving, namely, normal service.

The Union took in \$5,500 during the eighteen days it operated the buses and paid out \$2,800 for oil and gas, \$3,000 for tire repairs and \$3,800 in wages. Mr. Lynch insists that bus lines would make money on a 5-cent fare in spite of the fact they lost money while getting gratuities of 10 cents to 50 cents from each of their union passengers. The discontinuance of jitney service was due to the need of money for strike benefits and was coincident with the removal of all strikebreakers from the city.

Col. C. C. Ballou, military commander of Denver, is conducting an investigation of the termination of jitney operation, intimating there might be more behind the cessation of service than

appears on the surface. He states that a more careful guard will therefore be maintained over cars in operation.

Major General Wood returned to Denver on Aug. 27 and conferred with city and state officials and Col. C. C. Ballou, military commander of Denver. General Wood stated that he would make no further effort to settle the strike "since the situation has apparently passed the talking stage; both sides in the controversy seemed to have settled down with the determination to settle the thing in their own way, and there doesn't seem to be much that we can do in the way of settlement."

In spite of the protests of the State Federation of Labor, soldiers continued to ride the cars as guards.

Waiving the question of wages and the working agreement at this time, strikers on Aug. 29 decided to offer to return to work on the same basis as of July 31, 1920. The offer was placed in the hands of G. Y. Harry, federal mediator, to present to General Manager Hild. Inasmuch as the company now has more than 800 of the 1,150 men needed to operate the system and is holding firm in its previous decision to refuse to discharge any new, permanent employees to make room for strikers, the strike situation remains deadlocked.

The action of the mass meeting on Aug. 29 was the first modification of the strikers' demands. The wage question and the working agreement demands have been dropped.

Arrangements are being made by Gov. Oliver H. Shoup to revive the state constabulary, on recommendation of General Wood. This body will be used to assist the largely augmented police force for riot duty and maintaining order. It was expected that the federal troops will be removed from Denver some time after Labor Day.

On Aug. 31 the last of the temporary employees were sent out of town. Central Division, the most important of the four divisions of the company, is in charge of permanent employees. New men are now operating the entire tramway system and giving about 75 per cent normal service in morning rush hour, through the day, and at night.

Wants Special Legislative Session to Consider Trolleys

Lucius S. Storrs, president of the Connecticut Company, visited Marcus H. Holcomb, Governor of the State, on Aug. 31, requesting the Governor to have the special session of the Legislature which convenes Sept. 14 consider the plight of the trolley companies. The Governor did not announce his decision in the matter, but those close to him said that it was probable that the trolley situation would not be considered by the Legislature, which is called for the purpose of making the women of the State eligible to vote in the November elections, in accordance with the provisions of the suffrage amendment.

Des Moines Strike Settled

Temporary Six-Cent Fare Ordered, With Additional Revenue to Go to Employees

Following the strike order of Monday morning Aug. 23 the employees of the Des Moines (Ia.) City Railway turned their cars into the carhouses at 1 o'clock Tuesday morning and not a wheel turned until the following Thursday morning. An agreement to return to work was reached at a conference of several hours between attorneys and officials of the railway with the executive committee of the striking employees. The settlement was made on the basis of Judge Wade's order of Saturday that a 6-cent fare be charged for a period of not to exceed ninety days, the additional revenue to the company to be applied to the 70-cent wage scale and the remainder to paying the back wages which result from the arbitration award dating back to March 1.

UPON receiving word that the men had gone on strike Judge Wade hurried to Des Moines from his summer home in Minnesota and issued an order which abrogated the present working agreement between the company and the men, and authorized the receivers for the Des Moines City Railway to cease attempts at operation and to release all men except those necessary to care for the property.

STATE FAIR WEEK

Judge Wade's order specified that no strikebreaker would be brought to Des Moines to operate the cars and put it directly up to the city and the men to come to terms if Des Moines was to have service. The regular afternoon editions of the city newspaper on Wednesday came out with stories to the effect that Des Moines would apparently be without railway service indefinitely, but extras appeared on the streets shortly after five o'clock bearing the cheering news that an agreement providing for the settlement of the matter had been reached.

Des Moines faced the strike at a most inopportune time as the Iowa State Fair opened Friday, and it is the mecca for thousands of Iowans for a week. As soon as the strike was declared, however, hundreds of jitneys were on the streets and for two days business was practically at normal.

Upon arriving at an agreement with the railway officials the executive committee of the union waited upon Judge Wade and asked that they be allowed to reconsider their action in striking. They were advised that if they could arrive at an agreement with their employers which would meet with his approval he would order them being placed back on the cars.

NO REAL OPPOSITION

The strike demands were entirely upon the basis of the back pay, and upon the assurance from the company that they would be paid as rapidly as the 6-cent fare would produce the necessary funds, the men agreed to return. It is understood that the back pay will be paid in monthly installments. Officials of the company have stated that unless the 6-cent fare is enjoined the back wages should be cleared up by Jan. 1.

While there have been numerous anonymous rumblings from so-called protectors of the city's rights, as yet no

real effort has been made toward interfering with the 6-cent fare ordered by Judge Wade.

Boston "L" Adopts Pension Plan

The Boston (Mass.) Elevated Railway has recently adopted a pension plan for the benefit of faithful employees. The company will appropriate money for this purpose, but no contribution will be accepted from any employee. There are three classes eligible for the pension as follows:

Class A includes all employees whose age is sixty-five or over (females sixty or more) and whose term of employment has been twenty years or more.

Class B includes all employees whose age is sixty to sixty-four (females fifty-five to fifty-nine) and whose term of employment has been twenty-five years or more.

Class C includes employees whose age is less than sixty (females less than fifty-five) and whose term of employment has been thirty years or more.

The term of employment in each case means continuous service with the Boston Elevated Railway or predecessor companies with no break except through illness which cannot exceed six months to be credited.

Employees in Class A may retire at their own request or at the discretion of the committee on pension, but employees in Classes B and C can only retire at the discretion of the committee.

The annual amount of the pension is not to exceed \$2,000 or be less than \$300 a year. The amount is to be arrived at by taking 1 per cent of the average yearly earnings for the ten years prior to retirement, times the number of years continuously employed.

A general provision is made that the board shall have the right to annul, alter or amend in any way any and all of the provisions contained in this plan.

Investment Bankers Meet

The ninth annual convention of the Investment Bankers Association of America will be held at Copley-Plaza Hotel, Boston, Mass., on Oct. 4 to 6, inclusive. There will be two sessions each day, the second session on Oct. 4 and Oct. 6 being held in the afternoon and that on Oct. 5 in the evening.

The report of the public service securities committee will be presented on the evening of Oct. 5.

News Notes

Cloudburst Stops Operation of Cars.—As a result of a cloudburst on the evening of Aug. 22 the power house of the local line at Springfield, Ohio, was flooded and the operation of all cars stopped. About 1,000 ft. of the Ohio Electric Railway track was washed out.

Fifteen per Cent Wage Increase.—Employees of the Toledo, Bowling Green & Southern Traction Company, Toledo, Ohio, have been granted a 15 per cent increase in wages under new contracts signed up recently. The men had asked for a 40 per cent increase and threatened to tie up the lines.

Winnipeg Men Join O. B. U.—At a meeting on Aug. 27 the employees of the Winnipeg (Man.) Street Railway decided to cease existence as an independent organization, and voted for direct affiliation with the One Big Union. The latter body is a merger of practically all working trades unions in the city of Winnipeg.

Wage Settlement Negotiations Continue.—The motormen and conductors in the employ of the Berkshire Street Railway, Pittsfield, Mass., have rejected the two offers of C. Q. Richmond, general manager, on the settlement of the wage dispute. Mr. Richmond offered a flat 15 per cent wage increase on arbitration with the Berkshire district court judges as arbitrators. Conferences looking toward a settlement will continue.

Ninety-five Cents an Hour Wanted.—The employees of the Boston-Worcester Street Railway have presented a new wage demand asking for 95 cents an hour for conductors and motormen. They are paid 52 cents an hour now. A year ago last June the men struck and were out a day in a demonstration against what they termed "the delay of the War Board." That strike was ended by advancing the pay to 52 cents an hour from 47 cents.

Ten-Cent Increase in Wages.—Employees of the Hartford & Springfield Street Railway, Warehouse Point, Conn., will hereafter receive 55 cents an hour for their services, it is announced by Harrison B. Freeman, receiver for the company. The men were formerly paid 45 cents an hour. In order to prevent friction with the Hartford men, the pay of the employees who run the cars from East Windsor Hill to the town line at Windsor will be paid 60 cents an hour.

City and Suburban Men Want More.—The trainmen of the Cincinnati, Newport & Covington Railway, Cincinnati, Ohio, are seeking an increase in wages. The old contract provided for a wage scale of 45 cents an hour for the first

three months; 48 cents an hour for the next nine months and 50 cents an hour thereafter. The scale under the proposed contract is 85 cents for the first three months, 88 cents for the next nine months and 90 cents thereafter. The men also put in a request for straight day work.

Five per Cent Wage Increase.—An increase of 5 per cent in wages to the employees of the Newport County Electric Street Railway, Boston, Mass., has been announced by the Board of Arbitration, composed of Robert S. Goff, Henry Lloyd Rooney and Patrick H. Forgan. The men will hereafter receive a minimum of 48.4 cents and a maximum of 53.3 an hour. These lines were separated from the rest of the Bay State Street Railway System when the public trustees took control of the property.

Increase for Municipal Employees.—Conductors and motormen employed on the municipal street railway lines of the city of Tacoma, Wash., have been granted wage increases, giving them a wage equal to that of the trainmen of the Tacoma Railway & Power Company. The new scale provides a 5-cent raise for beginners, or from 55 cents to 59 cents; an increase of 4 cents for those employed six months, and for those who have worked two years a 3-cent increase, or 63 cents. Commissioner H. Roy Harrison states that he will try one-man cars on the line.

Mr. Damon Presents Terminal Plan for Los Angeles.—George A. Damon, in behalf of the City Planning Association of Los Angeles, Cal., has presented to the California Railroad Commission a substitute plan for a rapid transit and trunk line terminal. Other plans under consideration by the commission include those of its engineer, Mr. Sachse, and of the railway companies themselves. Mr. Damon's plan would include the combining of the Southern Pacific and Salt Lake passenger business in the present Arcade Station and the construction of the proposed Pacific Electric viaducts and elevated tracks toward Long Beach, the shore resort, as well as preparation of plans for a completely unified and electrified railroad terminal.

Ohio Electric Railway Men Get Increase.—An agreement was signed on Aug. 15 by the Ohio Electric Railway and representatives of the Amalgamated Association through which the men are granted an increase of practically 10 cents an hour in their wages. The new scale for interurban men will be 46, 52 and 60 cents an hour in place of the present scale, which provides wages of 41 to 50 cents an hour. Trainmen on the city lines in Newark and Zanesville will receive 44, 49 and 57 cents an hour in place of the present scale of 38 to 47 cents an hour. Freight brakemen will receive 44 cents an hour, an increase of 9 cents. The union had asked 75, 77 and 80 cents an hour for men employed on both the interurban and the city lines.

Programs of Meetings

Illuminating Engineering Society

The fourteenth annual convention of the Illuminating Engineering Society will be held at the Hotel Statler, Cleveland, Ohio, from Oct. 4 to Oct. 7. Among the various divisions of illuminating engineering papers to be discussed will be automobile lighting, design and characteristics; reflectors, shape and intensity of light; illumination problems, such as store lighting and theaters. Many other topics related to illumination will also be considered.

Iowa Electric Railway Association

As announced last week, the mid-year meeting of the Iowa Electric Railway Association will be held at the Fontanelle Hotel, Omaha, Neb., Sept. 16 and 17. John Sutherland, master mechanic of the Tri-City Railway, Davenport, Iowa, is chairman of the program committee, and if Scotch ingenuity and vigor mean anything, it is that this meeting will be one that no operating man in Iowa or neighboring states can afford to miss. The ELECTRIC RAILWAY JOURNAL has been "let in" on some of the secret planning for this program, planning which does not appear in the program as outlined below, but which contemplates that some highly interesting features will be "sprung" on the members. This paper is authorized to extend a cordial invitation to all the master mechanics and other operating officials in the neighboring states to attend at Omaha.

The program as announced includes a transportation paper by Edgar G. Anderson, assistant general manager and traffic manager of the Clinton, Davenport & Muscatine Railway, Davenport, Iowa; a paper on storekeeping by Thomas L. Kennedy of the People's Power Company, Davenport, Iowa; one on modern maintenance practices by Charles M. Feist, master mechanic of the Sioux City (Iowa) Service Company, and one on overhead construction and maintenance, by K. J. Keith of the Des Moines City Railway. In addition there will be two reels of motion pictures pertaining to the electrical industry and another reel showing how a claim agent won a \$20,000 suit. There will also be "certain" entertainment features.

The paper as noted above will occupy the attention of the convention on the first morning, Thursday, Sept. 16. The afternoon of the first day will be devoted to inspection trips over the property of the Omaha & Council Bluffs Street Railway. This inspection will be arranged in sections and directed by the several department heads of the local company. The morning of the second day will be devoted to a discussion of the papers presented Thursday morning and of the points observed during the inspection trips of the preceding afternoon. Nothing has been arranged for the afternoon of the second day. Delegates are urged to make hotel reservations early.

Financial and Corporate

Abandonment Approved

Court Sustains Decision of Public Service Commission with Respect to Reno Company's Plea

The Supreme Court of Nevada recently sustained the order of the Public Service Commission of that State permitting the Reno Traction Company to abandon its cross city lines. Among other things, the railway agreed with the city to remove the rails and overhead wires of the abandoned lines at an early date, to pay the cost of repairing all streets that are injured in tearing up the rails, to put the Sparks line in first class condition, and to establish a transfer system with any bus line that may be established in Reno.

The decision by the commission which has been sustained by the court was rendered Dec. 22, 1919. It followed hearings before the commission held on March 22, 1919; May 17, 1919; Sept. 24, 1919; Oct. 8, 1919, and Oct. 24, 1919. From the testimony introduced it was shown that the total earnings of the Reno city lines for the year 1918 were \$9,714, while the operating expenses of the city lines alone were \$17,834.

COMMISSION FAVORS ABANDONMENT

With taxes, interest on indebtedness, etc., of \$3,489 added to the expenses, it became obvious that it was impracticable from the point of view of either the interest of the public or that of the company to continue operation of the city lines. Furthermore, the cost of putting the existing system of city lines into a safe and proper condition appeared to be absolutely prohibitive, even if the fares and patronage were increased sufficiently to pay the normal operating expenses. In consequence Commissioners Simmons and Scrugham decided to allow the petition of the company for the discontinuance of city lines effective on Jan. 15, 1920, as follows:

1. Commencing at the intersection of Second and Sierra Streets in said City of Reno, and running thence westerly on Second Street to the westerly limits of the City of Reno.

2. Commencing at the intersection of Fourth and Sierra Streets, running thence northerly on Sierra Street to Ninth Street; thence easterly on Ninth Street to Center Street (the present terminal of said line) at the main entrance gate of the State University grounds.

3. Commencing at the intersection of Second and Virginia Streets running thence southerly on Virginia Street to Moran Street, thence easterly on Moran Street to Wells Avenue; thence southerly on Wells Avenue to Cheney Street (the present terminal of said line).

4. Commencing at the intersection of South Virginia Street and California Avenue, and running thence westerly to Plumas Street; thence southerly on Plumas Street to Reno Avenue.

Chairman Shaughnessy dissented. He said:

I am unable to agree with the majority opinion for the reason primarily that I am

not willing to authorize the company to discontinue operation of its Reno city lines, until it has been shown beyond a reasonable doubt that the public, after being fully informed, will not adequately support the road. The company undertakes to save itself in so far as it can by proposing that it be permitted to abandon the operation of its Reno city lines, but, generally speaking, I feel that a line having been built, equipped and put into operation between points where it is rendering an essential public service, should not be abandoned until after the people have been given an opportunity to make operation successful through the medium of increased rates and patronage if necessary, and the company has been required to rehabilitate and modernize its facilities where by so doing substantial economies in operation can be effected; and this is especially true if, by such co-operative action, an essential public service can, for the future, be maintained and improved.

Mr. Shaughnessy suggested cash fares of 10 cents with two tickets for 15 cents.

The line of railway operated by the company comprises approximately 7 miles of track, 3 miles of which may be credited to the Reno service and the balance to the Reno-Sparks interurban service.

The injunction proceedings brought to prevent the abandonment did not hold. In other words, as stated at the outset, the railway won out and the case was dismissed. It was reported on Aug. 20 that the tracks were then being torn up. The company will in the future operate only the interurban line which runs out to Sparks.

Receiver Hopeful of Better Things

In a recent hearing on the matter of foreclosure of the property of the New York (N. Y.) Railways before Federal Judge Mayer, to which reference has been made previously in the *ELECTRIC RAILWAY JOURNAL*, the court stated that in seeking a foreclosure of the property of the railway the security holders were well within their rights, but that there appeared to be no reason for instant action. It was disclosed that the receiver of the company and his counsel were hopeful that time would cure many of the company's financial ills. Special reference was made to the Lexington Avenue line, which, like all the long lines embraced within the system, is not meeting expenses. It was pointed out, however, that a marked improvement in the income of this line might reasonably be expected within a short time due to recent changes in the district.

There was much talk in court concerning proposed reorganization plans, and it was said that any decree authorizing a sale of the property under foreclosure must be accompanied with some plan indicating measures to follow a sale of the property so as to guarantee the continued operation of the car lines.

The question of foreclosure will come before the court again for settlement before Nov. 1.

Back to the Owners

Court Permits New Haven Railroad to Abrogate Leases of Certain Rhode Island Trolleys

The trustees appointed under the dissolution decree against the New York, New Haven & Hartford Railroad obtained from Federal Judge Mayer at New York on Aug. 28 authority to abrogate the leases of certain electric railway lines held by the Rhode Island Company and to return the lines to the owners on Sept. 7 next. The court was also asked to instruct the trustees concerning 96,885 shares of the company and 9,132 shares of the stock and bonds, valued at \$600,000, of the Providence & Danielson Railway, which were transferred to the trustees by the New Haven & New England Navigation Companies, and which were ordered to be sold July 1, 1921.

JITNEYS DECREASE EARNINGS

The earnings of the Rhode Island Company, which operates the electric railways in Rhode Island, the trustees explained, decreased steadily during 1918 and 1919 because of the competition of jitneys and increases in wages and materials. A default was made by the company in the payment of its franchise taxes, and it was unable to meet some of its current obligations. Finally, the property was placed in the hands of receivers, who have reported that the receipts were less than the operating costs.

The trustees said that they have no money to operate the lines, or to pay the cost of their upkeep. They stated that the stock of the company, in their opinion, could not be sold now or in the future for any substantial amount and that it appeared to be certain that the company will never again be able to operate them. Therefore there is no reason to believe that the sale of the property in July next will bring any price much above that which could be obtained for the lines as scrap.

Until next July, the trustees explained, they will be left in possession of the properties of the Providence & Danielson Railway and the Sea View Railroad without funds to pay for their operation. It was pointed out that the securities in the possession of the trustees belong to the New Haven Company, and that this company should be required to assume the cost and responsibility of their disposition. The continuance of their control by the trustees, it was said, could be nothing but a hindrance and a detriment to all of the parties in interest.

WANTS TO RETURN LINES

The court was asked to give the trustees permission to return the stock of the lines to the New Haven Company. The situation of the Rhode Island Company, it was said, was less critical than that of the other companies in the State of Rhode Island because the receivers are operating the company's lines.

New Haven Merger Approved

Federal Judge Mayer at New York signed an order on Aug. 26 modifying the decree of dissolution against the New York, New Haven & Hartford Railroad, made Oct. 17, 1914, which permits the company, if the necessary consents can be obtained from the Federal and State authorities, to merge with the Harlem River & Port Chester Railroad and the Central New England Railway. The purpose of the merger is to enable the New Haven Company to vote the 400,000 shares of stock of the Connecticut Company, which controls the Connecticut trolley lines, to the end that the latter company may execute a mortgage of its property so that outstanding debentures of the Consolidated Railway, a subsidiary of the New Haven Company, to the amount of \$10,884,000 may be secured.

The Connecticut Company, it was explained, owns the New Haven Company \$4,071,038, of which \$1,000,000 is upon debentures and the remainder on notes for advances made up to Dec. 31, 1919.

In its application to the court the New Haven Company said that on March 1 last it was indebted to the United States Government for substantially \$66,000,000, including its short term indebtedness amounting to \$43,000,000, which was spent for betterments and improvements. The company stated that it was arranging for a new loan from the Government of \$13,500,000 with which to buy needed locomotives and to make necessary improvements. It said that it expected to be able to meet all of its financial obligations by taking advantage of the transportation act of Feb. 28 last until the return of normal conditions, when it hopes to be able to take care of its own financing.

The application says that the Consolidated Railroad was merged with the New Haven Company on Feb. 28, 1910. The New Haven Company assured the court that the merger of the New Haven with the Harlem River & Port Chester and Central New England Companies would conserve the interests of all the many companies that are involved.

Net Loss Increases

The net loss of the Pacific Electric Railway, Los Angeles, Cal., for the month of May was \$147,671. This makes a total loss for the first five months of 1920 of \$625,298. The interest on its funded debt alone is greater than the gross income for the period considered. Total railway operating revenues for May were \$1,223,684 and the total railway operating expenses \$898,112. The operating ratio was 73.3 per cent. Taxes were slightly more than \$50,000. The company had a non-operating income of \$2,000, which made the gross income \$277,585. The interest on the funded debt amounted to \$368,116, and taking the rents and depreciation reserve into account also, the total deduction from the gross income was \$425,256.

The company handles a large freight traffic. In 1905, 886 carloads of freight were handled, while in 1919, 108,460 carloads were handled. The company has applied for increased rates and a hearing is now going on.

INCOME STATEMENT—PACIFIC ELECTRIC RAILWAY MONTH—MAY, 1920	
Passenger revenues	\$ 873,052
Freight and switching revenues..	298,073
Other revenues	52,559
Total railway operating revenue	\$1,223,684
Way and structures	\$ 99,943
Equipment	176,676
Power	148,636
Conducting transportation	370,248
Traffic	11,672
General and miscellaneous.....	92,597
Transportation for investment— credit	1,660
Total railway operating expenses	\$ 898,112
Net operating revenue	\$ 325,572
Taxes assignable to railway operations	50,007
Operating income	\$ 275,565
Non-operating income	2,020
Gross income	\$ 277,585
DEDUCTIONS FROM GROSS INCOME	
Interest on bonds and other debt..	\$ 368,116
Rents and miscellaneous income debentures	37,327
Depreciation	19,813
Total deductions from gross income	\$ 425,256
Net income transferred to profit and loss	\$ *147,671
Net loss for five months ended May 31, 1920	\$ *625,298
*Deficit.	

Effect of Fare Increases

An increase from a 5-cent to a 7-cent fare was made by the Chicago & Joliet Electric Railway in Joliet in August, 1918, and an increase from a 7-cent to a 10-cent fare was made effective in August, 1919. The four months remaining in 1919 showed a decrease in traffic of 1.4 per cent. The accompanying table shows statistics for the first six months of the years 1918, 1919 and 1920.

Jan. 1 to June 30	Fare (Cents)	Revenue Passengers Carried	Revenue From Passengers
1918.....	5	2,916,691	\$146,961
1919.....	7	2,485,633	174,005
1920.....	10	2,574,901	248,442

The 7-cent-fare period compared with the 5-cent-fare period shows a decrease in traffic of 16 per cent and an increase of 18.4 per cent in revenue with an increase of 40 per cent in fare. The 10-cent-fare period compared with the 7-cent-fare period shows an increase of 3.6 per cent in traffic and an increase of 42.8 per cent in revenue with an increase in fare of 42.7 per cent. The 10-cent-fare period compared with the 5-cent-fare period shows that with an increase of 100 per cent in fare the traffic decreased 13 per cent, while the revenue increased 69.2 per cent. It has been estimated that if the fares had remained at 5 cents there would have been natural increase in traffic and revenue of at least 12 per cent. It is firmly believed that the 100 per cent increase in rate of fare has resulted in increasing the revenue at least 50 per cent.

Financial News Notes

Certificate of Dissolution Filed.—The Trenton (N. J.) Traction Company, an old holdings corporation which has not functioned for several years has been finally dissolved. A certificate of dissolution has been filed with Secretary of State Martin. The directors of the old company were John A. Rigg, Richmond L. Jones and Walter A. Rigg, Reading, Pa.; and F. W. Roebbling, Jr., and Dr. Edwin H. Ginnelly, Trenton, N. J.

Vote to Reopen Lines.—The citizens of Randolph, Mass., have voted to appropriate \$4,000 for the reopening of the Braintree-Randolph line of the Eastern Massachusetts Street Railway. Braintree has already appropriated \$4,000 and the public trustees of the company have announced that they intend to restore service as soon as possible. Considerable rehabilitation work will be necessary to place the line in operation, since it has now been idle for several months.

Separate Receiver Likely.—Justice Alonzo Hinkley in Supreme Court at Buffalo will appoint a receiver for the Hamburg (N. Y.) Railway in a foreclosure suit brought by the Bank of Buffalo in behalf of the bondholders under a first mortgage for \$750,000. The proceedings will come up early this month. The Hamburg Railway is part of the Buffalo & Lake Erie Traction Company's system which will be abandoned under a decision of the court. John F. Burke of Buffalo is suggested by the bondholders for receiver. Bondholders believe the line can be successfully operated if separated from the Buffalo & Lake Erie system.

Smaller Grand Rapids Deficit.—In spite of the fact that the Grand Rapids (Mich.) Railway raised its fare from 6 cents to 7 cents on June 24 the report of the company's operations for July showed a deficit. Although fewer passengers were carried in July, 1920, than in July, 1919, the losses were not as great; the deficit for July, 1919, having been \$19,323, while the deficit for July last was \$5,446. Passengers carried decreased 64,321. Total earnings of the company from all sources in July were \$158,052, an increase of \$37,869 over the earnings for the same month last year. The net income after deducting expenditures was \$45,581, from which is to be deducted \$51,027. Power cost the company \$26,602 less in July, 1920, than it did in the same month of 1919. An appraisal of the property of the company is now being made under the auspices of engineers selected by the city.

Traffic and Transportation

Jitneys Must Go

Connecticut Company Holds Out for Reenactment of Old Bridgeport Ordinance Properly Drawn

The trustees of the Connecticut Company feel they cannot resume service in Bridgeport under an ordinance such as the committee appointed by the Mayor to consider transportation matters recommended, but are prepared to resume service under a measure along the lines indicated by the ordinance of July 12. This is the substance of a reply made by Arthur M. Marsh, attorney for the company, to the question put to him at an open meeting called by the Mayor and held in Bridgeport on Aug. 30. More than 600 people attended the meeting.

COUNCIL FAILS TO ACT

The Council took no action on the trolley-jitney controversy at the meeting on Aug. 30, but called another meeting for the latter part of the week, at which it was proposed to have jitney officials, members of the ordinance committee of the Commission Council, the Mayor's special commission and representatives of the railway confer in the hope that some middle-of-way procedure might be found toward a settlement of the matter.

Mr. Marsh represented the Connecticut Company in the absence of Mr. Storrs. He said that the company's attitude was not a question of fairness or of unfairness, but of what was best for the city of Bridgeport. He is quoted as follows:

I think it is only fair to the Connecticut Company and only reasonable that arguments should be directed to the powers which the Aldermen have. The board is not responsible for things left undone which only the General Assembly can do. I think they are only responsible for what Judge Banks said they might do. We have been pretty well down financially as a public service corporation for some days. We say it is impossible as a business proposition to go on with the service unless the city desires to make some change in the situation. The Board of Aldermen has powers to establish routes as it may see fit within certain limitations. I do not suppose the Council can make routes for the jitneys. I suppose they must be somewhat reasonably adjusted in a way that none of us lawyers know at present. They cannot be entirely excluded, but if the city sees fit they certainly can be excluded from certain streets and make routes where they shall run, even from the standpoint of safety, if necessary.

COMPANY LEFT IN DARK

A letter was read from Mr. Storrs dated Aug. 30 noting his inability to be present at the meeting. Mr. Storrs said that the decision by Judge Banks on the jitney regulatory measure passed by the Council on July 12 pointed out definitely the form of an ordinance which would be valid, but he said that the company had not been advised that any steps had been taken

to adopt an ordinance in pursuance of the court's ruling. The attitude of the company is summarized in the last paragraph of the letter of Mr. Storrs. It is as follows:

I am directed to advise you the company is prepared, as it has been at all times, to resume service as soon as an ordinance corresponding substantially to the July 12 ordinance, but following Judge Banks' ruling, is enacted and made effective.

The directors of the Chamber of Commerce have written the Mayor and the Board of Aldermen that they endorse the report of the traffic commission as the best solution of the transportation problem that has been submitted, but that they believe, so far as it is possible, no jitney should be routed on the streets occupied by the trolleys except as it is necessary to cross the down-town district, or to connect one or two blocks from one non-trolley bearing street to another non-trolley bearing street. This report was summarized in the ELECTRIC RAILWAY JOURNAL for Aug. 28.

Eight-Cent Fare Allowed

The Public Service Commission for the Second District of New York has fixed the maximum fare to be charged in Johnstown, Gloversville and Amsterdam by the Florida, Johnstown & Gloversville Railroad at 8 cents.

On July 14 the company applied to the commission for permission to increase fares on three days' notice as follows:

Gloversville—From 6 to 8 cents in Gloversville and outside territory where a 6-cent fare now applies.

Johnstown—From 6 to 8 cents in Johnstown and outside territory where a 6-cent fare now applies.

Between Gloversville and Johnstown—From 10 to 12 cents.

Amsterdam—From 5 to 8 cents and from 6 to 8 cents in Amsterdam and outside territory where 5 and 6 cent fares now apply.

Commutation fares—General increase of 15 per cent on all fifty-four-trip, twenty-four-trip commutation, and forty-six and 100 strip school tickets.

Five strip tickets—From 35 to 40 cents.

The company has been operating under a 6-cent fare, except on certain parts of its system in Amsterdam where there is a 5-cent fare restriction in a franchise since Nov. 27, 1918, and under this operation, the company alleged, there has not been a yield in net revenue anticipated on the application for the 6-cent fare. Operating expenses, it was claimed, have been constantly growing since 1917 and 1918 with the result that for 1919 under a 6-cent fare the company's city lines have had a deficit of \$42,746, without charges for depreciation. It also stated that there was pending a demand for an increase of 30 cents an hour to its electric division employees. The increased rate of fare, the company says, is necessary to meet wage increases.

Voters O. K. Fare Rise

Good-Will Policy Wins Sioux City Company Right to Charge 6 Cents—Improvements Planned

Sioux City, Iowa, went to the polls on Aug. 17. It went there to record its opinion of the Sioux City Service Company. This opinion, as expressed in its votes, was clear-cut and, from the standpoint of the railway management, gratifying. To the company it said, "You need more revenue; go ahead and raise the fare."

As a result of the action of the Sioux City voters a 6-cent fare will take effect on the company's lines on Sept. 7 or as soon thereafter as the necessary legal steps have been taken by the City Council. In return for the higher fare the company plans to improve the service. While few if any extensions can be made at this time, faster headway is to be maintained and equipment will be put in first-class shape. The carmen will also receive a raise in wages. The new fare will continue for three years.

Approval of the higher rate came as the reward of a policy of good-will on the part of the company management. Some time ago the city authorities, moved by the plight of the railway, took steps to obtain the voters' judgment on the question of an increased fare. The company opened its books to the public and asked for a thorough investigation of its statement that it could not raise the carmen's wages under the 5-cent rate. Business men of high standing in the community found the facts to be as the company represented them.

GOOD-WILL POLICY WINS

A majority of three to one was recorded in favor of the fare increase. While only a small proportion of the city's voting strength was polled, every precinct went on record as favoring the higher rate. There was little opposition on the part of laboring men. The attitude of the city at large is summed up in the following extract from an editorial from the *Sioux City Journal* of Aug. 18:

The overwhelming majority of the votes cast by the people of Sioux City in favor of a just and reasonable increase proves that the public is willing to be fair with public service corporations which are fair with the people. The service company did not act arbitrarily. It opened its books to the public and asked that an investigation be made to verify its statement that it could not, under the 5-cent fare, grant the increase in wages asked by its employees. The investigators, composed of experienced business men in whose ability and integrity the people had implicit confidence, found the facts supported in every particular the contention of the company. The people accepted the findings of the investigators and granted the increase by a vote of more than two and a half to one. The public will do the same in any city and with any public service corporation which deals fairly and openly with it. That policy is better for the corporation than litigation, even when the courts decide in favor of them.

The contract with the carmen provides for 50 cents an hour for the first year, dating from May 1, 1920, to May 1, 1921; 52½ cents the second year, 55 cents the third year, 57½ the fourth year and 60 the fifth year.

Six Cents in Cleveland

New Rate Effective Probably Sept. 15
—Company Wants Increase in
Operating Allowances

At the meeting of the City Council of Cleveland, Ohio, Aug. 29, notice was received from John J. Stanley, president of the Cleveland Railway, that the interest fund would drop below the minimum of \$300,000 the following day and that the rate of fare would automatically increase to the maximum provided in the franchise, 6 cents or nine tickets for 50 cents, with a charge of 1 cent for transfers. This will take place about Sept. 15, when the operating report for August is issued.

HIGHER OPERATING ALLOWANCE ASKED

At the same time Mr. Stanley asked for an increase of 4 cents per car mile in the operating allowance, increasing it to 32 cents, and to enable the company to create a reserve fund and take care of renewals, he asked for an increase of 2 cents per car mile in the maintenance allowance, which would make it 12 cents per car mile. He stated that the company has been operating at a deficit of 2 cents per car mile since the last increase was allowed. Mr. Stanley's letter follows:

From March 1 to the end of August, the first half of the current ordinance year, our operating expenses have exceeded the allowance by 2 cents per car mile. The deficiency will be as great during the second half of the year unless the allowance is increased.

To enable us to make good within the current year, that is by the end of February, 1921, this deficit of twelve months we ask that the operating expense allowance be increased 4 cents per car mile, or to 32 cents. This will make the average for the twelve months 30 cents per car mile.

We ask also that the maintenance allowance be raised 2 cents per car mile so as to make the allowance from this time on 12 cents per car mile. This will enable us to begin to accumulate a reserve for depreciation. The franchise provides for such a reserve.

The interest fund will be below \$300,000 at the end of August—tomorrow—even on the present allowances, and the rate of fare must go to the maximum.

The situation is a very serious one, the most serious that has confronted the stockholders of the company or the car riders of the city since the passage of the Taylor franchise in 1909. It calls for immediate relief. I beg earnestly that you act promptly and wisely upon this our petition.

On June 1 we asked you to increase the maintenance allowance 2 cents and the operating allowance 8 cents. The commissioner recommended an increase of 1 cent for maintenance and 5 cents for operating expenses. That request of ours was based on estimates. So was the commissioner's recommendation. This request is based upon history.

FARE RISE AUTOMATIC

Should the interest fund drop below the minimum the company has the right to increase the rate of fare without action on the part of Council. It is difficult to say, however, what action will be taken on the request for an increase in the allowances.

Street Railway Commissioner Fielder Sanders said that it would be impossible to tell whether the fund will be below the minimum until the monthly statement is completed. He hopes that it will not be.

Some members of Council said that an attempt would be made to recover

about \$75,000, which was paid out as a dividend above the regular 6 per cent some time ago, as the courts have ruled that the ordinance granting an increase from 6 to 7 per cent had been defeated in a referendum vote. This, they believe, would increase the interest fund sufficiently to prevent an increase in the rate of fare at present.

Citizens Propose Louisville Solution

The "Round Table," a body of representatives of the civic and welfare clubs of Louisville, Ky., has come forward with a plan for the solution of the problems of the Louisville Railway. After several sessions the organization has made the following proposition:

The Louisville Railway to surrender its present perpetual franchises and to be given twenty-year franchises in compliance with State laws.

Fares for all city passengers to be raised to 7 cents for a period of two years, excepting for school children and teachers, whose fare during the school term will remain at 2½ cents.

Creation of a street railway commission, composed of three members appointed by the Louisville Railway and three members appointed by the Board of Trade, all appointments subject to the approval of the City Council.

Transfers to be unchanged unless changed by this commission.

The commission to adjust fares every six months on Jan. 1 and July 1 at the expiration of the two-year period during which the 7-cent fare will be in force, the adjustments to be based on the "service-at-cost" plan.

Majority vote of the commission to decide all matters that come before it, and in case of a tie the commission to select an umpire to decide, the umpire's fees to be paid half by the city and half by the company, and in case the commission is unable to agree on an umpire after thirty days, the Mayor to appoint one.

The "Round Table" proposes in its plan that the company shall pay the city \$100,000 a year for street repairs. The Mayor has contended that this payment should be \$168,000, or \$1,000 a mile of track.

Rochester Fares Advanced

Seven cents is now the fare charged by the New York State Railways on its lines in Rochester, N. Y. The fare increase was made under the terms of the service-at-cost franchise recently granted the company. Charles R. Barnes, city street railway commissioner, ordered a 7-cent fare with four tickets for 26 cents to be put in effect on Aug. 28, in accordance with an order of the State Public Service Commission for the Second District.

The commission's order followed proceedings which went to the Court of Appeals in the Quinby case, wherein the commission was prohibited from permitting an increase in fare because of provisions restricting rates in Rochester to 5 cents. The city franchise was later modified, the city waiving the franchise restriction and permitting the commission to determine a reasonable rate of fare. Under the order issued by the commission, the company proposes to increase its service in Rochester by about 20 per cent and to make other improvements.

Five Cents Not Enough

San Francisco Municipal Lines May Charge 6 Cents to Meet Employees' Demands for More Pay

Another city-owned traction system is on the verge of a fare increase. Five cents is not enough for the Municipal Railway of San Francisco. Riders on Mayor Rolph's railway lines will consequently soon be paying a fare of at least 6 cents. This is the word which comes from the Board of Supervisors, to which is entrusted the task of financing the municipal system.

The Supervisors are sorely puzzled. What with the H. C. L. and the San Francisco dog days they were having enough to worry about anyway. Then the employees of the city lines came along and threw a sledge-hammer, not to mention a couple of wrenches, into the works. In short, the carmen asked for higher pay—much higher. Five dollars is not enough for a day's work, said they, so they asked for a daily wage of six dollars.

MONTHLY DEFICIT SHOWN

A six-dollar wage and a five-cent fare don't hitch, say the Supervisors. The finances of the city-owned lines are already sadly depleted. Payment of the present wages has been resulting in a deficit, which it has been necessary to meet from the depreciation fund. Each month the board by resolution has been appropriating more than \$11,000 from this fund to care for this deficiency of revenue. The board cannot continue to draw upon the fund indefinitely, especially if the monthly deficit is to be increased by paying \$1 a day more to each carman.

Of course the carmen are entitled to an increase of some sort, say the Supervisors. The men who work for the city must be taken care of, because, if for no other reason, each one of them can deliver at least one vote. But if the men are given more pay the fare must be raised. That would antagonize many thousands of car riders, who are also voters. So the Supervisors are in a dilemma.

Indications point to the granting of the men's demands. The Supervisors are only human. Since they must take a definite stand on wages they will probably satisfy the men now and take their chances with the car riders later. It may be hard to make a 6-cent fare popular, but that is easier, in the minds of many, than hurting the feelings of the faithful.

Six Cents in Des Moines

The strike of the employees of the Des Moines (Ia.) City Railway has been settled on the basis of an order made by Judge Wade of the Federal Court: that a 6-cent fare shall be charged for a period not to exceed ninety days, the additional revenue to be applied to the 70-cent wage scale and the remainder to paying the back wages which result from the arbitration award dating back to March 1

Transportation News Notes

Six Cents in Sandusky.—Six-cent cash fares will become effective on the Sandusky, Ohio, lines of the Ohio Electric Railway, Springfield, Ohio, on Sept. 9. The increase from the present 5-cent rate has been approved by vote of the City Commission.

Bluecoats Carried Free.—Members of the New York City Police and Fire Departments, even when not in uniform, are now being carried free by the Interborough Rapid Transit Company. Frank Hedley, president of the I. R. T., recently issued an order which permits policemen and firemen to pass ticket choppers merely by displaying their badges.

Ohio Freight Rates Raised.—The Ohio Public Utilities Commission on Aug. 20 authorized all interurban railways operating in the state to increase freight rates 40 per cent, effective Sept. 1. Applications for 20 per cent increase in passenger rates are to be decided by the commission on the merits of each application. The commission recently refused to permit increase in intra-state rates for steam roads.

Bus Service to Stockyards.—In accordance with an agreement between the city of St. Boniface and the Winnipeg (Man.) Electric Railway, a motor bus service has been established to the stockyards near the former city. A seven-minute service is given between 6 and 9 a.m. and 4 and 6.30 p.m., and a fifteen-minute service from 9 a.m. to 4 p.m., and 4.30 to 12 p.m. Free transfers are given.

City Fights One-Man Cars.—The City Council of Berkeley, Cal., has put itself on record as opposed to the introduction of one-man safety cars on the local electric railway lines. The San Francisco-Oakland Terminal Railways, which operates in Berkeley, has announced that it will install a number of such cars on its city lines. At a recent meeting the Council adopted resolutions declaring that the installation of "safeties" would be considered "undesirable, impracticable, and unsafe."

Seven Cents in Belleville.—The East St. Louis & Suburban Railway, East St. Louis, Ill., has raised its fare on its line between East St. Louis and Belleville from 6 cents to 7 cents. The company is also charging a 7-cent fare on its Belleville city line. The increase was made necessary by the recent advance in wages granted the company's employees. The East St. Louis Railway was recently authorized by the State Public Utilities Commission to charge an 8-cent fare on its East St. Louis city lines. The fare was formerly 6 cents.

Denies Long Island Rise.—The Public Service Commission for the First District has denied the application of the Long Island Railroad, New York, N. Y., to put into effect the 20 per cent passenger rate increase promulgated by the Interstate Commerce Commission. The company filed an application with the commission subsequent to withdrawing a previous request for a 10 per cent increase. The company has announced that it will appeal to the Interstate Commerce Commission from the decision of the Public Service Commission.

Asks More Time on Car Order.—Because of manufacturing and transportation difficulties the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., has found it impossible to comply with the order of the State Railroad Commission requiring it to install fifty new cars by Sept. 1. The company has asked the commission to extend the time limit within which the cars may be placed in service. The cars have all been contracted for and construction is progressing as rapidly as possible. John I. Beggs, president of the company, recently stated that the cars should begin arriving in Milwaukee about Nov. 1.

Three Cents a Mile Asked.—The Auburn & Syracuse Electric Railroad, Auburn, N. Y., operating between these two cities, proposes on Sept. 20 to increase its single trip ticket fares for interurban travel between the Auburn and Syracuse city lines, for distances over three miles, from 2.75 to 3 cents a mile. Other changes are: Fifty-trip commutation fares between interurban points increased from \$4 to \$5 for distance of five miles or less; from \$13.75 to \$14.25 for nineteen miles; from \$13.75 to \$15 for twenty miles; from \$13.75 to \$15.75 for twenty-one miles; and from \$13.75 to \$16.50 for twenty-two miles.

Commission Probes Fare Plea.—The Public Service Commission for the First District has begun an investigation, upon the application of the Manhattan & Queens Traction Corporation, New York, N. Y., for an increase in its rates of fare. The employees of the company went on strike recently demanding a material increase in wages. This increase the company was unable to meet, for the reason that it is in the hands of receivers and has been losing money over a period of several years. It seeks an increased fare between Manhattan and Jamaica to 8 cents, making the total fare for the two zones 13 cents, instead of 5 cents as at present.

Tickets Popular in Savannah.—Since fares were raised from 6 cents to 7 cents in Savannah, Ga., on July 15, the use of tickets by riders on the cars of the Savannah Electric Company has shown a marked increase. The ticket sales for July amounted to \$16,654, and those for June to \$4,571. Fifteen tickets are sold for \$1. The company's revenue also shows a substantial gain, although the cash fares showed a decrease for the month of July as compared with

June. The cash fare receipts for July totaled \$77,314, while in June they amounted to \$79,609. The net increase in revenue for July as compared with June was \$9,788.

Ottumwa Increase Waits.—Although the Supreme Court of Iowa ruled recently in the Ottumwa Railway & Light Company case that it was possible for city councils to change public utility fares that company will not get an increased fare immediately. The company last week filed a petition with the Supreme Court for a *procedendo* to the District Court of Wapello County, in which Ottumwa is located, to give effect to the ruling of the Supreme Court. As the rules of the Supreme Court prevent the issuance of such an order before thirty days from the date the opinion is filed with the clerk of the Supreme Court it will be at least the middle of September before relief can be secured.

Slight Rise in Montreal Fares.—To meet the wage increase recently awarded its employees by a board of arbitration the Montreal (Que.) Tramways has been authorized by Montreal Tramways Commission to make a slight advance in its fare. The cash fare will continue to be 7 cents. Tickets will be sold at the rate of four for 25 cents, instead of five for 30 cents, either on the cars or at a company's ticket office, the increase being one-quarter of a cent on each ticket. Tickets by the book will be sold at the rate of fifty for \$3 at ticket offices only, instead of at the rate of forty-four for \$2.50. The latter price worked out at the rate of 5.7 cents a ticket, and the new rate at 6 cents even.

Another Rise in Cincinnati.—Fare increases are quite the order of the day in Cincinnati, Ohio. A short time ago Cincinnati were told that the Cincinnati Traction Company must have more revenue and that under the terms of the cost-of-service franchise the fare would be raised to 7½ cents by ticket or 8 cents cash. Now the rate has again been increased, this time to a straight 8-cent basis. The new schedule of fares became effective on Sept. 1 and provides for the sale of five tickets for 40 cents. Children's tickets are sold at the rate of five for 20 cents. Free transfers are continued. Tickets good under the former schedules are not to be accepted for fare, but are redeemed at the company's office.

Injunction Sought on 10-Cent Fare.—The validity of a 10-cent fare recently granted the Toledo, Bowling Green & Southern Traction Company, Findlay, Ohio, by the Findlay City Council, has been attacked in Common Pleas Court by George H. Phelps, a Findlay attorney, who has asked an injunction against collection of the fare, which is double the present rate. Council's action in granting a 10-cent fare was in violation of the 1915 twenty-five-year franchise granted the company, according to Mr. Phelps. That franchise fixed the 5-cent fare charge. The company was granted the 10-cent fare after it

had filed application with the City Council for the discontinuance of local car service on the grounds that it was unprofitable.

Nine-Cent Fare in Davenport.—The Tri-City Railway & Light Company, Davenport, Ia., won a victory last week when the District Court of Scott County (Iowa) granted the railway the right to charge a 9-cent fare in Davenport. The temporary writ was issued by Judge House. According to the ruling of Judge House the company will have to give a receipt when each 9-cent fare is paid, and if upon the final hearing a lower rate is established the passengers will be entitled to a rebate, the amount to be the difference between the 9-cent fare and the fare which is finally ordered. The new rate became effective with the order and no date has been set for the final hearing. Up to the date of the order the Tri-City Railway & Light Company had been receiving a 7-cent fare in Davenport.

Asks 7 Cents in Plattsburg.—Application has been made to the Public Service Commission for the Second District by the Plattsburg (N. Y.) Traction Company for permission to raise its fare from 5 cents to 7 cents. The Plattsburg Common Council has waived a provision of the company's franchise limiting its fare to 5 cents. The closing of the Government reservation at Plattsburg caused a decline in the company's revenue for the first seven months of 1920, compared with a corresponding period in 1919, of \$5,400. Operating expenses have increased \$1,639 over the 1919 period, resulting in a deficit of \$3,145 on July 31 last, as compared to a surplus of \$3,531 on July 31, 1919. Wages of conductors and motormen were raised on June 15 from 25 cents to 30 cents an hour.

City Fights Fare Rise.—The city of Steubenville, Ohio, has entered formal protest with the Ohio Public Utilities Commission against the proposed new schedule of rates effective on the local lines of the Wheeling (W. Va.) Traction Company on Sept. 1. The city contends that the new rates sought by the company are excessive and that any increase in fares is a violation of the franchise and contract which the company accepted some years ago. The company is seeking to increase its fares between Steubenville, Mingo and Brilliant, the advance through the establishment of fare zones being approximately 100 per cent. The city some time ago offered a 7-cent cash fare and a 6-cent ticket fare. The company seeks an 8-cent cash fare and a 7-cent ticket fare, with two new fare zones added.

Interstate Line Asks Rise.—The Pennsylvania-New Jersey Railway, Trenton, N. J., has petitioned the Interstate Commerce Commission for permission to increase its passenger fares and freight rates. The new schedule provides for an increase of 1 cent in each zone, making the rate 8 cents instead of 7, as now exists. Application for the increased tariff affects the lines

of the company running out of Trenton to all points in Bucks County, Pa. The routes that would carry new rates are those between Trenton and Morrisville; Trenton, Yardley and Newtown; Trenton and Bristol; Bristol and Doylestown, and Trenton and Lambertville. The new schedule of rates would become operative on Sept. 17. The New Jersey & Pennsylvania Traction Company, Trenton, has applied to the State Board of Public Utility Commissioners for a similar increase.

Thousands Walk as Buses Quit.—City-owned buses operating on Staten Island, New York City, were ordered to discontinue service on Aug. 26. This step compelled between 10,000 and 15,000 persons who live in the interior of the island to walk several miles to reach trolley lines. The buses have been operating since the shutdown of the Staten Island Midland Railway, early this year, because of failure to obtain permission for a higher fare. The city appropriated funds to purchase more buses, but this step was stopped by a suit of a holder of traction securities. The bus operation in some places paralleled the service of the Richmond Light & Railroad Company. Captain Kuhn, receiver of the latter company, obtained an injunction in June restraining the continuance of operation of buses on lines paralleling the electric lines.

Would Arbitrate Rate Dispute.—Arbitration of a dispute between the Meridian Light & Railway Company and the city of Meridian, Miss., over the rate of fare to be charged by the company, was proposed in a letter recently submitted by the railway management to the City Council. The company several months ago moved to raise the fare from 5 to 7 cents but was restrained from doing so by Federal Judge Holmes, who ruled that under the franchise provisions the company had no right to raise its rates. The proposition presented to the Council provides for the appointment of a board of arbitration composed of three citizens, one selected by the city, one by the company and the third by two others. This board would go into all details of the controversy and recommend a fair rate. It is proposed that all existing franchises be modified or voided to conform to the adjustment made.

"Safeties" on Racine Lines.—One-man safety cars are now carrying many of the citizens of Racine, Wis., to and from their daily work. Thirty of the cars have been ordered by the Milwaukee Electric Railway & Light Company for use on its Racine lines. The first batch was placed in service on Aug. 26. The introduction of "safeties" was preceded by a publicity campaign designed to educate the public to the advantages of this type of equipment. One of the cars was placed on exhibition on Aug. 25 in the center of the city and the public was invited to inspect it and have its special features explained by competent men placed in charge. This exhibit was supplemented by a

series of newspaper advertisements in all the local papers and designed to further explain and emphasize the "safety" features of the car and its advantages. Racine is a city of approximately 50,000 population. The safety cars have apparently been received with marked approval by both the railway company's employees and the riding public.

Eight Cents Cash in Wilmington.—An 8-cent cash fare became effective on the lines of the Wilmington & Philadelphia Traction Company, Wilmington, Del., on Aug. 17. The increase was made under authority of an order issued by the Board of Public Utility Commissioners. The company was directed to sell four tickets for 30 cents. The fare was formerly 7 cents. The commission based its order upon a valuation of the company's property made by A. L. Drum & Company, Chicago, Ill. The board declared that the sum of \$2,361,278 in the appraisal could not be allowed as it did not represent property utilized for railway service only, but was also used for lighting purposes. After this amount was deducted the total of \$6,814,100 remained as the property value allowed. To this the commission added \$170,000, 85 per cent of the amount spent for improvements and betterments, making a grand total of \$6,984,100, upon which an 8 per cent return was allowed. The company was permitted to abandon the 5-cent fare about two years ago. At that time it was authorized to charge a 7-cent fare but contented itself with a charge of 6 cents. The rate was raised to 7 cents a year ago.

Asks More on "Traction Division."—The San Francisco-Oakland Terminal Railways, Oakland, Cal., has applied to the State Railroad Commission for an increase in fare on its "Traction Division." The company operates in Berkeley, Alameda, Oakland, Piedmont, Emeryville, Richmond and San Leandro. The present fare is 6 cents. It recently applied to the commission for an increase in fares on its "Key Division." The present application does not ask for a specified amount but requests the commission to establish a reasonable rate of fare based on the sum of \$20,889,000, which is given by the company as the fair value of its property devoted to the public service in its "Traction Division." The company says that immediately following the rate readjustment in August, 1918, when the fare was raised to 6 cents, the company's gross operating revenue increased more rapidly than its actual operating expenses. This condition, the company says, was reversed beginning with the six months' period ended Dec. 31, 1919, when actual operating expenses increased at a much faster rate than the gross operating revenue. The company says that during the entire period the rate readjustment has been in effect, actual operating expenses, plus the cash set aside for depreciation and the state tax on the increased revenue, have exceeded the increase in operating revenues by \$285,723.

Personal Mention

Toronto Transportation Commission Organizes

At the first meeting of the new Transportation Commission recently appointed by the City Council of Toronto, Ont., P. W. Ellis was unanimously chosen chairman. Mr. Ellis is also chairman of the Toronto Hydro-Electric Power Commission.

E. M. Ashworth, secretary and assistant general manager of the Hydro Commission, was temporarily appointed as secretary.

The other two members of the Transportation Commission in addition to Mr. Ellis are George Wright and Frederick Miller. The commission has been appointed in view of the city's intention to take over the Toronto Railway system upon the expiration of the present franchise in September, 1921.

A. C. Colby has resigned as mechanical engineer of the Connecticut Company, New Haven, Conn., to become superintendent of equipment of the Detroit (Mich.) Municipal Railway. Mr. Colby has been in railway equipment work since 1905, when he was with the Rhode Island Company. He has served as master mechanic of the Birmingham, Ensley & Bessemer Railway, Birmingham, Ala., the Berkshire Street Railway, Pittsfield, Mass., and the Bridgeport division of the Connecticut Company.

E. M. Haas, formerly Western editor of the *ELECTRIC RAILWAY JOURNAL*, has been appointed manager of the railroad department of the H. K. Ferguson Company, Cleveland, Ohio. Mr. Haas is well known in the electric railway industry. For eight years following his graduation from Purdue University in 1905, he was engaged in maintenance and construction work for the Illinois Traction System and the Chicago & Eastern Illinois Railway. He joined the staff of this paper in 1912, resigning three years ago to accept a position as manager of sales of the International Steel Tie Company.

H. M. Gould, who has been supervisor of overhead lines for the Connecticut Company, New Haven, Conn., has resigned from that position to accept the appointment as electrical engineer for the Street Railway Commission, Detroit, Mich. Mr. Gould is a graduate of the electrical engineering course of the Sheffield Scientific School, Yale University. He spent the two years following graduation in 1907 in the electrical department of the Long Island Railroad. The next year he spent as a student engineer with the Metropolitan Street Railway, New York City. He then spent some time in miscellaneous electrical work and in January, 1912, entered the city engi-

neers department in Bridgeport, Conn. He left this position later that year to go with the Connecticut Company, with which he has been continuously since that time.

Engineer Now Operator

Martin Schreiber, Chief Engineer of the Public Service Railway, Made Division Manager

Friends of Martin Schreiber, chief engineer of the Public Service Railway of New Jersey, will be interested to learn of Mr. Schreiber's recent appointment as manager of the company's Southern Division. Mr. Schreiber's new work will take him for the first time from the engineering to the managerial field. He will remain in close touch



MARTIN SCHREIBER

with the engineering department of the railway through his retention of the title of chief engineer, although most of his time will be devoted to the operating end of the business. His headquarters will be in Camden, N. J., where, as announced in last week's issue, he succeeds William B. Graham, whose position as division superintendent has been abolished.

Mr. Schreiber is known throughout the country for his work as an engineer. For many years he has been actively identified with the American Electric Railway Association and various technical societies. During 1912 he served as president of the American Electric Railway Engineering Association, and later as a member of the committee on electrolysis. He has been chief engineer of the Public Service Railway since 1917.

Mr. Schreiber was born in Ironton, Ohio. He obtained his early education in civil engineering through association with his father, who was a general contractor. Graduating from Ohio State

University in 1899, with the degree of mechanical engineer, he served for four years with the Cleveland (Ohio) Electric Railway, first as an electrician, then as draftsman and chief draftsman, and later as engineer on powerhouse design and construction. In 1903 he went to the Public Service Corporation of New Jersey, continuing with that company and its subsidiary, the Public Service Railway, ever since.

F. J. Tew has accepted a position with the Sacramento Northern Railroad, Sacramento, Cal., as superintendent of shops and equipment. Mr. Tew recently returned to the United States after spending seven years in Manila, P. I., as master mechanic of the Manila Electric Railroad & Light Corporation. His headquarters will be at Chico, Cal.

George Buttrick has been promoted from assistant supervisor of lines of the Connecticut Company, New Haven, Conn., to be supervisor of overhead lines, succeeding H. M. Gould, who has resigned to go to Detroit, Mich. Mr. Buttrick has been with the company several years, having been superintendent of lines for the Bridgeport Division previous to 1917, when he was given the position from which he has just been promoted.

Michio Izawa, assistant traffic manager for the Japanese Government Railroad of Tokio, and Kujiro Hirayama, railway engineer of the Imperial Lines of the same city, are now in the United States studying modern railway methods. They are giving special attention to a study of the electrified lines now in operation in this country, as Japan's fuel supply can only last about fifty years more, and the mountainous districts have great possibilities for hydro-electric development. That Japan is seriously considering the possibility of electrifying its railroads is indicated by the fact that a bill has been introduced in the Japanese Parliament creating the Imperial Electric Railway. The aim of this measure is to establish electric power supplies for railroads and gradually to convert roads to electricity.

W. E. Blodgett, whose appointment as comptroller of the Winnipeg (Man.) Electric Railway was announced in last week's issue, is a native of Wisconsin. Mr. Blodgett gained his first accounting experience there and in Minnesota. He was accountant for the Twin City Rapid Transit Company, Minneapolis, prior to 1907, at which time he became associated with the Utah Light & Railway Company, Salt Lake City. He successively filled the positions of paymaster, statistician, chief clerk, assistant secretary and chief clerk to the general manager. After the consolidation in 1914 of the Salt Lake Light & Railway Company to form the present Utah Light & Traction Company, Mr. Blodgett became chief clerk to the general manager and to the secretary and treasurer. Four years ago he was elected secretary and treasurer of the company.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE MANUFACTURER,

SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Demand for Track Supplies Exceeds Output

Long Deliveries Ruling and Prices of Bolts, Nuts and Spikes Have Advanced

Considerable scarcity is experienced in track supplies, such as bolts, nuts and spikes, and this, together with the increased freight rates, has resulted in prices being recently increased all along the line. One of the large producers who was quoting a base price of 6 to 7½ cents a pound on track bolts and nuts on Aug. 1 has increased the price of the smaller material, 5/8 in. and less, to 8 cents a pound. Bolts that are 3/4 in. in diameter or larger still remain at 6 cents per pound, these prices referring to quantities of 200 kegs. On the same date this manufacturer was quoting railroad spikes at from 4 to 5½ cents base, but on spikes 1/2 in. and smaller the price is now 6 cents a pound, and 4½ cents for larger sizes, with the usual extras added.

Demand does not seem to have suffered materially from the price increases, as it is extremely heavy and still in excess of the present output. Railroads are preparing their equipment for the winter, and though orders are large a still heavier buying movement is expected from the steam roads as a result of the recent rate increases. Electric railways are beginning to buy more heavily now, and demand from foreign countries for railroad spikes is also very large. Manufacturers are sold ahead on both large and small spikes. While inquiries are large, the present actual buying is relatively small compared to the call for bolts and nuts, though it is expected to expand. No deliveries on spikes of any size are promised under two to three months, it is reported. On bolts and nuts some producers are booked solidly for three or four months and cannot make shipment on small sizes under six months' time, though larger bolts, as 3/4 x 6 in., can be shipped in from four to eight weeks. Producers see no immediate relief in sight as they are running to capacity now and are still several months behind on filling orders.

Stocks of finished goods are about non-existent both at the mills and in jobbers' hands. The situation would be more acute were it not for the slack building demand and the cancellations from certain quarters, as in the automobile industry, which have helped to ease the pressure on the supply of bars and rods.

Production has been greatly impeded by the car shortage, strikes and an

inadequate supply of coal. Raw material has also been causing much concern as shipments of steel from the mills are very slow and manufacturers have been having difficulty in securing supplies of rods and bars. New orders are consequently not encouraged and it seems doubtful in some cases if books will be opened for general business during the fourth quarter, as the needs of old customers will probably take care of the available output during that period.

Reserve Coal Stocks Depleted

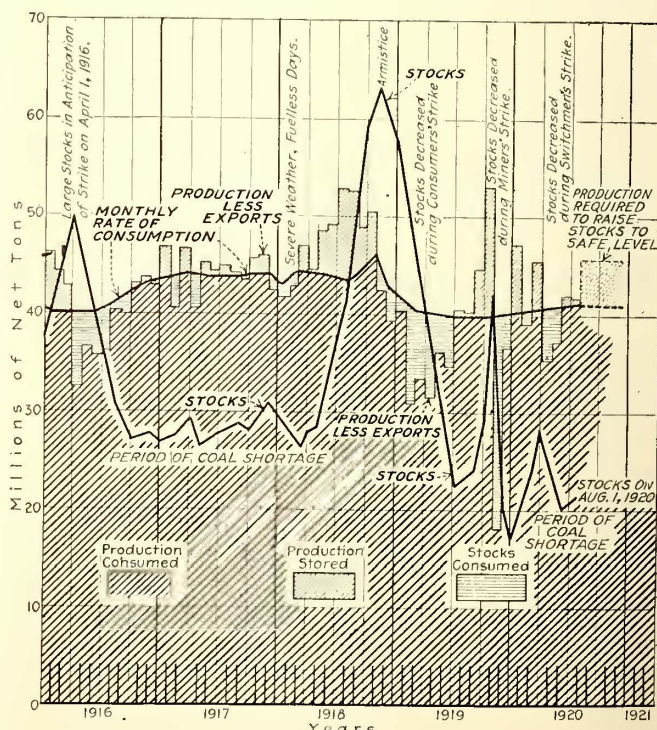
Consumer Is Held to Blame for Shortage—Relief Said to Depend on Railroads

Stocks of bituminous coal are below the safety level and consumers are aware of this, in the opinion of C. E. Leshner, editor of *Coal Age*, in an article published in the Aug. 26 issue. Production, though gaining, is at too low a rate to assure reaching a safe level of reserves before winter and there is at present an actual shortage of coal. The article states that the coal market will not fall to reasonable levels this winter unless stocks of bituminous coal mount to 40,000,000 tons by Dec. 1, which would be a gain of 18,000,000 tons over stocks on hand Aug. 1. Consumption is estimated at 41,000,000 tons per month and exports about 3,500,000 tons per month for July and August. In order to obtain the needed reserves, production must reach a figure of 46,000,000 net tons per month, which has been reached only during January and March this year. The Geological Survey has just completed a survey of all coal stocks, with the results indicated by accompanying illustration.

When the armistice was signed coal stocks had reached the unprecedented figure of 63,000,000 tons. After the armistice consumers refused to buy and

instead depleted the reserve stocks, while workmen at the mines remained idle, until about 41,000,000 tons of reserve stock were consumed by June, 1919. The mine workers' strikes then occurred, so on Jan. 1 available reserves were reduced to about 17,000,000 tons. The switchmen's strike in the spring reduced coal distribution so that the present problem is to add to the 22,000,000 tons of reserve stocks until they have reached a figure of 40,000,000 tons within the next four months and at the same time care for the current consumption of coal. This is possible, in the opinion of Mr. Leshner, as it has been done in previous years, and whether it can be accomplished again depends largely on the ability of the railroads to move the coal to the consumers. Recent developments also indicate a reduction in production due to strikes brought about by the failure of the mine wage adjustment board to agree on a wage scale.

In summing up, Mr. Leshner thinks the consumer is to blame for the coal shortage and that it depends on the railroads as to whether the situation



PRODUCTION, CONSUMPTION AND STOCKS OF BITUMINOUS COAL IN UNITED STATES FROM JAN. 1, 1916, TO AUG. 1, 1920

will be relieved. Apparently there needs to be a stabilizer in the coal industry whereby all-year capacity production of the mines may be obtained and fluctuation eliminated.

Asbestos Wire Outlook Better

Stocks of Wire Are Low and Deliveries Long, but the Conditions Are Improving

Long deliveries, nominal stocks and firm prices characterize the market for asbestos-insulated wire. Leading manufacturers are very busy trying to fill back orders and factory stocks are practically cleaned out. The supply of asbestos is reported ample, but the smaller sizes of copper wire are not obtainable in the desired quantities, chiefly as a result of recent prolonged strikes in the wire mills. Interruptions to copper wire production lasting about six weeks in one case and about twelve weeks in another cost the purchaser dear as well as the wire drawer. With increasing production in the wire mills following the return of steadier labor conditions the outlook is much improved for the smaller sizes of wire.

Deliveries quoted by representative manufacturers on magnet wire range from eight to twelve weeks. If producers did not take another order before 1921 there would be little trouble in keeping the plants running. One manufacturer who had about fifty-six weeks' work on hand last June 1 now has orders enough on his books to keep his employees busy until about July 1 of next year, barring cancellations. A few of these have been received, but no general disposition to retrench is evident.

MANUFACTURERS PUSHING PRODUCTION

Just now all makers of asbestos wire are not pushing sales at the normal rate, and more effort is being placed upon production and plans for the enlargement of manufacturing facilities than upon getting new business. This is of course not equally true of all competing houses, but until production begins to overtake demand, less "missionary work" will be seen in the trade. Users of asbestos-insulated wire for railway motor service would do well to order their anticipated winter requirements within the next few weeks, and it is generally held in manufacturing circles that the recent firm price levels will continue for some time to come. Labor conditions are showing some improvement, and since the recent advance in wages registered last spring no great difficulty has been encountered in obtaining enough employees for this class of material.

Representative factory prices of asbestos-insulated magnet wire start from 45 cents base on lots of 200 pounds or over, from No. 0000 to No. 4 B & S gage, inclusive, and extras are added per pound for the finer sizes ranging from 1 cent per pound on No. 5 to \$3.85 per pound on No. 28. A 250-lb. order of No. 18 would be quoted in a typical case at 72 cents per pound. The dielectric thickness of the insulation in this material is equivalent to double cotton. Lots less than 200 lb. carry 2 cents per pound additional price, and a 1 per cent discount is given for payment within ten days. The outlook is

good for increased facilities for production of asbestos wire during the next year or two, and with improved labor conditions and good supplies of asbestos and wire, record outputs may be expected from manufacturers.

Short Supply of Insulating Paper

Raw Materials Are Scarce, but Manufacturers Expect Conditions to Improve Soon

Makers of electrical products which require insulating paper in their manufacture are confronted with a marked scarcity of this paper, chiefly on account of the difficulty in securing raw material, though it seems that the situation will soon improve. The demand for insulating paper is especially heavy at present because of the large orders being placed for power and telephone cables and condensers. Power-cable manufacturers report that their orders have about doubled, but they are paying prices varying from 23 to 30 cents a pound for paper which cost them 19 to 22 cents last January.

SCARCITY OF SCRAP ROPE AND RAGS

Old manila rope and rags, the two bases from which the best paper is made, are very hard to obtain. The principal source of supply of scrap rope is the shipping industry, and as there has been a falling off in transportation by water due to strikes and other causes a shortage has resulted. Another factor which is active in diminishing the junking of rope is the high price of new rope, which is due to the great cost of raw hemp and the excessive demand from new ships being built. Rags are also scarce because the importation from foreign countries, which was formerly the chief source of supply, has been cut off. Quite lately, however, shipments from abroad have been resumed to some extent. As a substitute for these raw materials, wood pulp has been experimented with but has not yet been accepted by insulation manufacturers as a basis for the best papers. Moreover, wood pulp itself is difficult to obtain.

The very thin "glassine" all-linen paper, imported before the war chiefly for use in condensers, has been practically cut off from importation. American manufacturers have recently developed a paper said to be as good as the imported material, however, although it contains a large proportion of cotton. Another reason for the scarcity of insulating paper has been that the best grade of whiting, which is used in its manufacture, formerly came from England and the supply from that source was cut off until a month ago.

Manufacturers express a hopeful view of the situation, however, because they seem to expect that the foregoing causes of shortage will soon disappear. Furthermore, European countries, including Norway, Sweden, Finland and Italy, are beginning to produce again.

Rail Bonds Increase in Price

Freight Rates Said to Cause Advance — Demand Is Light and Stocks Are Good

Representative manufacturers of rail bonds report a fair demand, but sales are lighter at present than for some time past. Orders are being received in somewhat spasmodic fashion and almost all of the buying is for maintenance purposes. A trend toward the use of arc weld bonds is also evident. Producers state that traction companies are making few extensions and are purchasing supplies only as absolutely needed, consequently the demand from that source is not a very heavy factor. Electrified railroads, on the other hand, are ordering more rails since the rate increase was granted them, and consequently more bonds are needed on their part. This increase in demand has only barely started, however, and is expected to become much heavier later on. Orders for rail bonds from abroad are also coming through in slightly better volume, and with the growing electrification of foreign roads a promising market is looked for in that quarter.

General price increases amounting to approximately 2½ per cent on the finished product were announced the latter part of August. This advance is said to be the direct result of the recent increased transportation cost, as otherwise manufacturing conditions have undergone little change. Production is reported about normal, and raw material is causing no difficulty other than the fact that embargoes and the shortage of cars have in many cases greatly delayed the arrival of material. The labor situation, too, is improved, compared with conditions in the past.

Stocks of rail bonds at the mills are reported in good supply by several manufacturers, and in some cases small orders are filled from stock. In general, however, deliveries require from ten days up to four weeks.

Sweden Favoring Electrification of Federal Railways

The Second Chamber of the Riksdag of Sweden has adopted the resolution previously acted upon favorably by the First Chamber, appropriating 23,000,000 crowns (\$6,164,000) for the electrification of the railroad line Stockholm-Goteborg, the amount to be expended during the year 1921, according to Consul-General Dominic I. Murphy at Stockholm, Sweden.

The action of the Riksdag may be taken as a sure indication of the purpose of the Government to bring about the electrification of the entire system of the state railroad in Sweden. The bill now only awaits the royal approval, which will no doubt be given.

There ought to be good opportunity for American electric companies to present bids for the work, and it is suggested that they write to "Kungliga Järnvägstyrelsen," Stockholm, Sweden.

Franchises

Ohio Electric Railway, Springfield, Ohio.—Application has been made by the Ohio Electric Railway for a renewal of its franchise along the Lincoln highway between the Columbus city line and the county line. Franklin County Commissioners say the company is seeking this renewal before undertaking improvements on its roadbed estimated at \$75,000. The present franchise has four years to run.

Power Houses, Shops and Buildings

Municipal Street Railway, Seattle, Wash.—Contract has been let by the Board of Public Works to the United States Steel Company for furnishing three cables for the municipal street railway department. The company bid \$14,584. The Yesler Way cable will be 22,500 ft. long, the Madison Street cable 14,150 ft., and the James Street cable 8,250 ft. The latter line will be 1 $\frac{3}{8}$ in. in diameter and the two others 1 $\frac{1}{2}$ -in. steel rope. The three cables will weigh 114,399 lb.

Track and Roadway

Pacific Electric Railway, Los Angeles, Cal.—The Pacific Electric Railway has applied to the Los Angeles Railroad Commission for permission to construct a spur track on Santa Monica Boulevard and Orange Avenue.

Wisconsin Railway, Light & Power Company, Winona, Minn.—The La Crosse division of the Wisconsin Railway, Light & Power Company will complete its new line in Badger Street, La Crosse, by the middle of September.

Eastern Massachusetts Street Railway, Boston, Mass.—Plans for extending the Eastern Massachusetts Street Railway from Swansea to Swansea Center have been under discussion. Just what the status of the Seekonk-Swansea franchise was and how the Eastern Massachusetts Street Railway can present a petition for a franchise will be considered at a conference with the company's attorneys in Boston.

Phillipsburg (N. J.) Transit Company.—The Warren County Board of Freeholders has requested the Phillipsburg Transit Company to move its tracks from the side to the middle of South Main Street, where a new cement road will be laid.

New York State Railways, Syracuse, N. Y.—The Public Service Commission for the Second District has directed the New York State Railways to move as soon as practicable its track along Main Street in New York Mills between Campbell Avenue and the town line of New Hartford eastward wherever necessary in order to leave at all points at

least 22 ft. available for paving Main Street west of the railroad track.

Syracuse & Suburban Railroad, Syracuse, N. Y.—Action is being taken by the trustees of Fayetteville, New York, to compel the Syracuse & Suburban Railroad to change the location and rebuild its tracks in Genesee Street in Fayetteville. The railroad through its attorney has explained that it cannot possibly finance the work at this time, but the attorney for the village claims that the railroad must comply with its franchise. Chairman Hill said that it seemed as if it would be necessary for the commission to order the work and to take steps for later proceedings in the event of a default.

Portland, Ore.—The Commission of Public Docks of Portland has awarded to Nelson & Brown, contractors, a contract for construction of the roadbed for municipal railway terminal No. 4, the work to be completed within forty days. The road will be one mile long, and the roadbed will cost \$25,020.

New Advertising Literature

Indexes.—The General Electric Company, Schenectady, N. Y., has issued indexes to its descriptive bulletins and sheets and supply-parts bulletins, both dated July, 1920.

Insulating Fabrics and Link Insulators.—The General Electric Company, Schenectady, N. Y., has published bulletins Nos. 48715 and 49400, describing respectively the G-E insulating fabrics and the Hewlett link insulator.

Electric Drills.—The Independent Pneumatic Tool Company, 600 West Jackson Boulevard, Chicago, is distributing circular No. 33, describing its "Thor" universal electric drills, grinders, etc.

Fuel-Saving Devices.—Bulletin 111, issued by the Uehling Instrument Company, 71 Broadway, New York City, describes and illustrates the standard Uehling CO₂ meters, both single and multiple units.

Insulating Compounds.—"G-E Insulating Compounds" is the title of bulletin No. 48704A, published by the General Electric Company, Schenectady, N. Y., covering its insulating compounds, including insulating varnishes, japan oils, etc.

The Stromberg Electric Company, 200 West Jackson Boulevard, Chicago, manufacturers of time-recording systems, announces that it has opened an office at 803 Lexington Building, Baltimore, Md., with C. F. Ressiguie in charge.

Adjustable-Speed Motors.—The General Electric Company, Schenectady, N. Y., has issued a second edition of bulletin No. 41921A, superseding bulletin No. 41021 and describing the latest design of RF form A, direct-current, adjustable-speed motors, rated from 2 to 50 intermittent horsepower.

Trade Notes

The Safety Car Heating & Lighting Company has awarded contract for alterations in the former plant of the Marlin-Rockwell Company, New Haven, Conn., recently taken over by the company.

The Crane Company, 836 South Michigan Avenue, Chicago, recently celebrated the sixty-fifth anniversary of the founding of the company by R. T. Crane in 1855. Today the company has a total working space of 13,856,042 sq. ft. devoted to manufacturing and its employees number 15,304.

The Greenfield Tap & Die Corporation, Greenfield, Mass., has completed plans for enlarging its forge shop at Turners Falls, consisting of two new buildings, on which work will be started at once. The proposed new five-story plant of the company at Greenfield is held up for the time being.

The M. B. Austin Company, 700 West Jackson Boulevard, Chicago, manufacturer of electrical supplies, has acquired a site at 108-116 South Des Plaines Street, 91 ft. x 118 ft., on which it proposes to erect a two-story plant, to cost about \$100,000.

The National Carbon Company, Cleveland, Ohio, has recently issued its No. 35 carbon-brush catalog, which supersedes catalog No. 34. Some grades of carbon brushes previously listed have been eliminated and others added. The number of types of shunts used has been reduced.

The Chase-Shawmut Company, Newburyport, Mass., has taken over the Chase-Shawmut Department of the Condit Electrical Manufacturing Company, with Sears B. Condit, Jr., president and treasurer, and Frank D. Masterson, vice-president and general manager. Mr. Masterson has been associated with the Shawmut fuse business for twenty-one years.

The Uehling Instrument Company, 71 Broadway, New York City, manufacturer of fuel economy equipment, announces that it is now represented in New England States by the Smith Engineering & Supply Company, 89 State Street, Boston, Mass., manufacturers' agents and engineers, specializing in power-plant equipment. S. W. Smith, president of the latter company, was until recently associated with the Uehling Instrument Company, with headquarters in the New York office.

The Ackley Brake & Supply Corporation, 50 Church Street, New York City, announces the appointment of E. A. Thornwell, Atlanta Trust Building, Atlanta, Ga., as general South-eastern agent for the sale of the Ackley brakes and G. & B. paint in the states of Georgia, Florida, Alabama, Mississippi, Louisiana and Tennessee. Mr. Thornwell was formerly manager of the railway division of the Westinghouse Electric & Manufacturing Company.