Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

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Mail Pay on a Better Basis Than Formerly

ONE of the striking evidences of the value to the industry of association work is shown in the services performed by the mail pay committee, whose report for the last year was presented at the Atlantic City Convention and was abstracted in the Oct. 8 issue of this paper.

Under the old mail pay committee, as many members of the industry know, a substantial step forward in the fight for fair and compensatory rates of pay for mail carriage was made. Perhaps this is best indicated by the fact that after the decision of the Interstate Commerce Commission was handed down, the appropriation to the Post Office Department for mail carriage by electric lines was increased from $545,000 to $707,000 or by $162,000; that is, 30 per cent.

During that struggle the committee succeeded in getting the question of side and terminal service eliminated as a burden to the carriers. The commission also established the principle of limiting the number of pouches of mail, or pieces of parcel post, that could be carried on cars for a flat rate per mile. In other words, the Interstate Commerce Commission put the mail handling on a space basis.

Those of the industry who are familiar with the burdensome restrictions that were imposed by the Post Office Department rulings on these two matters of course recognize that a real victory was obtained in the decision of the commission, and the mail pay committee and the member companies represented by them are entitled to congratulations for such success as crowned their efforts.

As indicated in the report presented at the convention, however, the mail pay committee is satisfied that the new rates are not fully compensatory. Therefore it recommended to the association that the fight for justice be carried on still further and this recommendation was approved.

Since the change in administration in Washington last March, a different spirit has prevailed in the councils of the Post Office Department, and the committee, as the report indicated, has received the promise of co-operation by the Second Assistant Postmaster General to the end that the facts, as ascertained by the data sheets and other study, can be agreed upon in advance. This is a businesslike way of approaching the subject as it will eliminate the necessity for a long drawn out and tedious series of hearings and will enable a much more efficient and concise presentation of the case before the commission for argument. The plan should permit the committee so to put forth its arguments and conclusions that further relief ought to ensue when the Interstate Commerce Commission decides the case.

The matter is being referred to here editorially, as indicating one of the many lines of productive activity engaged in by the American Electric Railway Association and its committees, and one that should, if a successful termination is reached, mean still more revenue to those companies which are now burdened with the carriage of the mails.

Furthermore, under the present law, it is understood that the Post Office Department has the right to demand the carriage of the mail by any electric railway. Therefore, all electric railway companies, whether members of the association or not, have a potential interest in the work of the committee on mail pay, because they might at any time be required to carry mail, and, even at the present rates, most companies would carry the mail at a loss.

There is ample justification, therefore, in this situation for the industry to put united support behind the mail pay committee in its efforts to lighten the burdens laid heretofore upon many of the companies by the Post Office Department.

Does Engineering Training Fit for Management?

DOES an engineering education fit or unfit a man for executive leadership? This, after all, was the question at issue in several addresses at a joint meeting of engineers held in New York on Oct. 19. On the one side the charge was made that the habit of mind of solving problems with mathematical exactness followed by the engineer was incompatible with, or usually not accompanied by, that vision of possible future growth which is necessary in large undertakings or the faculty of establishing good relations with employees and the public. To quote the advocate of this theory, Mr. Cabot, a Boston banker:

"His [the typical engineer's] natural position is that of the hand which executes rather than the mind that conceives. Leadership is not native to him, his enthusiasms have been put under stern control, locked up so that they cannot warp his judgment—they cannot easily be released to inspire others. In fact, they are often atrophied. . . . I do not believe that it is impossible for an engineer to be a great leader and manager of industry. All that I maintain is that his natural handicap is increased by our present methods of training to such an extent as to make him an unpromising candidate for promotion to such positions, and I say this with full knowledge of the fact that his selection to fill them has become increasingly common of late years, especially in public service corporations."

In defense of this theory the achievements of Vanderbilt, Hill, Carnegie, Schwab, Gary, Ford, Westinghouse, Coffin, Vail and others were cited. Particular mention was made of the record of T. N. Vail, whose successful direction of the A. T. & T. was declared not to have been equaled during the past seven years by that of the management of any other utility or group of utilities.

So much for the prosecution. On the other side, there were not lacking defenders of the engineers, who declared that it was the engineer whose exact training was often required to rescue and rehabilitate a utility or other enterprise after the promoters and their finan-

cial backers with their impracticable ideas and schemes of high finance had brought the property into financial difficulties.

Of course it would be improper to ignore the merits of each type of mind. Our great utilities and industrial enterprises would not be in existence but for the enthusiasm, creative genius and courage of the pioneers. Much of the practice of anticipating development and building for the future could well be copied by some of their more prosaic successors. But the present time particularly calls for executives who, while having a vision, can tell whether that vision is real or imaginary, is an oasis or merely a mirage, and that their paths are being directed by a beacon and not a will-o'-the-wisp. The modern president of a utility must be economical but ready at the same time to spend money when the conditions warrant. He must understand how to deal with men as well as with materials.

Not all engineers—perhaps it can be said not many engineers—can do this, but their percentage of failure probably is not as great or no greater than among the non-engineers, including among the latter the bankers. There is nothing in the study of engineering itself which should preclude the broader knowledge required to conduct large enterprises successfully. Rather, engineering education should train a man to substitute judgment based on knowledge for haphazard guess based on surmise or intuition. There are many conspicuous examples of men with engineering training who have directed or created large undertakings. The names of George Westinghouse, General Goethals and Herbert Hoover will occur to the mind at once as notable instances. In the public utility field there are of course many notable examples whom it would be invidious to mention, yet their names will recur to everyone.

After all, the lesson for engineers is not that their training will prevent them from high executive service. Rather, it is that it will help them, provided it is combined with courage to make decisions, insight into the probable future development from a given set of conditions, and ability to judge men and get along with them.

The "Electric Railway Journal" and Bus Transportation

FOR several months, if not for years, there has been an increasing demand upon the editors of the ELECTRIC RAILWAY JOURNAL to keep the electric railway field informed upon developments in bus transportation. It has been recognized for some time that this newly-developed agency must be a permanent factor in urban and interurban transportation of passengers, and there has been an earnest desire on the part of most railway operators to be informed about its potentialities and accomplishments for the double reason of knowing how to meet the new agency in competition and how to use the new agency in co-ordination with existing rail systems.

It is of value to make or obtain actual analyses of cost of operation of various trackless vehicle installations for the edification and education of the operators of these systems and for those who would undertake such operation. The leading operators of such systems, as well as railway men, are in thorough sympathy with such a program for they both are anxious to know exactly where the bus is going to fit in ultimately in the passenger transportation business.

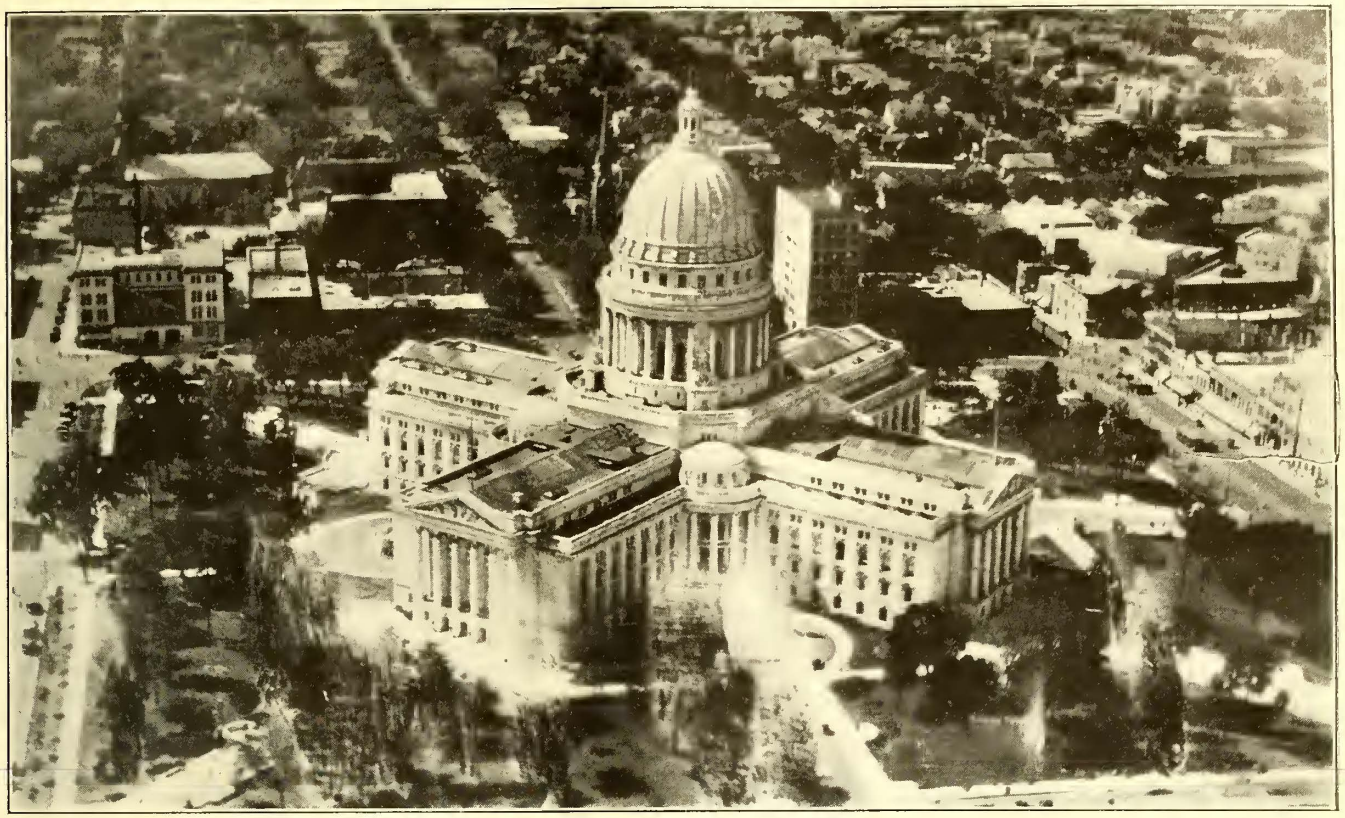
The bus manufacturer is also vitally interested in all these matters. He wants to work closely with the operator to determine the fundamentals of design that will insure the most economy in operation. There must be considerable research and expenditure of money before there is any degree of finality in bus design principles. Some special designs have been developed, though some manufacturers still hold to the use of the standard truck chassis.

In response to the evident need of editorial service in this entire bus problem, an effort has been made during the past months to supply it. All of the studies which have been made and data which have been collected tend only the more firmly to fix the idea that the best transportation for the community can be obtained only by the co-ordination of the various transportation facilities and not by indiscriminate competition. That buses should be regulated in the same manner as railways should be is a principle which is admitted and even encouraged and sought by leading bus transportation operators.

However, the numerous problems of the railways, coupled with the increasing interest in the problems of the bus transportation field, make it almost impossible to give adequate treatment to both in the somewhat limited space available in the ELECTRIC RAILWAY JOURNAL. Accordingly, it has been decided to try to give a special service on bus transportation in a monthly supplement to the ELECTRIC RAILWAY JOURNAL. This supplement, according to present plans, will make its appearance in January, 1922, and will be known as the "BUS TRANSPORTATION JOURNAL section of ELECTRIC RAILWAY JOURNAL." It will be edited by the same group of editors now responsible for this paper and will be co-ordinated in its editorial policy in exactly the same manner that it seems desirable to co-ordinate the bus transportation service in the field with electric railway service; namely, to give the best complete service by a co-ordinated unit. This undertaking is being started only after consultation with several leaders in both the electric railway and the bus fields, and the general opinion expressed was that this plan is the best to provide the desired service.

In the manner proposed, the information on all bus transportation questions, no matter what form of drive is used, will be available to all electric railway men who are interested in the subject and will also be available to those interested in the operation of bus systems, whether or not they are interested in electric railways. It must be recognized that there are many small communities and many interurban transportation routes which, even in the days of wildest dreams for electric railways, could by no stretch of the imagination support a rail system but in which there is now a demand for some sort of transportation which the bus can supply. This field has never been served by any publication from a transportation standpoint, but this service the BUS TRANSPORTATION JOURNAL will be able to perform.

The ELECTRIC RAILWAY JOURNAL and the BUS TRANSPORTATION JOURNAL, therefore, as a unit, hope to cover the urban and interurban passenger transportation field, in so far as it is served by responsible transportation agencies. The effort is thus merely a continuation, with expansion, of the past efforts of the ELECTRIC RAILWAY JOURNAL to assist where it can in the solution of urban and interurban transportation problems and in the upbuilding of the industry created and operated for the purpose of supplying such transportation.



THE COMMISSION IS HOUSED VERY EFFECTIVELY IN THE STATE CAPITOL

Regulation of Utilities in Wisconsin

Power of Wisconsin's Railroad Commission Strengthens Utility Securities in That State—Adequate Revenue in Return for Satisfactory Service Gives Badger State a Perfect Record in Number of Utility Receiverships—"Efficiency Instead of Politics" Is Keynote of Commission's Success

THE confidence which Wisconsin holds in its Utility Commission is clearly expressed by a decision of the Wisconsin Supreme Court rendered in the last few months, from which the following extract was taken:

The commission legislation has been welcomed by the public and the public utility companies alike. It has never been suggested that the purpose of the legislation was other than for the promotion of the public interests. Critics should appreciate that private capital devoted to public service is entitled to a fair return and that it requires more courage to render just than popular decisions. It is believed that fourteen years of experience has vindicated the law as a measure of great public benefit, although recently, when abnormal industrial and commercial conditions have given rise to a general increase in rates of service, mutterings against the law or its administration may be heard. But it should not be forgotten that successful regulation must be fearless and fair and accommodated to the exigencies of changing conditions. Whenever the administration agency appointed to arbitrate between the public and the utility is influenced by public sentiment rather than considerations of justice, the purpose of the law will fail, not because of its infirmities but because of its weak and servile administration.

The origin of regulative legislation in Wisconsin came in 1874 under pressure of the so-called Granger legislation when a board of three railroad commissioners was appointed by the Governor. This board lasted two years and did some splendid pioneer work, being replaced in 1876 by a single commissioner. This system was continued until 1905, being changed from an appointive to an elective office in 1881. This railroad commissioner was required to make inquiry regarding neglect or violation of laws by the railroads, inspect and examine the condition of railway equipment with reference to public safety and convenience and report all existing violations to the attorney general for action. The power of the commissioner ceased there, for the attorney general acted on the complaints by issuing recommendations to the railroad company involved, which recommendations were final unless reversal was obtained by an appeal to the court. This unique feature distinguished the old regulation from the new in Wisconsin. Incomplete and ineffective as this method now appears, it nevertheless marked progress in that line. The Wisconsin law was upheld by the Supreme Court of the State in 1874, in one of the first cases, if not the first case, of a higher court recognizing the right of railway regulation by the State (Ryan decision—June, 1874), and this case, with similar ones arising about the same time in Illinois, was upheld by the United States Supreme Court in 1876. (Otto, U. S. Rep., Oct., 1876.)

The next important event in the history of State regulation occurred in 1901 when a constitutional amendment provided that it was illegal to grant passes; this was followed in 1905 by the initial draft of the final bill making a railroad commission for Wisconsin.

Amendments to this law appeared as the necessity demanded in 1907, 1909 and 1911. This commission consisted and still consists of three members appointed by the Governor and confirmed by the Senate, the term of office being six years, expiring serially.

The personnel of the present Railroad Commission of Wisconsin composes the following: Carl D. Jackson, chairman, an attorney; Henry R. Trumbower, a political economist, and Lewis E. Gettle, an engineer. The secretary of the commission, C. D. SeCheverell, is the executive head of all other employees. The staff, under his direction, is divided into four departments, headed as follows: (1) Engineering—C. M. Larson, (2) Statistical—G. C. Mathews, (3) Service—C. B. Hayden, (4) Traffic—R. V. Adams.

Most of the states, with the necessary exception of Massachusetts, on account of a prior law, have followed closely the modeling of the Wisconsin law, but until very recently under no other commission are so many classes of utilities included. Some of these State commissions have powers somewhat similar to those

THE PECULIAR UNROOFING OF THE CAR PERMITTED PASSENGERS TO BE REMOVED WITHOUT SERIOUS INJURIES

Slack brakes coupled with some inattention on the part of the motorman were officially reported by the commission in connection with this accident in Milwaukee on June 5, 1919, in which more than seventy persons were injured.

conferred on the Wisconsin commission. These include the regulation of almost all phases of the operation of the following:

Steam railroads,
Electric urban and interurban railroads,
Express companies,
Sleeping car companies,
Freight companies,
Telegraph and distribution messenger companies,
Companies or individuals doing transportation business over any railroad in the state,
Common carriers engaged in passenger or freight transportation partially by rail and partially by water,
Telephone utilities,
Gas utilities
Electric lighting utilities,
Water utilities,
Heating utilities,
Toll bridge utilities.

Municipal and privately owned utilities under the Wisconsin law are placed on the same basis as regards commission control, a most excellent provision, as it prevents certain unfair comparisons which are often made between the two types of ownership. Provisions of this law which may be especially noted concern:

1. Joint use of property,
2. Valuation of property,
3. Uniform accounting systems,
4. Commission's reports,
5. Depreciation,
6. Service standards,
7. Complaints,
8. Court review,
9. Franchise and indeterminate permits,
10. Anti-free service.

In general the public utilities law can be rated in short but comprehensive form as follows:

The Railroad Commission of Wisconsin is vested with power and jurisdiction to supervise and regulate every public utility in this state and to do all things necessary and convenient in the exercise of such power and jurisdiction. (Section 2, Public Utility Law—1797 M.)

Due to the abnormal economic conditions created by the war, the recent work of the commission is marked by two general characteristics: First, the relatively small number of cases involving railroads, due to federal control; second, the excessively large number of utility cases handled, most of which involved increases in rates. This is shown very forcibly by the accompanying chart.

The largest number of cases was handled in 1920, but any present decrease in the number of other cases will be more than offset by the increase in railroad cases that are following the resumption of full private control and operation. Moreover, since market conditions show a marked decline, there will be an increase in utility cases involving decreases in rates, which will tax the commission's capacity greatly.

TABLE I—INCREASE IN UTILITY INVESTMENTS IN LAST TWO YEARS

	1919	1920
Common stock	$883,592	$5 381 843
Preferred stock	1,040,600	3 372 600
Bonds	16,708,000	39,785 233
Notes	5,494,000	11 098,075
Equipment trust certificates	.....	32,127,109
	$24,126,192	$91,764,860

The outstanding features of these increases in investments are: (1) Practically all of this stock has been sold locally to their customers, (2) A large amount of temporary financing by the issue of notes and other short-term securities has been done by the utilities, due to a desire to avoid long-term securities at the abnormal high rate of interest which has prevailed during the last two years.

The electric railways showed an increase in investment and revenues, although the increase here was not so rapid as in the case of other electric utilities. Operating revenues show the effect of increased rates of fare, many of which were effective during 1919. Though showing an increase in greater proportion than the increase in investment, the total operating expenses increased at an even greater rate. The year 1910 showed a return of 6.5 per cent, 1914 a return of 5.6 per cent and 1919 a return of 1.9 per cent.

The number of utilities, of which the commission has a record, increased each year notwithstanding consolidation:

TABLE II—PUBLICLY AND PRIVATELY OWNED UTILITIES UNDER THE JURISDICTION OF THE WISCONSIN COMMISSION

Classification:	Municipal	Private	Total
Electric	107	217	324
Gas	2	33	35
Water	121	26	147
Street railroads	...	25	25
Heating	...	12	12
Toll bridge	...	8	8
Total utilities	230	321	551
Telephone	...	982	982
Grand total	230	1,303	1,533

ENGINEERING DEPARTMENT

The engineers serving the Railroad Commission are organized as the "railroad and utilities division" of the State Department of Engineers. This division not only performs such duties as may be assigned to it by the Railroad Commission, but its members are available

for service to other state departments upon call by the State chief engineer.

The activities of this department may be classified roughly under two headings, namely, valuation of public utility property, and inspection or supervision of service rendered to the public by the utilities. The engineering activities can be briefly outlined as follows: I—Public utility service; II—railroad construction and service; III—public safety; IV—physical property valuation; V—water power; VI—jitney regulation; VII—miscellaneous problems of engineering.

I—Public Utility Service

"Service" is the watchword of the Wisconsin commission. By this the entire utility field is dominated and regulated. When the commission seeks to investigate a rate, the service of the utility in question is carefully analyzed and the rate established on that basis. The analysis and inspection to determine these grades of service form a very important part of the commission's activities. The inspection service is very detailed and precise. Standardized service, with a rating for every utility, is the object. To that end one chief method is used. An inspecting department is provided which is continually on the alert for betterment of service, using

TABLE III—UNIQUE RATING SCHEME ADOPTED FOR THE COMPARISON OF UTILITIES

	1918	1919	1920
Electric	76 1	75.4	76 2
Gas	75 9	77.1	73 3
Telephone	79 5	....	78 5

standard forms for the grading of each branch, such as electric, telephone, and gas. These reports form the basis for an actual compilation of rating data. These data were primarily for the use of the commission, but recently they have served a twofold purpose. Being made public, a keen competition was created among the utilities, resulting in a noticeable betterment of plant and operating conditions. Finally it can be said that the rate-making of the commission is based on service rendered and is also essentially *"A cost plus a reasonable profit on the physical property used and useful."*

The average ratings of the utilities for years up to 1920 are as shown in Table III.

Incorporated in the records of the service department are complete files of photographs showing conditions of service and maintenance for different utilities, which offers tangible evidence for considerations of rates. These show to what exact degree the service is watched by the commission. For further ease of control the State is divided into four districts with resident engineers in each at the following district capitals: Northeastern, Eau Claire; northwestern, Appleton; south-central, Madison; southeastern, Milwaukee.

II—Railroad Construction and Service

During the control of the steam railroads by the government very little was accomplished by the State commission except to a slight degree in means of cooperation with the Interstate Commerce Commission. A gradual increase in activity, however, followed the return of the railroads to their former owners.

It is particularly interesting in city railway development that the first zone-fare system ever put into effect came under the supervision of the Wisconsin commission in 1914 in the city of Milwaukee. This fare system proved its worth by actual use and is now in operation under the same rules. The system divides the city into several zones, a central and outlying zones. A flat rate of 7 cents is the present fare for travel, in each zone, while a fare of 3 cents is charged for each additional zone traversed.

Rolling stock equipment on all electric railways is maintained in a good operating condition by careful supervision. Plans for additional new equipment as well as for major alterations must be approved before being put into effect.

III—Public Safety

With a view toward securing uniformity in methods of protection, the commission, in co-operation with Illinois, Minnesota and Indiana, has arranged a set of

An Extensive Investigation of This Railway Accident in Milwaukee Was Made by the Engineering Department

rules governing the construction, maintenance and operation of interlocking plants for railways. These rules contain rigid requirements pertaining to any change in signaling plants and specify approval of all new installations by the commission. They also contain strict requirements for inspection service.

Considerable attention has been given to automatic

TABLE IV—CENSUS FOR 1920 AND RECORD OF FARE INCREASES GRANTED IN WISCONSIN CITIES

City	Population	Cash Fare	Ticket Fare	Present Fare Became Effective
Appleton	19,561	5 cents	Nothing stated	2-12-19
Ashland	11,334	7 cents	6 for 40 cents	10-16-18
Beloit	21,284	5 cents	Nothing stated	1915
Chippewa Falls	9,130	6 cents	Nothing stated	8- 1-18
Eau Claire	20,880	6 cents	Nothing stated	8- 1-18
Fond du Lac	23,427	8 cents	10 for 70 cents 50 for $3.00	9- 5-20
Wisconsin Rapids	7,234	10 cents	*	2-20-19
		5 cents	†	2-20-19
Green Bay	31,017	10 cents	5 for 35 cents	1- 1-21
Janesville	18,293	10 cents	7 for 50 cents	10-29-20
Kenosha	40,472	7 cents	8 for 50 cents	10-30-20
La Crosse	30,363	6 cents	18 for $1.00 (Workmen's tickets) 6 for 30 cents (School tickets) 25 for $1.00	9-16-18
Madison	38,378	6 cents	9 for 50 cents	11-16-18
Manitowoc	17,563	6 cents	5 for 30 cents	8- 9-18
Marinette	13,610	7 cents	10 for 50 cents	8-27-20
Merrill	8,068	7 cents	9 for 50 cents	12-23-18
Milwaukee	457,147	7 cents	8 for 50 cents	11- 2-19
Oshkosh	33,162	8 cents	5 for 35 cents 50 for $3 00	9-17-20
Sheboygan	30,955	8 cents	10 for 70 cents 50 for $3 00	9-11-20
Racine	58,593	7 cents	6 for 35 cents	12- 1 20
Superior	39,624	5 cents	Weekly tickets $1 00, unlimited riding, transferable.	

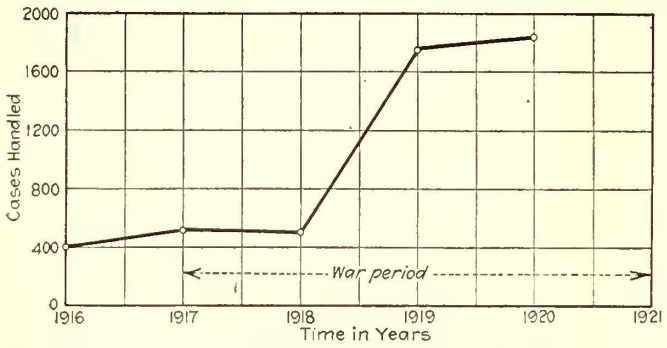
* From Wisconsin Rapids to Port Edwards.
† From Port Edwards to Nekoosa.

train control in the State, but since the prerequisite for such control is necessarily a perfect system of automatic signals, this advance field has been postponed until the signal system is nearer perfection.

Complete records of all the crossings in the State are kept and filed by means of photographs which show views, angle of crossing, height of grade and location, reference to which and suggestions for their betterment make for a minimum of accidents.

Accident reports form a necessary part of the commission's routine work, though none but the most important is investigated. Reports by the corporation involved must be in the commission's hands within two days after occurrence and, if the case warrants, facts are gathered, witnesses summoned and a report upon which much legal action depends given out by the commission.

Work in connection with the elimination of grade crossings by viaducts and subways has been encouraged in every way possible and advances in this line have been numerous.



THE WORK OF THE COMMISSION WAS GREATLY INCREASED AS A RESULT OF THE WAR

Due to the increasing use of electrical apparatus by relatively unskilled people a more comprehensive set of rules governing its installation and use was needed. As a result of this need a large committee was appointed for its compilation. The model for this new safety code will be code No. 54 of the U. S. Bureau of Standards.

IV—Physical Property Valuation

The commission requires two valuations of any property by its engineering department—one, a true reproduction value, and the second, a ten-year average value. The former determination is for use only in case of sale of the utility property, while the latter, which is the most used, is for rate-making purposes. In the determination of these valuations the most favored plan is what is known as the split-inventory method. The total inventory of an operating utility is classified and split into its various cost periods. The items in the inventory are carefully assigned a per cent condition value in terms of their new condition and by use of a complete "*life table*" which covers all items used. This "life" or depreciation table is used in conjunction with the "rating" given to each operating utility as to its maintenance—the rating being given in per cent perfect—80-85 per cent rating is considered good for separate stations and 90 per cent for system fed from a transmission line.

The foregoing methods of appraising property have demanded some modification in the last few years, due to rapidly fluctuating prices, but in general they are accurate and easily applied for the commission's needs.

TABLE V—AUTHORIZED MOTOR-BUS OPERATORS IN WISCONSIN

	Authorized Bonded Carriers
Milwaukee	42
Racine	5
Kenosha	3
Remainder of State	26
Total	

VI—Jitney Regulation

Particular attention has been paid by the commission to jitney regulation in the State. Due to increased costs of operation the number of jitneys has radically decreased during the past two years. Table V shows the number of authorized bonded carriers in operation in June, 1920.

Conclusion

The work of the Wisconsin commission, though founded on new lines, has proved its worth and now by virtue of cases handled, decisions rendered and satisfaction given it can be consequently placed in a high rank in state regulating bodies. Its decisions are widely quoted in court opinions and by experts in utility and railroad management. Though no mention has been made of it, additional duties are performed for other state departments which include rent, water power and securities or blue-sky regulation. The work as performed by the commission has been done with one single viewpoint in mind—public relations. This one thing has been carefully fostered and, though some dissension must always be evident in such a field, the consensus of opinion would easily show the commission to be the true, unbiased body which its law intended.

State Aids Interurban Bus Lines in France

IN THE May-June, 1921, issue of *L'Industrie des Tramways*, M. Paris, general manager, Société Générale des Transports Départmentaux, an organization which has developed motor-bus cross-country services in France, describes some of the advantages of this mode of transport. The war, of course, had proved the wonderful flexibility of both passenger and motor truck. Pre-war trials with motor buses, especially in the Haute-Garonne department, had also been most satisfying.

Since post-war costs of railway building are six times greater than before the war, it was obviously impossible for private operators or the government to meet the demands for service, even from regions where there is little population. Here is where the bus comes to the rescue in any place where the roads had been good enough for animal transport. Not only is the bus valuable in handling the traffic offered today, but also in determining when railway construction would be justified. Because of the mobility of the bus, also, it is feasible to run the same vehicle along different routes on different days of the week, as in the sparsely-settled districts, and to concentrate sufficient buses on any one route which is favorable by a fair or other traffic-raising occasion. On the routes served by M. Paris' company, use is made in some cases of a fifteen-seat trailer behind the motor bus.

A number of these lightly traveled bus or stage routes in France are subsidized by the government, but not liberally enough in the view of M. Paris. The March-April issue of *L'Industrie des Tramways* lists about 150 State-aided autobus routes. A large number of these are in the mountainous districts in southeastern and southwestern France and are probably postal routes.

Bus and Car Costs Compared

The Writer Compares Estimates on Operating Costs of Motor Bus, Trolley Bus and Safety Car, as Given in Recent Articles in This Paper by Messrs. Thirlwall and Stocks, and Defends the Figures of Mr. Thirlwall

By H. L. ANDREWS
Railway & Traction Engineering Department, General Electric Company

THE ELECTRIC RAILWAY JOURNAL has recently published two very excellent articles covering the relative cost of operation of the rail car, the trolley bus and the gasoline bus.

In Mr. Stocks' clear analysis of this transportation field, which appeared in the Sept. 24 issue of the ELECTRIC RAILWAY JOURNAL, he arrives at the same general conclusions that have been reached by J. C. Thirlwall in his very able presentation of this subject, which appeared in the issue of Oct. 1. These general conclusions are that there is an economic limitation in density of traffic for rail-less vehicles, that the field of the motor bus is in handling small loads on fairly long headways, that the rail car is the most economical and efficient means of handling mass transportation where short headways are required and that the field of the trackless trolley lies in between these two extremes. But in the actual cost of operation of the three types of vehicles these two authors differ widely, and therefore they do not agree on the economic limitations or degree of traffic density that determine the dividing line between the economic use of the three systems. There is also a further difference of opinion on the relative number of vehicles required for a given amount of traffic.

In view of this wide diversity of opinion between these two authors, it seems desirable that some additional evidence be presented bearing on the operating costs of the three types of vehicles, their relative capacity for handling peak loads and therefore the headway, limitations and degree of traffic density that mark the dividing line between the economic use of the three systems.

Mr. Stocks has evidently used as the basis of his article operating costs of safety cars considerably higher than those used by Mr. Thirlwall. There is presented in Table I a number of actual operating costs, together with the costs assumed by Mr. Stocks and Mr. Thirlwall in their articles:

TABLE I—COSTS IN CENTS PER CAR-MILE OF SAFETY CAR OPERATION FROM VARIOUS SOURCES

	1	2	3	4	5
Maintenance of way and structures	1.46	2.0	1.6	2.0	2.1
Maintenance of equipment	1.55	2.0	1.7	1.7	4.0
Power	1.04	2.5	1.9	2.5	3.6
Conducting transportation	6.35	6.5	8.4	9.0	9.71
General and miscellaneous	1.92	3.5	2.4	3.0	4.06
Total	12.33	16.5	16.0	18.2	23.47

1. Actual average costs, Mid-western property operating sixty-six cars, year 1921.
2. Cost estimate of a large holding company operating several hundred cars.
3. Actual average results in 1920 of ten companies operating 500 cars.
4. Costs assumed by J. C. Thirlwall.
5. Costs assumed by C. W. Stocks.

If actual results are conclusive evidence of operating costs, it appears that Mr. Thirlwall has been very conservative in his estimate of 18.2 cents per car-mile for the operating costs of the safety car and that Mr. Stocks has been too conservative in increasing the operating costs of the safety car by nearly 47 per cent over the actual costs obtained from ten companies which have operated 500 safety cars for three years or more.

[EDITORS' NOTE.—Mr. Stocks in a supplementary statement briefly explains the basis of his estimates.]

These authors also differ widely on the estimated operating costs of the trolley bus and the gasoline bus, this difference evidently being due to the difference in basic assumptions. While no actual operating costs for the trolley buses are available, these may be estimated with a fair degree of accuracy by basing such estimates on the actual operating costs of safety cars and gasoline motor buses. The operating costs assumed by Mr. Thirlwall and Mr. Stocks for both the trolley bus and the gasoline motor bus are given in Table II:

TABLE II—OPERATING COSTS IN CENTS PER BUS-MILE AS GIVEN IN THE ARTICLES BY MESSRS. THIRLWALL AND STOCKS

	Trolley Bus		Gasoline Bus	
	Stocks	Thirlwall	Stocks	Thirlwall
Maintenance of way and overhead	0.888	0.7	0.1	0.0
Maintenance of equipment	6.5	4.0	8.5	8.5
Power	3.1	2.3	3.55	7.0
Conducting transportation	9.9	9.0	9.9	9.0
General and miscellaneous	3.9	3.0	3.9	3.0
Total	24.2	19.0	25.95	27.5

Reference to this comparison indicates that there is a fairly wide difference of opinion between authors as to the costs of operation of both of these rail-less vehicles. Knowing the operating costs of the safety car, using the actual results obtained from a number of railway companies operating these cars for a reasonable period, and with fairly accurate data on the operating costs of several gasoline bus installations, we have substantial evidence on which to base the cost of operation of the trolley bus. Primarily, the difference between the estimates used by the two authors lies in maintenance and power costs.

MAINTENANCE AND POWER COSTS

The electrical equipment of the trolley bus is essentially the same as the safety car and should therefore have practically the same maintenance costs.

There are accurate data showing that the cost of maintaining the electrical equipment on safety cars is approximately 0.3 cents per car-mile. From such data as are available on segregated costs of body and chassis on gasoline bus lines, it is reasonable to assume the total maintenance of the body and chassis of the trolley bus to be not more than 1.35 cents per bus-mile, making the total maintenance for this bus complete, less tires, 1.65 cents per bus-mile. Where solid tires are used with gasoline propelled buses, records show that the tire costs vary from 1 to 2 cents per bus-mile. Assuming the higher figure for the tire costs, the total cost of maintenance of the trolley bus should be not more than 3.65 cents per bus-mile.

If we may safely base the cost of the trolley bus on known costs of the safety car and the gasoline bus, and it seems reasonable to believe that we can, it appears that Mr. Thirlwall's estimate of 4 cents per bus-mile for maintenance is conservative and that Mr. Stocks has been too conservative in estimating the maintenance costs of 6.5 cents per bus-mile.

Mr. Stocks has assumed that a safety car will require at the car 200 watt-hours per ton-mile and that the trolley bus will require 250 watt-hours per ton-mile. Corresponding figures used by Mr. Thirlwall are 150 watt-hours per ton-mile for the safety car and 195 watt-hours per ton-mile for the trolley bus. Mr. Stocks assumes 2.25 cents per kilowatt-hour as the cost of power at the car, while Mr. Thirlwall, with line and conversion losses included, assumes a cost of approximately 1.6 cents per kilowatt-hour at the car.

The power costs will of course vary widely in different localities, but from data published by the American Electric Railway Association it seems conservative to estimate the cost of generating power in a large station to be 1.1 cents per kilowatt-hour and in a small station 1.6 cents per kilowatt-hour at the alternating-current bus. Assuming 15 per cent line and 25 per cent conversion losses, these figures become 1.59 cents per kilowatt-hour and 2.3 cents per kilowatt-hour at the car. The figures used by Mr. Stocks correspond to the maximum power rate, while the figures used by Mr. Thirlwall correspond to the minimum power rate. As a general average, 2 cents per kilowatt-hour and 1.5 kilowatt-hour per car-mile will probably represent average power conditions for the trolley bus, or the total cost of power will be 3 cents per bus-mile as against 6 to 8 cents for the gasoline bus, or a saving of 3 to 5 cents per bus-mile in power.

The operating costs of a gasoline bus can best be determined from actual installations. While the authors differ materially in the cost of operating gasoline-propelled machines, it is apparent that Mr. Stocks has based his operating costs on one of the most widely known and best operated gasoline bus installations in this country, while Mr. Thirlwall has taken the average operating costs for five representative installations of the motor bus. It is difficult to find motor bus installations where the fuel economy assumed by Mr. Stocks is actually obtained. Most of the data available on fuel consumption are based on buses weighing from 7,000 to 8,000 lb. If this should be adjusted to a 10,000 or 11,000 lb. vehicle, it is doubtful if the estimates of 7 miles per gallon used by Mr. Stocks can be equaled.

If the fuel consumption of the gasoline bus is based on average conditions and average installations, it is conservative to assume 4 to 4½ miles per gallon of gasoline, which at a wholesale price of 22 cents corresponds to 5 to 5½ cents for power. The cost of lubrication increases this from 1 to 1½ cents per bus-mile, making a total charge for power and lubrication of from 6 to 8 cents per bus-mile.

Here, again, if we take actual results from several typical installations of the gasoline bus and base the operating costs of this vehicle on these known results, it appears that the figures used by Mr. Thirlwall are more nearly representative of actual practice and that those used by Mr. Stocks are anticipated economies in fuel consumption which have not yet been realized.

Capacities and Schedule Speeds

It would appear from Mr. Stocks' article that he has lost sight of the fact that a safety car has a greater carrying capacity than either type of bus and that to provide carrying capacity for a given number of people more buses than safety cars would be required. Fundamentally, the vast majority of rail cars have been designed with particular reference to rush-hour conditions. Their dimensions both in floor area and in cubical contents are governed by the idea of providing seating capacity considerably in excess of the normal mid-day or evening load and of handling during rush hours a standing load at least as large as the seated load. Motor buses on the contrary, with few exceptions, have been designed with the one thought of providing seating space for the light-hour loads, and no attempt has been made in their development to furnish the additional seats or space for the tremendous percentage of increase over normal riding that occurs during the rush hour. The safety car was developed as a compromise between these two viewpoints, in that the seating capacity was brought nearer to the normal load than in the majority of rail cars, but it was nevertheless laid out and constructed to carry comfortably peak loads of nearly double its seating capacity. So far as records indicate, no buses have been designed to accommodate any such proportion of rush-hour excess capacity.

Some typical designs of recent buses have dimensions as given in Table III.

TABLE III—COMPARISONS OF DIMENSIONS OF RECENT BUSES WITH SAFETY CAR

	Brill	Imperial	Average Bus	Safety Car
Seating capacity	29	29	..	32
Length	20 ft.	20 ft. 6 in.	..	28 ft.
Width	7 ft. 4 in.	7 ft. 0 in.	..	7 ft. 10 in.
Floor area, square feet	147	144	..	218
Maximum capacity, assuming 3.6 sq.ft. per passenger	41	40	40	60

With this as a fundamental, any comparison of buses, either gasoline or electric, with safety cars should be made on the total carrying capacity of each type of vehicle. In other words, to provide the same carrying capacity during rush-hour service there must be 50 per cent more buses in service than safety cars. This has been recognized by operators of rail lines which are using gasoline buses as auxiliaries. Mention was made of this by R. Gillman Smith in a paper entitled "The Motor Bus as a Supplement to Electric Railways," read before the 1920 convention at Atlantic City and published in the ELECTRIC RAILWAY JOURNAL of Oct. 16, 1920. Mr. Smith has assumed that the safety car can carry sixty passengers, or approximately double its seating capacity, while the gasoline bus has an overload capacity of but 67 per cent. It is Mr. Smith's conclusion that with bus transportation the number of units operated during rush hours would be increased 120 to 140 per cent over the base schedules, as compared with an increase of 100 per cent in the number of rail units. Mr. Stocks has lost sight of this, and in making his comparison between rail cars and the buses he has assumed that the same number of vehicles would be operated in each case.

The schedule speeds for the three types of vehicles as given by Mr. Stocks—that is, motor bus 10 m.p.h., trolley bus 9 m.p.h., and rail car 8.57 m.p.h.—take into consideration only the greater mobility of the bus and do not consider the greatly superior accelerating qualities of the trolley bus over the gasoline motor bus. In so far as mobility is a factor of schedule speed, the trolley bus has no handicap over its gasoline competitor. Collecting devices have been developed which permit a wide range of operation, and this vehicle has the ability to maneuver in traffic the same as the gasoline motor bus. Due to the higher rate of acceleration obtainable with the trolley bus, it can hold higher schedule speeds than the gasoline propelled machine.

Mr. Stocks and Mr. Thirlwall differ in the several

factors entering into the fixed charges, particularly in the rate of interest and in the rate of depreciation. The values assumed by each of these authors follows:

TABLE IV—COMPARISONS IN CENTS PER VEHICLE-MILE IN DEPRECIATION AND FIXED CHARGES

	Thirlwall			Stocks		
	Gas Bus	Trolley Bus	Safety Car	Gas Bus	Trolley Bus	Safety Car
Interest paid	9.0	9.0	9.0	7.0	7.0	7.0
Taxes	2.8	2.8	2.8	2.0	2.0	2.0
Depreciation	6.9	3.7	3.2	11.2	10.78	5.6
Total	18.7	15.5	15.0	20.2	19.78	14.6

The principal difference is in the life of the vehicle. Mr. Stocks assumes the life of the safety car as twelve years, a motor bus and trolley bus as eight years, and has depreciated these vehicles over a straight line, while Mr. Thirlwall assumes fifteen years for the safety car and the trolley bus, and that the life of the gas equipment on the motor bus will be no more than five years. He has carried his depreciation as a sinking fund.

It is difficult to recognize the basis assumed by Mr. Stocks in giving the gasoline-propelled machine a life of eight years. All of the gasoline bus operators depreciated their equipment at the rate of 20 to 25 per cent, and it is the universal recommendation of the majority of gas bus manufacturers that the gas equipment should be depreciated over not more than a five-year period. It appears that Mr. Stocks has been too optimistic on the useful life of gasoline equipment and perhaps too conservative on the life of the safety car and the trolley bus.

Mr. Stocks has included a charge of $466.66 per mile of route for rail lines to cover the cost of removal of snow and ice, cleaning and sanding track, etc.

Certainly if this is a proper charge against a rail line, it is an equally proper one against the bus routes, and in making comparisons it is reasonable to assume that the rail-less vehicles, either gasoline or electric, will be burdened with an equal, if not greater, operating charge to cover this item.

A careful study of both Mr. Stocks' and Mr. Thirlwall's articles indicates that Mr. Stocks' article is predicated on incorrect operating costs for all three vehicles and that his assumptions as to the relative numbers required are incorrect. As a result, his conclusions must be modified. The rail car has a much wider field of economic superiority than he assumes and must still be considered the most efficient means of handling all routes of heavy and of medium traffic. The motor bus, on the contrary, has a less extensive range of possibilities than his figures would indicate, and under practically all conditions of city service where any type of rubber tired car would be desirable the trolley bus is more efficient and less expensive than its gasoline cousin.

Why the Figures Differ

By C. W. Stocks

IT IS NOT surprising that a comparison of the two statistical analyses dealing with the cost of service rendered by the motor bus, trolley bus or safety car should disclose some differences of honest opinion. This is especially true with analyses predicated for the most part on estimates on the part of two persons, even when based so far as possible on actual results. Another reason why the comparisons differ is that the bases of the two analyses are entirely different. The analysis by J. C. Thirlwall is based on a 4.5-mile route having a rush-hour period, whereas the analysis of the writer was for a 3-mile extension to an existing class A urban transportation system on which rush-hour traffic would be of little or no consequence.

A comparison of the individual assumptions discloses that in figuring investment costs there is a considerable difference in track and distribution system unit costs per mile as well as in the cost units set up on a vehicle basis for storage and shop facilities. In one case a power plant and automatic substation is figured as part of the investment as against purchasing power at proper voltage. Mr. Thirlwall has not considered any additional investment for land, shop tools and machinery for either form of service.

Taking up the assumptions that go to make up the items used in calculating the cost of service, it is immediately obvious that Mr. Thirlwall has used a constant car-mile unit figure throughout for the service items that enter into each cost analysis. Transportation unit costs as a rule vary inversely as the car-miles run, although there are some costs that vary directly with the mileage and others are independent of the amount of service rendered.

It is for that reason that both track maintenance and electric line expense each were divided into fixed and variable parts and the allowance for building maintenance was taken equal to the depreciation allowance.

In Table I on page 769, in which comparative safety car operating costs are presented, the differences that are claimed to exist in maintenance of equipment of expense are due to the inclusion of allowances for superintendence at 1.6 cents per car-mile, shop expenses at 0.3 cents per car-mile and maintenance of service equipment and shop equipment at $200 per year, in addition to 2 cents per car-mile for maintenance of car body and electrical equipment.

The cost of power varies to such an extent, depending on whether it is purchased from water power or steam plants, that any attempt to say that such costs are less than the commonly used average maximum would lead to an erroneous result. One reason that the allowance for conducting transportation is so high is that platform costs were predicated on a wage scale of 65 cents per man-hour, with an average schedule of 8 4/7 miles per hour, as against a tight schedule of 9 miles per hour and wages at 50 cents per hour as assumed by Mr. Thirlwall. The figures shown in column 5 of Table I on page 769 cannot be taken as true average figures as they represent merely the average of the average car-mile figures and are not weighted in accordance with the number of car-miles run under each headway.

For the reasons explained in connection with Table I, maintenance of equipment for the trolley bus and motor bus in Table II are figured to cover not only the vehicle maintenance but their proportionate share of superintendence and other shop expenses. The cost of power consumed by the trolley bus is based on purchased power at 2½ cents per kilowatt-hour at the car, which is estimated to be 250 watt-hours per ton-mile on an 11,500 lb. vehicle. This unit includes power for heating and lighting the trolley bus as well.

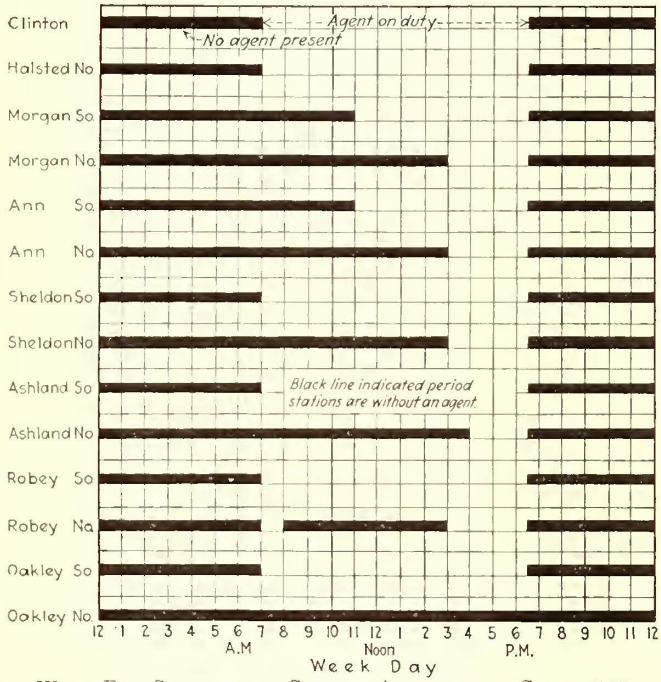
The difference in power costs for the motor bus; that is, for gasoline and oil, lies entirely in the assumptions. Mr. Thirlwall's investment costs seem to be based on a modern bus, but his operating costs on an entirely different type of equipment. Present-day vehicles built

especially for passenger service with an engine of higher speed than the sluggish heavy duty truck motor will give better operating results than he has calculated.

As for the life of the motor bus versus the trolley bus, body manufacturers are attempting to build bodies with a ten-year life, and it is easy to believe that the chassis frame will last as long. In the case of an engine, it is right to expect that as it wears out it can be replaced by a new one—like the transmission or rear end. The composite life of all the equipment is then dependent on the life of the body and frame and not on that of a removable part any more than is the case with a safety car.

Chicago "L" Eliminates Some of Its Station Agents

WITH diminishing business as a spur to greater economy, M. J. Feron, general superintendent of transportation Chicago Elevated Railways, has devised a scheme for use on the Chicago & Oak Park Elevated Railroad which has made it possible to dispense with the services of fifty-two station agents. The Oak Park



WEEK-DAY SCHEDULE OF STATION AGENTS FROM CLINTON TO OAKLEY ON OAK PARK ELEVATED RAILROAD

elevated is so constructed that a separate agent is required for each direction of travel at each station. A study has developed that at twenty-five of these locations the traffic is so light that the station agent can be done away with without introducing any difficulties in fare collection. During a large part of the day at these stations there are only three or four passengers per train per station to board. So it has been arranged that during the hours when there is no station agent present, the fares will be collected on the train by the conductor. The trains in these light periods are usually only three cars long, so that with the average of only three or four passengers per station to collect from, and only three cars to cover, the conductor who is stationed on the first car can easily handle this additional work. Should conditions require more than three cars, arrangements have been made for one of the guards to assist the conductor in collecting the fares, turning over his collections to the conductor.

The accompanying chart shows the names of the stations from Clinton to Oakley which will be without an agent during part or all of the day, and the hours during which each station will have an agent or will be agentless. The period during which an agent is present varies with the local conditions. This accounts for the variations in the schedule of hours for the station agents. The schedule was so worked out that the agents continued in the employ of the company are able to get in eight hours duty each day. A saving of $260 per day has been effected through this scheme.

Copies of these schedules for week days, Saturday and Sunday are posted in the trainmen's room, but the conductors are further informed by a large sign as to whether they should collect fares from persons boarding at any station. This sign is placed on the platform in plain view of the conductor when no agent is there.

The stations closed during part of the time are those between the Loop and Hamlin Avenue. The stations beyond Hamlin Avenue handle a sufficient number of people, so that it was not deemed advisable to leave them agentless during any period of the day, at least for the present. Hamlin Avenue is about 4 miles west of State Street.

Trolley Buses at York, England

THE route over which the York trolley buses are operated is about 1¼ miles in length from the Market Square of the city to Heyworth. Several very narrow streets have to be traversed and the turnings are numerous and sharp, the route being indeed an impracticable one for tramcars. The trolley buses, four in number, which have been operated nine or ten months, are of the single-deck type with seats for twenty-four passengers. There are five seats at the back and two rows of longitudinal seats. The left side seats ten, and the right but nine. They are light vehicles and are extremely narrow, the over-all width being but 6 ft. 3 in. The entrance is close to the driver's seat, so that they can be operated by one man, who also supervises the payment of fares as the passengers enter. Each trolley bus has two 23-b.hp., motors which are set amidships with their armature shafts parallel to the frames. Each motor drives one of the rear wheels by means of worm gearing. There is no other gearing on the chassis and a differential is, of course, unnecessary. Rollers and ball bearings are employed throughout and the weight of the vehicle rests entirely on the axle casing, the axles having only to transmit the torque, which is taken by the springs. The motors are controlled by a railway series parallel controller. Service brakes act on the rear wheels and an emergency brake on the motor shaft.

The overhead equipment is exactly similar to that of a trolley line except that the wire is duplicate to afford a return circuit. The trolley wires are 21 ft. from the ground and the 17-ft. steel trolley poles on the bus permit the vehicles to travel at a distance of 15 ft. on either side of the center of the wires. The trolley wheels are deeply grooved and ample freedom of swiveling is arranged for. It is stated that, exclusive of capital charges, the cost of running was 11.5d. per car-mile. The total cost of service, including fixed charges, taxes, etc., amounts to 1s. 6d. per car-mile. Current was supplied at 2d. per kilowatt-hour and the consumption was 1.42 kw.-hr. per car-mile measured at the station, according to an article in London *Engineering* of Sept. 2, 1921.

Transportation by Motor Bus in Gloucester

Organized Bus Company Supplants Independent Jitney Bus Operation that Sprang Up Overnight When Rail Service Was Withdrawn—Conditions Under Which Buses Operate Given in Detail—Rates Call for 10-Cent Minimum, with More for Longer Rides

GLOUCESTER, the outpost of the Commonwealth of Massachusetts and one of the historic spots of New England, holds also the record of being the first city in the country with a population of more than 20,000 to depend solely upon the motor bus for urban and suburban transportation. Not since June 19, 1919, has there been any other means of transportation. On this day the ultimatum previously delivered by the board of trustees of the Eastern Massachusetts Street Railway called for a cessation of service unless the taxpayers of the city would meet the operating deficit, which had been estimated at $20,000 or more per year. The City Council, on behalf of the people, declined to make any such guarantee unless it was approved by the people on a referendum.

This meant that not only were the cars in the city of Gloucester taken off but those on the suburban lines to Rockport, Essex, Hamilton and Beverly as well. In all service was discontinued on approximately 30 miles of track. Gloucester, so far as trolley car service was concerned, was isolated and the only means of reaching the city from outside points was by the steam railroad or by a motor bus line from Beverly via Manchester-by-the-Sea.

FRONT OF GARAGE WHERE BUSES ARE REPAIRED AND PUT UNDER COVER WHEN NOT IN SERVICE

Immediately upon cessation of the trolley service independent jitneys flocked to the city from neighboring points and attempted to handle the traffic. For more than six months this was the only means of transportation that existed. There could be but one answer, namely, the unregulated and unorganized jitney, without fixed and co-ordinated schedules, and with each owner operator trying to cut everybody else's throat, so to speak, failed from a transportation standpoint to render efficient service to the community as a whole.

OPERATING CONDITIONS FOR BUSES

Realizing this, the City Council undertook to bring some system out of the chaos that existed and approached the traffic problem from a regulatory standpoint, drafted an ordinance and put the motor bus transportation directly under the control of the Mayor, with the hope of encouraging an operating company to be formed to take over the entire system of bus operation.

The ordinance as passed provided for the licensing of all motor vehicles operated on the public streets for the transportation of passengers for hire and became effective Feb. 6, 1921. This ordinance made it necessary for each motor vehicle to carry a license, obtained from the Municipal Council and subject to the approval of the Mayor, which must be renewed annually. Such licenses as granted and approved by the Mayor, however, did not become operative until a security amounting to $12,500 by bond or otherwise had been deposited with the city treasurer for each motor vehicle having a seating capacity of twenty-five and an additional sum of $500 for each additional seat. The filing of an approved insurance policy by any one licensee to the extent of at least $20,000 total liability for injury or death in any one accident or for $5,000 for injury or death of one person and $1,000 for property damage directly caused by each vehicle allowed this security to be reduced to $500 in the form of a bond for each motor vehicle. These bonds are purely liability bonds.

Another requirement of the ordinance provided that metal plates bearing the words, "Licensed Motor Vehicle, No. — , Gloucester, 1921, —— passengers," setting forth the serial number of the license, the date and number of passengers exclusive of the operator that the bus can carry, are issued by the city and must be displayed on the inside dash of the motor vehicle. Destination signs are required.

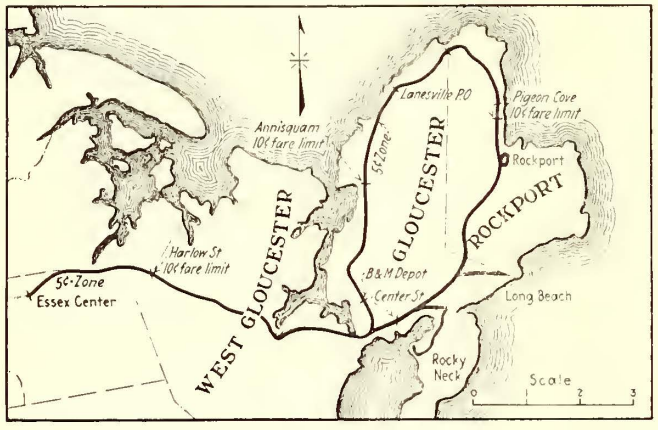
The bus operators are also required to file with the city all operating schedules and tariffs and only the fares shown in the tariffs may be charged unless seven days notice is given to the city clerk and approval of the new rates is granted by the City Council. In case the increase is denied by the Council the bus company must continue operation under penalty as described herewith.

Each individual motor bus operator must hold a driver's license granted by the city. Applicants upon

passing the requirements are given a badge which must be openly displayed when they are operating their buses. Such badge licenses are not transferable. The city clerk issues an identification card to successful applicants, which must be carried by the operator at all times when on duty. Such license fees cost $1 per year.

Motor bus drivers by the ordinance are prohibited from smoking while driving, from collecting fares, making change, etc., or discharging passengers while the vehicle is in operation. They are not allowed to pass up prospective passengers unless the bus they are driving is carrying its full licensed load. Other regulations provide for operators turning in all articles left in their vehicles, for stopping prior to crossing railroad tracks, for adequate interior illumination at night, for maintaining heat in winter and for reporting injuries to passengers or damage to property in which they are involved.

License fees payable to the city of Gloucester for the use of the streets are $10 per year per bus licensed. This is the only payment to the city for the use of the streets. In addition the company pays the usual property tax and state vehicle license tax. In the event that the motor bus licensee fails to comply with the terms



MAPS SHOWING MOTOR BUS LINES AND FORMER STREET CAR ROUTES

of the license granted, except when prevented by conditions beyond his control, he forfeits to the city of Gloucester $1,000, not as a penalty but as liquidated damages for each and every month during which failure continues. Before his operating license again becomes effective he must file a bond not exceeding $5,000 for the faithful performance of the conditions of the license.

Licenses for the operation of vehicles as well as the individual driver's licenses can be revoked or suspended by the Municipal Council after a hearing for violation of any law of the Commonwealth relating to the operation of motor vehicles or municipal traffic ordinances, provided such violation has continued for a period of five days after proper notice to the licensee.

At least sixty days prior to the termination of licenses for the right to operate vehicles the licensee must either file petition for a renewal of his license or notify the Municipal Council of his intention to discontinue the operation of motor vehicles when his license expires.

Under the terms of the ordinance pupils' tickets must be sold in lots of ten or forty at one-half the regular cash fare. This is in accordance with the Masssachusetts street railroad laws.

As a precaution against accidents due to skidding when highways are so slippery as to be dangerous all vehicles must use proper non-skid tire chains. Vehicles are also required to carry an extra tire if equipped with pneumatics.

In December, 1920, the Gloucester Auto Bus Company was organized under the Massachusetts laws with a capital of $150,000, divided into 15,000 shares of $10 each. The company has a paid in capital of about $75,000. Some 6,500 shares represent the garage valued at $20,000 and part payment of the buses at $45,000. The fleet of 16 motor buses represents an approximate value of $125,000.

ROUTES OPERATED

It was not until May 1, 1921, that the Gloucester Auto Bus Company actually took over the entire transportation of passengers to Rocky Neck, Annisquam and Lanesville, as well as to West Gloucester and Essex. On Aug. 1, 1921, motor bus service was extended to Long Beach, Rockport and Pigeon Cove. Two trips per day were also inaugurated between Rockport and Lanesville via the Cape Road, about the same time. The five bus routes which are shown on the accompanying map follow the streets for the most part formerly used by the trolley cars, the only exception being the line to Long Beach, which travels an entirely different route due to the fact that the railway company reached that point via a trestle over the marshes.

The city of Gloucester, in improving the roads for bus operation, has in some cases, especially along Main Street, covered up most of the trolley tracks with bituminous macadam. In Rockport there are places where concrete roads have been built directly on top of the former car tracks.

The base schedule maintained calls for a thirty-minute headway on the East Gloucester-Lanesville line and hourly headways on the other routes. During the morning and evening rush hours short trips are inserted so as to double the service for the greater part of the routes. The maximum number of buses in operation at one time is thirteen or fourteen. Regular drivers are paid $25 per week and spare men 50 cents per hour. Four men who drive rush-hour trips only also wash and clean their own buses.

Table I gives some statistics as to the length of the lines and the service maintained.

TABLE I

Route	Length One Way, Miles	Service Inaugurated, 1921	Trips per Day Each Way	Normal Headway	Rush-Hour on Headway	One-Way Fares, Cents
Rocky Neck-Lanesville	8.01	May 1	32	60	30	(d) 15
Rocky Neck-Annisquam (a)	6.08	May 1	12	..	30	10
West Gloucester (Harlow Street)	5.56	May 1	25	60	30	10
W. Gloucester and Essex center (b)	7.82	May 1	4	60	60	(d) 15
Gloucester-Rockport-Pigeon Cove	7.02	Aug. 1	25	60	30	(d) 15
Long Beach (c)	2.25	Aug. 1	25	60	60	10
Rockport-Lanesville via Cape Road	4.0	Aug. 1	2	..	..	10

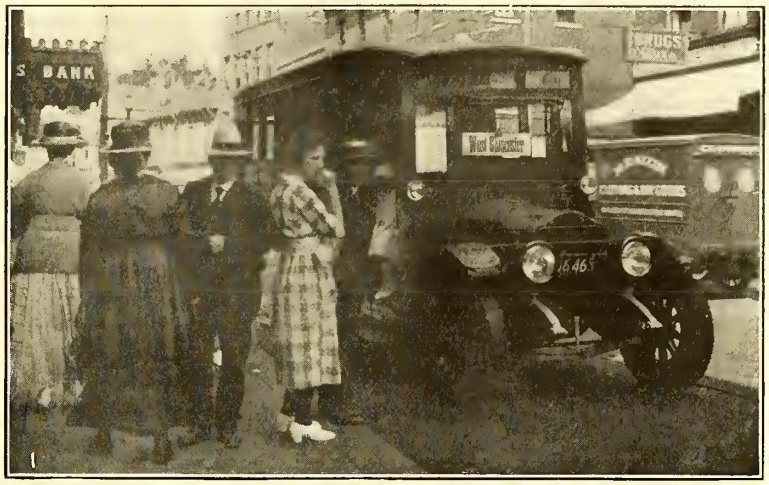
(a) Short line service, rush hours only.
(b) Rush hours only.
(c) Summer beach resort. The weather governs the headway.
(d) Minimum fare 10 cents, with additional 5-cent zone.

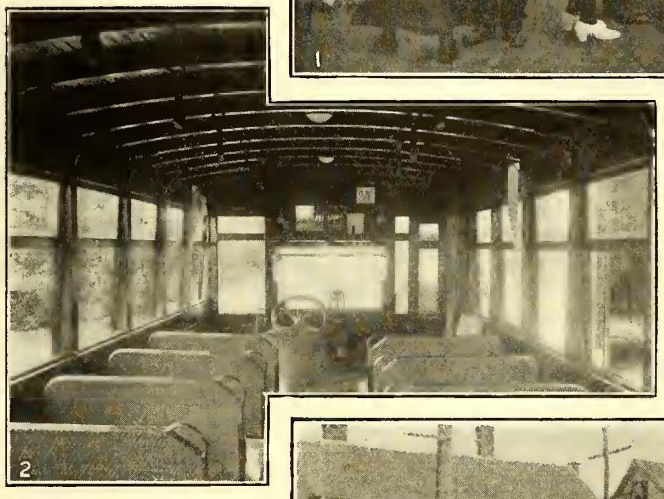
RATES OF FARE CHARGED

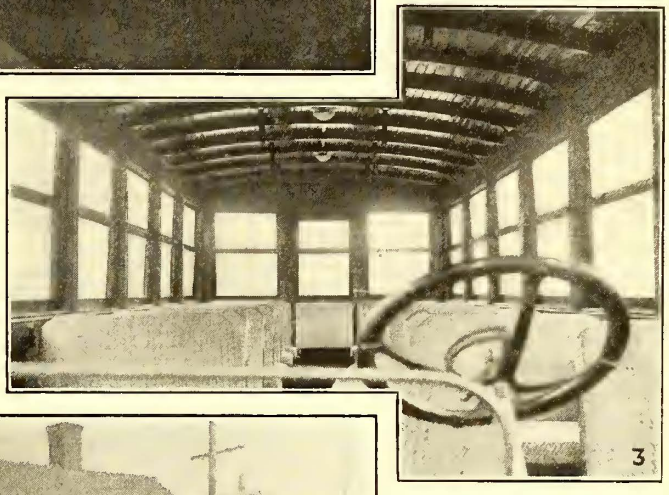
Fares are based on a modified zone system for each route with the minimum fare fixed at 10 cents without transfers between the various lines. School tickets are sold in lots of ten or forty in compliance with the Massachusetts statutes as provided in the bus ordinance.

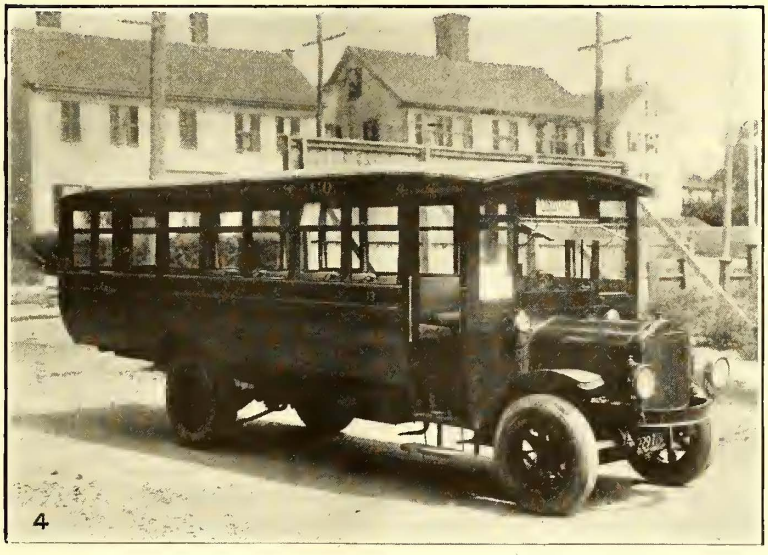
The minimum fare points from the center of the city for each route are marked on the accompanying map. In reality it is possible to ride further on the motor buses than it was on the street cars for the same fare. This is especially true of the lines to West Gloucester and to Rockport, where the present 10-cent fare limit is a considerable distance beyond the fare point established by the trolley zone system.

Johnson fare boxes are used exclusively for fare collection purposes. The system in vogue is very simple. Passengers deposit their fare directly in the box irrespective of whether 10 cents or 15 cents. On trips outbound from the center of Gloucester fares are deposited by the passengers as they leave the bus. On inbound trips the whole fare is deposited as the passenger boards the bus. The only record kept by the bus driver is the fare box reading when he takes and leaves the bus, for purposes of settlement. No record is kept of passengers carried or of collections by trips or of the number of trips run. In fact, not even a mileage record of bus operation is kept by the company from which to compute unit costs.









No. 1. Loading at mid town terminal on Main Street, Gloucester.
No. 2. Looking forward in Type A bus body, showing fare box in relation to driver's seat.
No. 3. Interior of Type A bus body, showing seating arrangement.
No. 4. A 3½-ton White Model 40 chassis with body seating thirty-seven. Some bus, even though it is numbered 13.

Equipment

The company has available for service, under a trust certificate or partial-payment plan, sixteen White chassis of three different carrying capacities. Thirteen are Model-20 chassis and three Model 40 chassis. The frames in each case have been lengthened about 18 in. and brackets have been riveted to the side frames to give the body a wider bearing surface on the frame.

Wooden bodies are used, built by the Essex Truck Body Company, Lynn, Mass. They have drop sash windows and folding service door and a rear emergency door. The bodies on the Model 20 chassis are 17 ft. 10 in. long and 7 ft. 6 in. wide; they weigh, exclusive of the seats, approximately 1,750 lb., which is equivalent to 65 lb. per seat. The two types of bodies on the Model 40 chassis are 30 in. and 50 in. longer but of the same width and weigh proportionately more than the smaller type A. The cost of the bodies on a seat basis is about $55 per seat.

Table II on page 776 gives in detail some of the principal dimensions. The general appearance of the buses is shown in the accompanying illustrations. The upper illustration shows one of the Type A buses. The bus illustrated on page 773 is the 3½-ton truck chassis (Model 40) with a chain drive and is called Type C. The interior view shows the seating arrangement in Type A. The only difference from this in the larger type is a longitudinal seat at the left of the driver, extending up to the front dash. Heywood-Wakefield seats with rattan covering are used throughout.

The buses are equipped with giant pneumatic tires. All rear tires are 44 x 10. The front tires on Type A buses are 36 x 6, while Types B and C use 38 x 7.

In the winter months when it becomes necessary to use tire chains it is planned to put 40 x 8 pneumatic tires on the rear wheels. Several makes of tires have been tried. One bus was even equipped with Overman cushion tires, but due to the rough roads that are encountered the riding qualities were not found to be as good as with the pneumatics. At present Firestone tires are used exclusively.

The cost of the Type A bus complete and ready to run is about $7,000. Type B bus costs about $1,000 more. This cost, if figured on a seat basis, is equivalent to approximately $250.

Garage and Shops

The company owns a spacious garage within two or three minutes run from the center of the city. It is of cement block construction, one story high with tar roof and contains approximately 20,000 sq.ft. of surface. The repair shop and offices of the company are located in this building. The shop occupies the left corner and the office the right front.

While the company does not keep a detailed record of trips nor of bus-miles run, nor of the traffic handled, it does keep a record of all earnings and expenses. Such figures, however, from a transportation standpoint are almost valueless as they have not been reduced to unit for comparative purposes.

All materials are purchased locally through one of the large local garages, the officers of which have an interest in the auto bus company.

Views on the Situation

The Mayor, Percy W. Wheeler, who has always been a strong bus advocate, says in relation to the bus operation: "The Gloucester Auto Bus Company has given very good transportation. We have had one of the most successful summer seasons in Gloucester's history. Early in the season the Council gave me, as Mayor, full power to compel the Gloucester Auto Bus Company to live up to its contract with the city. We are getting a great deal more rapid transportation than under the street railway. We have not received a single complaint from any patron of the road as to injury of person or wearing apparel or of any discourteous treatment by any bus operator.

"We have had some four or five extremely heavy rainstorms which caused the worst washouts in our streets we ever have had. Amid all these thunder showers and storms the buses never missed a trip. The street railway would certainly have been delayed a number of hours under like conditions. As far as I know there is not a single suit against the bus company for injury of property. As far as the transportation having been kept up, it has been continually improved. I think it is the opinion of a great majority of the citizens that the bus transportation is very much better than the one-man car transportation given us by the street railway company.

"The factory employees and all laboring people, I think, are more than satisfied with this form of transportation as in many cases it has given them an opportunity of going to their homes for dinner and returning to work as there is at least 30 per cent saving in running time. The buses are kept very clean and are entirely free from the dust condition which we had with the street cars. On the whole, I believe Gloucester today has the best transportation system of any city in the State."

TABLE II—PRINCIPAL DIMENSIONS OF GLOUCESTER BUSES

	Type A	Type B	Type C
White chassis—model	20	40	40
Method of drive	Worm	Internal gear	Chain
Number of each type	13	2	1
Seating capacity	27	35	38
Body dimensions (inches)			
Length over all	276	300	331
Width over all	90	90	90
Headroom	73	74	73
Width inside of seats	82	82	82
Length inside	209	240	267
Height of floor	33¼	39½	40½
Height of first step	16	19	18½
Height of risers	7½–9¾	9½–11	10–12
Service door—clearway	22	22	22
Side post—centers	30	30	30
Width of aisle	16	16	16
Seat—centers	26½	26½	26½
Chassis dimensions (inches)			
Wheel base	169	178	188
Body overhang from rear axle	85	90	103
Body overhang from end of frame	57	41	48
Tread of wheels	61	66	66

A business man and manufacturer that is a large employer of labor was asked to comment on the bus transportation system. He says: "At present we are operated exclusively on a bus transportation from which there is very little complaint on the part of the public. Some people are willing to put up with many inconveniences in order that they may be transported home as quickly as possible, and there is no question but that the bus does give more rapid transportation than the car system, but I think we must not lose sight of the fact that there are many disadvantages. The bus proposition has not arrived at such a state of excellence that we can entirely depend upon it.

"The situation in Gloucester was somewhat different, I believe, than in other places, and the public voted for the bus in preference to the electric car, due to the fact that it is the general impression that the trustees of the Bay State Street Railway did not exactly play fair with the people of Gloucester. They offered transportation at cost which would necessitate a public fare the same or greater than the present bus fare, and in addition the city was obliged to guarantee the difference between the revenue derived from the fare and the actual cost of operation, which was a rather considerable sum. It was the question of the citizens of Gloucester and the trustees of the railway not getting together and neither being willing to give way, each thinking that the other would sooner or later change their mind. Personally I am in favor of the street cars, but only under certain conditions. I do not believe we should have street cars with the present bus fares and then be asked to contribute so heavily to the operation of the road. There are many items of depreciation and overhead that I do not believe should be borne by this system alone and figured in each part of the cost of operation. There seems to be little likelihood of the trustees opening the line unless the citizens of Gloucester will accept their proposition, and the majority of the citizens of Gloucester apparently have made up their minds that they will continue the buses unless the trustees of the Bay State Street Railway will recede from their former decisions and provide a satisfactory service at economical charge, including fares and also a fair burden of the overcharge.

"I do not look upon the bus proposition in such glowing terms as outlined by our Mayor, but I will say that I hear very little criticism of the present bus transportation; in fact, I think even far less than we heard the last few years of the car transportation furnished by the Bay State Street Railway."

On the other hand, there are street railway advocates and some of these claim that if two groups were made of Gloucester and the opinions of the people stated, there is no doubt that there would be a pronounced sentiment in favor of the street railways. Up and down Main Street are merchants who have requested that the cars be put back and their explanation of their unwillingness to come out openly as an organized unit is that they do not wish to become embroiled in a political controversy.

The claim is also made that not all the local politicians are of the same opinion as the Mayor. Alderman Silva does not believe the buses have the same merits as the street cars. At a hearing before the Massachusetts Department of Public Utilities, as late as Sept. 22, he stated that while the buses in Gloucester are new the service was at its best, but he questioned, as the buses wore out, whether the same standard would be maintained.

It is also understood that the Chamber of Commerce has taken a letter referendum from approximately 600 of its members asking that they state what they preferred to discuss in open forum. This forum was held in accordance with the wishes of the members and there seemed to be no dispute on the point that the advocates of the street railway greatly outnumbered the advocates of the buses.

Some of the hotel people who cater to the summer visitors, and there are a number of spacious hotels along the former rail routes, have complained to the railway company that the loss of business for 1921 was large. These hotel operators have asked the railway to restore the car service before next spring.

Analysis of Bus Operation

One New England Company Finds Supplementary Bus Service Is Not of Itself Profitable—Bus Operation on Seat-Mile Basis Exceeds that of Rail Service

THE Connecticut Valley Street Railway, which has been operating a motor bus route between Greenfield and Turners Falls, Mass., since Nov. 4, 1919, has from its experience reached a conclusion that is of interest to other railway-bus operators. In a recent letter the company says:

"Our conclusions up to date on this type of transportation, which have been reached after a comparatively short time, and by no means through the results of a large operation, are that as a means of supplementing existing street railway service there is a small possibility of making both ends meet in the operation of the buses. The territory which otherwise would not be served by transportation facilities on account of the cost of creating it can be served at a much less original investment by bus operations. Its ability, however, to take care of large loads is not as flexible as that of the street railway and the comparative cost of operation, even under present high costs, is still in favor of the street cars, if the costs are measured by the expense of providing seats per mile.

"It may be said, however, in justice to the service which we inaugurated, that we succeeded in driving out the unregulated competition which was seriously affecting our revenue, and we have also been able, by having both facilities within our control, to curtail substantially our street car service, as both the bus route and street car route reach the same termini, but by different routes."

An article in relation to the motor bus line operated by this company was given in the ELECTRIC RAILWAY JOURNAL, April 24, 1920, page 853. Since the publication of this article the company has discontinued the operation of buses over that portion of the route in Greenfield covered by Chapman, Pierce, Federal and Sanderson streets. This discontinuance was due to the lack of passengers over this part of the route.

Since that time the bus schedule has been cut in half and co-ordinated with the trolley schedule to provide a thirty-minute headway between Greenfield and Turner's Falls. The bus leaves on the hour from Greenfield and the trolley thirty minutes later. The running time for the bus is less than fifteen minutes, as against twenty minutes on the trolley. This gives an average running speed of 12.5 and 9.6 m.p.h. for the bus and trolley, respectively.

INCOME STATEMENT MOTOR-BUS OPERATION, YEAR ENDED DEC. 31, 1920, CONNECTICUT VALLEY STREET RAILWAY

	Actual	Per Bus-Mile, Cents
Passenger revenue	$20,263.31	28.23
Operating expenses:		
Maintenance of equipment		
Inspection	$1,781.24	2.48
Repairs to body and chassis	4,259.99	5.91
Tire costs	2,146.39	2.98
Depreciation of equipment	6,004.00	8.36
Total	$14,191.62	19.73
Transportation labor	4,848.85	6.75
Cost of power		
Gasoline	3,749.75	5.23
Oil	159.04	.22
Total	$3,908.79	5.45
General and miscella eous:		
Insurance	$1,407.11	1.95
Miscellaneous credits	149.78	.21
Total operating expenses	24,206.59	33.67
Net operating revenue	3,943.28	5.44
Taxes	300.00	.41
Interest on $16,500 at 5½ per cent	900.00	1.22
Net income	5,143.28	7.07
Total cost of service	25,406.59	35.38
Bus-miles operated	71,779	.....
Bus-hours operated	9,698	.....
Average scheduled speed (m.p.h.)	7.42	.....

The operation of this co-ordinated schedule shows that the thirty-minute bus headway provided an excess of service over the passenger requirements.

The bus fares at present are those that have been in effect since March 15, 1920, and divide the line into three 5-cent fare zones. The 10-cent minimum fare allows a ride of two full zones or less. No transfers are issued to or accepted from the trolley cars. Workmen's tickets are sold in lots of twenty-five for $3 and are good only during certain hours of the day.

The buses provide seats for nineteen passengers only. Standees are not allowed. The automotive equipment consists of three 1919 Cadillac model 57-B chassis. Since being put into service each vehicle has averaged about 40,000 miles.

The accompanying table gives an analysis of the cost of service of motor bus operation for the year ended Dec. 31, 1920.

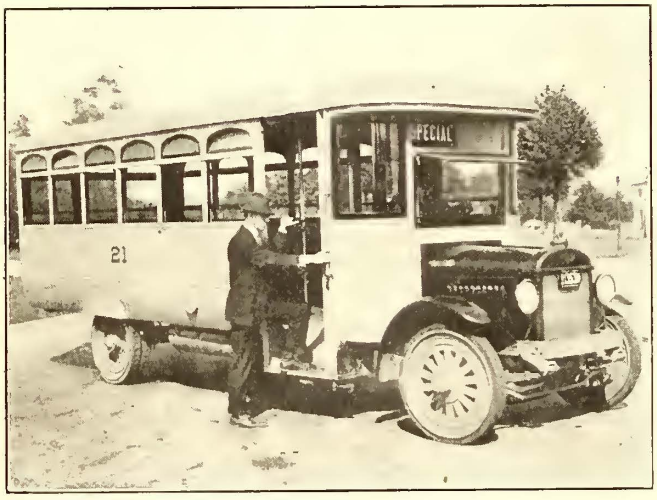
At a meeting of the National Editorial Conference of Business Papers, held in Chicago, on Oct. 24, a message was read from Secretary of Commerce Hoover, who said, in part: "The editors of the business press have shown a fine spirit of service. Your opportunity for leadership is unique and unchallenged. Upon you rests in large measure the responsibility of the control of industrial thought and opinion in the detail of the industrial, economic and technical problems which confront us. I wish your conference every success in carrying forward your high and constructive purposes."

New Type Bus Installed in Baltimore

The Motor Bus Has a Knight Sleeve Valve Motor and a Semi-Steel Body—Seats Twenty-five Passengers—Operates on Regular Schedule

ON SUNDAY, Oct. 16, the Baltimore Transit Company put into regular service on its Charles Street motor-bus line one of the new-type Republic Knight motor buses having a composite or semi-steel body. This motor bus has a seating capacity of twenty-five and can carry approximately fifty per cent standees. If figured on a basis of 2.5 sq.ft. per passenger the carrying capacity is fifty.

The motor bus is of the type recently displayed at Atlantic City during the association convention. The body was built by the Hoover Wagon Company, York, Pa., and has oak sills and flooring with ash posts and car lines reinforced with steel gussets and angles. The roof, which is practically flat, is covered with Agasote. The inside panels under the window sills are three-ply Haskelite with gum wood for the outside finish. The outside panels are sheathed with sheet steel. The windows are drop sash and so arranged that they do not drop entirely out of sight but act to prevent passengers from sticking their heads and arms outside of the bus.



THE NEW BALTIMORE BUS, WITH ITS SINGLE 15-IN. STEP AND 26-IN. SERVICE DOOR, IS CONVENIENT TO BOARD

THE INTERIOR FITTINGS AND THE UPHOLSTERED LEATHER SEATS, WITH PLENTY OF KNEE ROOM, MAKE FOR A COMFORTABLE RIDE

Ventilators, three on a side and staggered, fit in over the drop sash side windows. Hale & Kilburn stationary seats, with Fabrikoid imitating Spanish leather covering, are used. A novel feature of the seat arrangement is the method employed to obtain more knee room with the cross-seats on 28½-in. centers. This is done by cutting in the seat-backs so as to give a 10-in. knee room in addition to the 17-in. cushion width.

Inside lighting is furnished by six dome lights just over the advertising racks, using 16 cp. lamps. There are in addition lights for a Hunter roller sign, a step light, a fare-box light, and the usual tail and head lights.

The driver has an excellent vision in all directions, as will be noticed from the illustrations. This was accomplished by using round glass in the front vestibule windows.

The power plant consists of a four-cylinder Knight sleeve valve motor having a 4⅜-in. bore and 4½-in. stroke. A Clarke rear end and Fuller transmission with four forward and a single reverse speed make up the power plant units.

This type of motor bus is the result of a special study on the part of the Republic Truck Company and has been designed solely with the idea of providing safety and comfort of passengers. It is by no means a common motor truck chassis mounting a special body but has been designed new from the ground up. With a wheel base of 176 in., a track tread of 66 in., extra long springs on both front and rear axles, Morand cushion wheels and Firestone cushion tires, the bus has excellent riding qualities.

As for convenience of passenger interchange, the service door, which is at the front on the right, has a clear width of 25 in. and folds inwardly; the seats are so arranged that the largest amount of standing space is over the rear axle. This arrangement makes it possible to keep the aisle, which is 18 in. in width, practically clear of congestion. The seating arrangement is illustrated in the interior view.

The bus as operated was fitted in as a part of the regular schedule which calls for a six-minute headway, except during rush hours, when a three-minute headway is maintained. The route is 3.3 miles long and extends from the center of the city to University Parkway via Charles Street. The schedule calls for twenty minutes running time, with a four-minute layover at each end, which gives forty-eight minutes for a round trip. The average running speed for the line is 9.9 m.p.h. Considering the grades that are encountered on the outbound trip this is a pretty fast schedule and keeps the operator on the *qui vive*, especially so when there is a large amount of vehicular traffic with which to contend. A detailed story regarding the route in question is given in the ELECTRIC RAILWAY JOURNAL for Jan. 3, 1920, page 13.

	All Dimensions in Inches
Length over all	264
Wheelbase	176
Minimum turning radius	336
Length of body	216
Outside width	88
Inside width at seat cushions	84
Headroom	75
Height of floor—light	28
Height of floor—loaded	27
Height of step	15
Height of riser	13
Size of tires (a)	34 x 4
Cross seat centers	28½
Type motor	Knight Sleeve Valve
Cylinder diameter and stroke	4⅜ x 4½

( ) Single tires on front wheels; dual tires on rear.

Some of the more important dimensions of the bus are given in the accompanying table.

Rectifier Substations Developed Abroad

Conversion of Power on Heavy Electrification Systems in Europe Is Being Made with Mercury-Arc Rectifiers in Conjunction with Rotary Substations—Arc Apparatus Perfected with Outputs Up to 900 Amp. at 800 Volts

By J. H. Milliken
Midstates Engineering Company, Chicago, Ill.

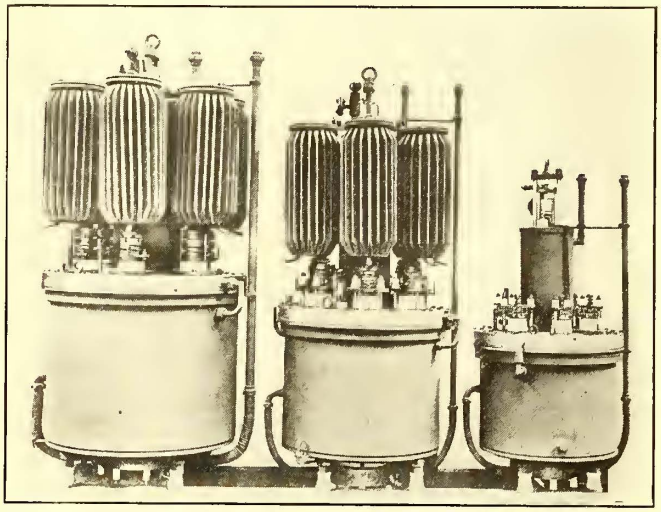
With a record of 100,000 kw. of installed capacity in Europe, the large power rectifier has reached a point where it merits consideration in American practice. The development work in Europe has been carried on and the apparatus brought to its present state of operating efficiency by Brown, Boveri & Company of Baden, Switzerland.

Recently this company received an order in connection with the electrification of the Chemins de Fer du Midi (one of the large railroads in France), which includes three rectifier substations of 3,600-kw. capacity each, one rectifier substation of 4,800-kw. capacity and several rotary-converter substations, two of which latter are to be automatically controlled. The specification under which these rectifiers were purchased requires that they shall be able to withstand 50 per cent overload for thirty minutes and 200 per cent overload for five minutes. The applied pressure will be 1,500 volts for lines equipped with third rail and 3,000 volts for lines equipped with overhead trolley in the heavier traffic zones. Information at hand about this electrification work is very meager, but it is understood that this railroad has heavy passenger and freight service over a line including heavy gradients. The weight of trains is 480 tons and the locomotives have an output of 1,400 hp. and weigh sixty-five to seventy tons. They are provided with regenerating equipment, this accounting for the necessity for some rotary-converter substations, as it is impossible to return power to the alternating-current line through the rectifiers. The converter substations will therefore be located at those points favorable for regeneration.

In addition to the Midi Railroad, three other French railways, Paris-Orléans, Paris-Lyons-Mediterranean, and Chemins de Fer de l'Etat, have accepted the direct-current system for the electrification of their lines, employing rectifier substations. It is understood also that a 500-kw. 550-volt substation, supplied with 8,500-volt, 42-cycle primary current is in use in railway work in Milan, Italy. Another is in use in Asnières, France, of 300-kw. capacity at 600 volts. The Birmingham Corporation of England has a 275-kw., 450-volt equipment at Harbone substation.

In constructing the large power rectifier the results obtained from the glass-bulb type are of little assistance as the aspect of the problem is entirely changed. One of the principal problems connected with this apparatus, but one which with the bulb type was quite simple, has been to make a tank of sufficient capacity that would be absolutely tight under all conditions. Without going into detailed description, it is sufficient to say that in the apparatus under the present state of development the problem of sealing has been solved satisfactorily.

The rectifier consists of an arc chamber or cylinder having a cylindrical extension at the top, both cylinder and extension being built of steel plate. The arc operates in the arc chamber between the main anodes, of

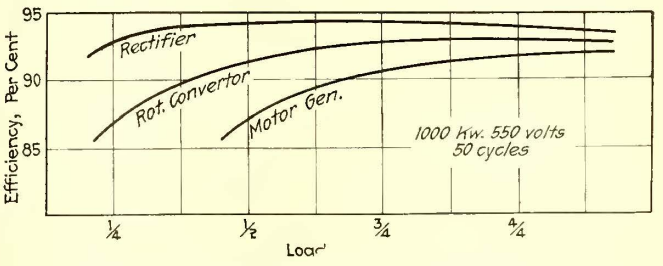


Three Standard Units Designed for Direct-Current Output at 300, 600 and 900 Amp. at Any Voltage up to 800

which there are six when six-phase connection is used, and the cathode or body of mercury in the bottom. The arc is started by an auxilliary ignition anode which automatically makes contact with the mercury cathode when the circuit through a solenoid operating this anode is energized.

Supplying each rectifier bank or individual cylinder as the case may be there is a stepdown transformer suited to the conditions of primary voltage on the supply line and delivering current to the rectifier at a voltage suited to the required direct-current output. This requirement is similar to that of rotary convertors, though the ratio of secondary voltage to the direct-current voltage differs from that of either the three-ring or the six-ring converter.

The rectifier economizes floor space as the cylinder unit need not be accessible for operating attention,



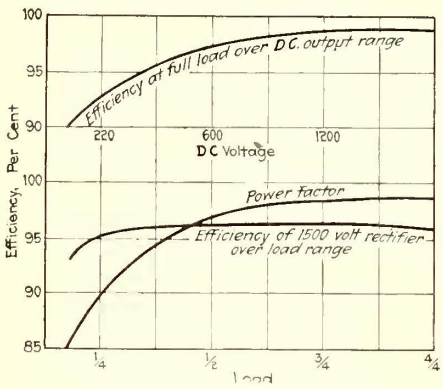
Comparison of Efficiency of Steel-Clad Rectifier, Rotary Converter and Motor-Generator Over Load Range

all operating being done from the switchboard. The cylinder unit is not heavy and has no moving parts, so foundations are not required and it may be placed on galleries or on floors in buildings not especially designed for substations. If erected in the center of the room, ducts or conduit for cable or bus must be provided in or below the floor slab.

The simplicity and ruggedness suit it especially to automatic and portable substation uses. The attendants in a non-automatic substation need have no more skill than would be demanded for a transforming station, as the operating functions are no more involved than switching. The standard single units now in production and use are:

Type	Amperage	For Voltages Up to
G 3/16	300	800
G 4/6	600	800
G 5/6	900	800
HG 3/6	300	1,200

The units work perfectly when banked in parallel, anode reactance coils being used if they are fed from a common transformer. They can be worked also in parallel with any type of direct-current apparatus such as rotary converters, motor-generators or storage batteries. The parallel operation in bank with proper distribution of load is fixed so that no adjustment of voltage is necessary when putting in or taking off units. Compounding is provided as required to take care of voltage change to meet changing load. Adjustable output voltage through a wide range is possible by imposition of an induction regulator upon alternating-current supply.



SOME CHARACTERISTICS OF THE STEEL-CLAD RECTIFIER

One of the most pronounced advantages of the rectifiers, particularly for peak, mill and railway work, is its remarkable overload capacity. The short-time overload capacities are as follows:

Duration of Overload, Minutes	Per Cent of Normal Rating Permissible
2	300
5	200
10	150
30	125

There is no flashing over or damage to the rectifier from external short circuits. Momentary short circuits do not affect the apparatus at all, and severe ones are, of course, cleared by the usual protecting breaker.

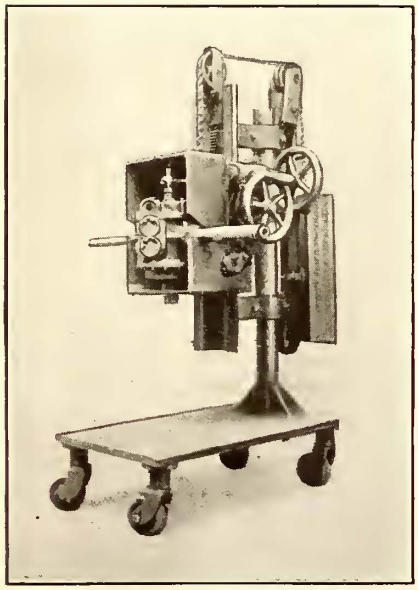
The characteristics of the units evidence high power factor over all, very high unit and over-all efficiency at all loads, and excellent regulation with compounding where required. The power factor averages around 95 per cent, and the efficiency at full load varies from 92 to 98 per cent, depending on the direct-current output voltage utilized.

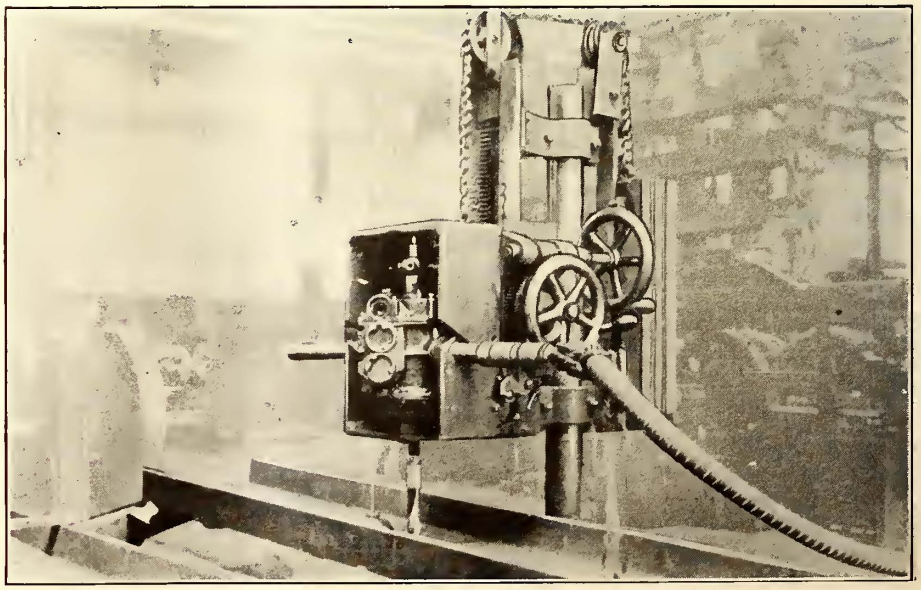
The efficiency of a cell itself does not change with the load current, but in taking account of complete plant, transformer and auxiliaries must be included. From the accompanying curves it will be seen that the efficiency remains virtually steady down to one-quarter load, when these fixed losses have a marked lowering influence on the curve. It may also be that the rectifier has considerable advantage over the rotary at less than full load and somewhat better efficiency at full load. The very high and almost flat efficiency curve of a rectifier supplying 1,500 volts direct current is shown in one of the curves.

The records of a number of stations that have been in service for a sufficient length of time for observation indicate that the apparatus gives reliable performance with very small maintenance cost.

Portable Air Drill

ACCOMPANYING illustrations show a form of portable air drill which was designed by F. P. Maize, master mechanic of the Portland Railway, Light & Power Company, Portland, Ore., to drill 15-in. x 41-ft. channel iron for freight cars. After use on this particular job it was found of great convenience for other work, as it drills as fast as an ordinary drill and can be easily attached at any desired location. The air drill is mounted in a cage and slots are cut for the arm, and the feed screw is screwed tight against the top. This holds the drill tightly in place, and the cage can be moved up and down by a feed at the side of the machine. By this construction one man can handle the machine very easily and make rapid changes. One illustration shows the machine drilling a 41-ft. channel iron.





AT LEFT, HANDY PORTABLE AIR DRILL. AT RIGHT, AIR DRILL IN OPERATION DRILLING CHANNEL IRON

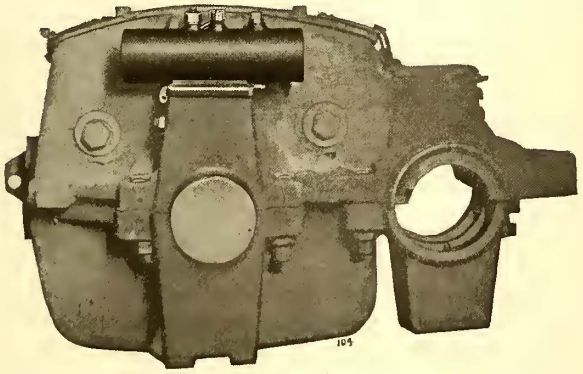
New Type Vacuum Oiler

Oil Is Supplied to the Top of the Waste Packing From an Oil Chamber Added to the Top of the Bearing Housing and Welded to the Cover

LUBRICATION is a vital factor in the efficient operation of electric railway equipment, for upon it depend both continuity of service and economy in maintenance. The actual cost of lubricants is small in its relation to other operating expenses, but the expense of replacing equipment parts damaged or destroyed through lack of proper lubrication sometimes amounts to a large item.

Armature bearings are considered as the most vital of all the bearings in electric car equipment, since a hot armature bearing usually results in damage to the costly windings of the armature. Several methods of lubrication for railway motor bearings have been tried, but oil and waste lubrication is the one now universally used. The basic principle of oil and waste lubrication is capillarity, which is afforded by the interstices or spaces between adjacent fibers and strands of the waste, through which oil is supplied to the bearing. The rate of oil flow with waste packing is dependent upon four factors—first, the height of capillary lift; second, the effective cross-section of the mass; third, the viscosity of the oil, and fourth, the difference in saturation density at the two ends of the mass. With a modern motor this means that the rate at which oil is supplied to the bearings depends upon the distance between the oil in the bottom of the housing and the bearing, the amount and compactness of the waste in contact with the axle, the thinness or thickness of the oil, and the rate at which the revolving shaft or axle reduces the saturation of waste at the point of contact.

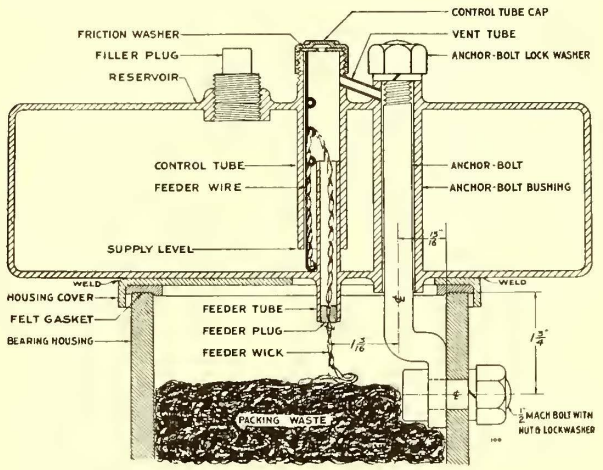
The efficiency of railway motor lubrication is impaired by the fact that the packing waste cannot be maintained in the proper saturated condition at all times. With the older types of motors the reason is the inability to control the oil feed against the combined factors of capillarity and gravity. With later types of motors it is difficult to maintain the oil level at a fixed point, and, as a result, the rate of feed varies. The efficiency of lubrication is also impaired by the entrance of dirt and other abrasives into the bearing housings each time the



VACUUM OILER INSTALLED ON COVER OF MOTOR HOUSING

covers are opened for oiling or inspection by improperly fitting covers and weak or broken cover springs.

In an endeavor to overcome some of the difficulties of keeping waste properly saturated, the Railway Improvement Company, New York, has placed a new vacuum oiler on the market. This consists of a cylindrical steel reservoir, which can be mounted on the top of the bearing housing. By welding the oiler to the cover, both the cover and oil chamber can be held firmly in position by use of an anchor-bolt bolted to the housing. An anchor-bolt bushing passes entirely through the oil chamber so that the assembled oiler and cover can be slipped over the anchor bolt and fastened by means of a nut and lock washer. The top of the reservoir also contains a removable filler plug and a control tube. A feeder tube extends from the inside of the control tube through the housing cover with its lower end just above the level of the waste packing. The lower end of this feeder tube is closed with a felt plug through which



CONSTRUCTION OF VACUUM OILER

passes a feeder wick, composed of special wool strands. From the feeder tube this wick passes through a wire loop and then down the control tube to the bottom of the reservoir.

The rate of oil feed necessary will vary with different types of motors, the character of the service, the quality of the oil used, the packing waste, the viscosity of the oil and the bearing clearances. Different rates of feed are provided in the oiler by varying the height of the upper end of the wick. To provide for this, the feeder wire has three loops through which the wick can be passed, and thus the capillary lift is increased or decreased to meet the conditions.

Two capacities of oilers are being furnished. The type D oiler is suitable for motors up to and including 60 hp. It consists of a steel reservoir 3 in. in diameter and 10 in. long with a capacity of 8 gills. For motors above 60 hp., the type DD oiler, having a 3½-in. x 10-in. reservoir and a capacity of 12 gills of oil, is furnished.

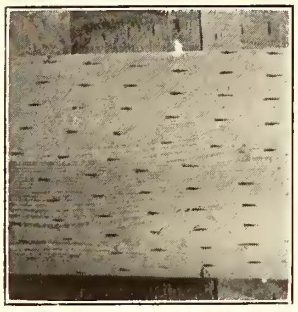
Electric Power at a Million Volts

SUCCESSFUL generation of electric power at more than 1,000,000 volts at commercial frequencies has just been accomplished at the High Voltage Engineering Laboratory of the Pittsfield Works of the General Electric Company. In the course of the experiments the gap spacings for sphere and needle spark gaps were carefully checked up and prolongation of existing curves (750,000 volts and below) were found correct up to 1,100,000 volts.

Arc-over tests were also made on strings of standard 10-in. suspension insulators up to 1,100,000 volts. The laws of corona were checked at similar potentials and found to hold. A short transmission line was tested for corona conditions and results indicated that a line using 4-in. diameter conductors or larger would be necessary at 1,000,000 volts.

Machine Makes Pre-Treatment Incisions in 500 Ties per Hour

A MACHINE for making incisions in ties to secure the maximum penetration of a preservative that is applied later has been operating in the lumber yard of the Charles R. McCormick Company at San Diego, Cal. This is the same machine described in the ELECTRIC RAILWAY JOURNAL for April 30, 1921, page 819, but as set up at San Diego the arrangement is such that ties are handled very rapidly.



EDGE VIEW OF A PERFORATED DOUGLAS FIR TIE

Instead of a greased plank formerly used in conveying ties to and from the machine a motor-operated chain conveyor is now employed and the crew consists of four men for unloading ties, one for watching the chains, one mechanic and four men for loading ties onto cars. This makes ten men in all. With this arrangement 3,600 ties can be handled in eight hours. As about an hour each day is lost in switching cars to and from the machine, the actual maximum rate of passing ties through the machine is about 500 per hour. Several hundred thousand ties were treated by this process at San Diego for the Santa Fé Railroad.

Paint Spraying Saves Time

A COMPRESSED air paint spraying machine has recently been installed by the Los Angeles (Cal.) Railway for painting trucks. The equipment is called the Aeron painting system and is sold by the De Vilbiss Manufacturing Company of Toledo, Ohio. Results from the use of this machine show that a truck can be thoroughly painted in less than five minutes, whereas the handwork previously took about forty minutes. Owing to the difficulty of reaching all parts of springs by hand painting the work is particularly tedious and slow. The mechanical department of the Los Angeles company rates the paint-spraying machine as a 75 per cent improvement over the hand-painting method. With this equipment three lines of hose are attached to the paint jar. One carries compressed air from the compressor tank to the jar, another carries air through the jar to the handle, and the third carries the paint to the handle. The force of the spray is regulated by the handle, which is shaped like an automatic pistol and works with a trigger. A safety valve on the paint jar prevents excessive pressure.

PAINTING A TRUCK WITH THE PAINT SPRAYING MACHINE

The tank has a capacity of 7 gal. and has a seamless pressed steel shell with welded bottom. The cap is made of cast steel with handles for carrying and for screwing it down so as to render it airtight while in operation.

Double Capacity Air Brakes

THE Virginian Railway operates over heavy grades, some of them as high as 1.5 per cent down grade, and near Elmore the trains have to be pushed up a 2.07 per cent grade. The rolling stock on the Virginian consists of very large cars; for example, 1,120-ton coal cars and the most powerful steam locomotives in the country. The braking problem under these conditions is very serious because the weight of the cars when empty is only one-quarter of the gross weight loaded and because the grade necessitates adequate control. With single capacity brakes the braking force developed is constant in magnitude but varying in relation to car weight. The usual practice has been to design the brake layout so as to provide the highest fractional percentage of braking force on the empty car and then to accept whatever reduced braking ratio might be available for the loaded cars. Usual percentages were 60 for the empty and 15 per cent for the loaded. Any compromise design for the conditions on the Virginian Railway was impossible, so a double capacity brake equipment was used, the layout being designed to provide for 40 per cent braking ratio for an empty car and 40 per cent for the loaded car. The additional force required to raise the braking ratios on loaded cars is obtained by the combination of an additional cylinder and increased leverage, a small load reservoir supplying the additional air.

When the equipment is set for empty car operation the take-up and empty cylinders, which are built in one structure with a small piston operating within the larger, operate as one 10-in. cylinder similar to the standard single capacity brake. When the equipment is set for loaded car operation the take-up cylinder piston first takes up the slack in the rigging and brings the shoes firmly onto the wheels. Then the empty cylinder piston moves out a slight amount, its clutch gripping the notched push rod of take-up cylinder piston, thus supplying additional force. Finally, as the brake pipe reduction continues, the load cylinder moves out a slight amount, gripping its notched push rod and adding to the force already developed through the connecting rods and levers. By this method of slack take-up and short travel of the larger piston the volume of air required for a given application is reduced to a minimum. The new brake was tested out on a train consisting of 100 loaded 120-ton capacity cars and the brakes operated to the complete satisfaction of every one concerned. Among the witnesses of the test were four men who were present thirty-five years ago at the famous Burlington test of the Westinghouse air brake, which did much to cause the universal acceptance of that type of brake on American railroads. This new development is applicable to heavy electric cars.

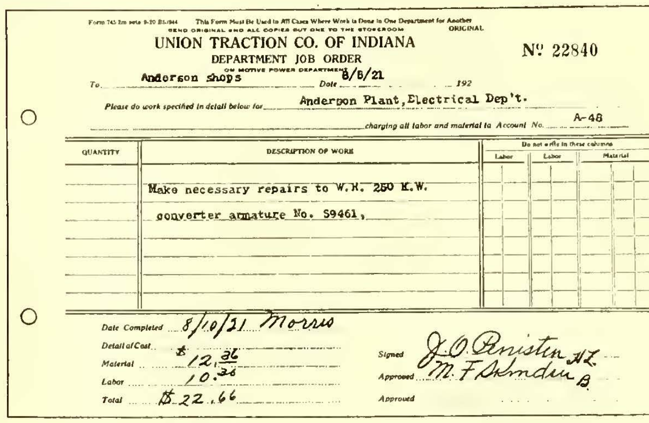
Keeping Armature Repair Records

Careful Record Kept of All Work Done in Armature Repair Department of Union Traction Company of Indiana from Time Armature Is Removed from Service

THE accompanying forms illustrate the methods of keeping records of work done in the armature repair department of the general shops of the Union Traction Company of Indiana, at Anderson. All armature repairs are taken care of at this point with the exception of the work done by one armature winder at the Muncie shop. When an armature is removed from service an armature record tag is attached to it. This tag consists of two parts and gives information as to the cause of removal as well as a complete record of the repairs as carried out, and finally, a record of its reinstallation when again placed in service. All armature repair tags are sent to the office of the master mechanic at the Anderson shop, where a record is kept of all work done.

In addition to the records furnished by the armature repair tags, a daily report is made out by the armature room foreman and sent to the master mechanic's office. This report gives the type and number of the armatures, the defect found and the cause of the trouble. It also includes information as to the repairs made. At the end of each month this information is tabulated in the form of a monthly report to the master mechanic and to the superintendent of motive power. This tabulation gives the various defects which occur for each type of armature owned. The company has fifteen different types of railway motors in service, and a scheme for numbering the armature shafts has been worked out which has proved very convenient and also prevents mistakes as the various types can be readily identified by the numbers.

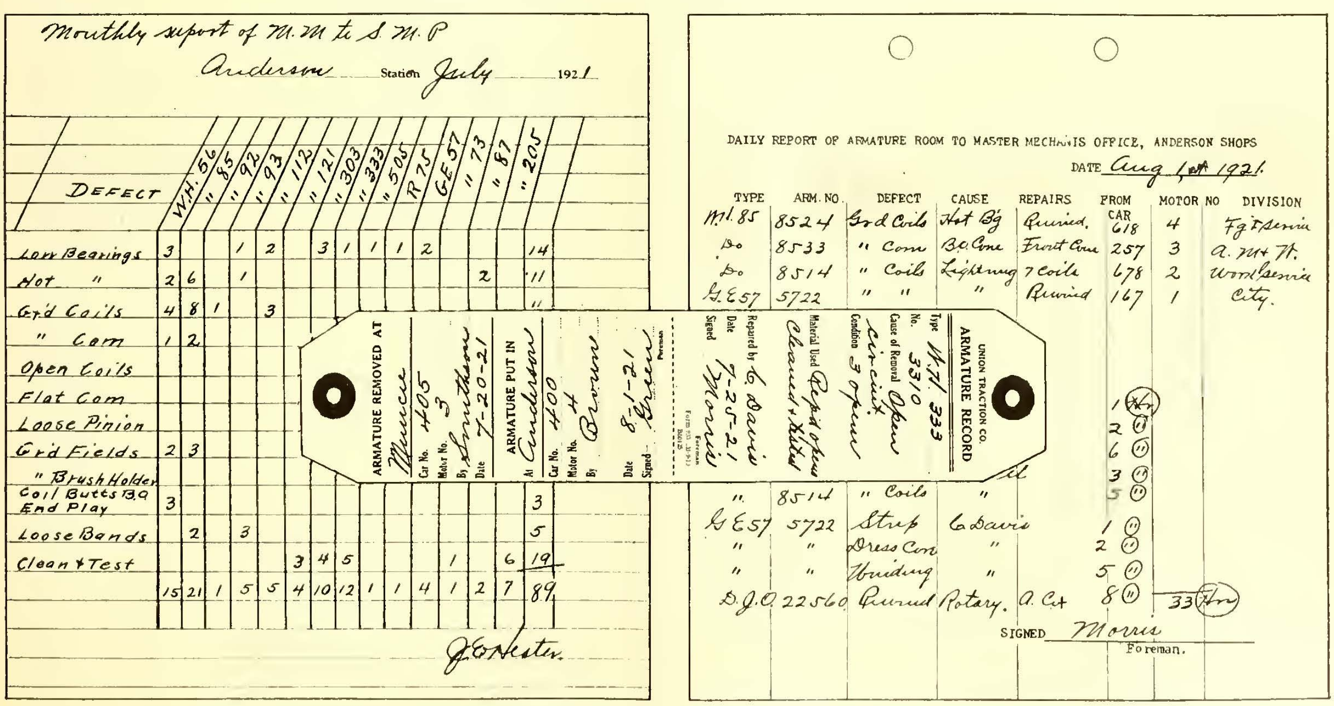
The first two figures of the number used indicate the type of motor and the following number or numbers indicate the serial number of the armature. For example: Westinghouse No. 112 motor armature has 12 for the first two figures. Similarly the type 121 has 21. The 303 has 03, and the General Electric 205 has 05 as the first two figures of the armature number. The armature repair department also makes repairs to motor generator and converter armatures for the electrical department. This work is taken care of by a department job order, which is issued by the department having the work done. One of the accompanying forms shows the type of order used. Five copies are made of each order. The original copy accompanies the job, the second sheet is sent to the timekeeper, the third is filled in in the master mechanic's office with the date of receipt, the fourth copy is sent to the superintendent of motive power's office, and the fifth copy is kept by the department of issue. When the job is completed the original copy is sent to the office of the master mechanic with the date of completion and the foreman's O.K. This is then sent to the timekeeper and the copy in the master mechanic's file is sent to the office of the superintendent of motive power with the date of completion noted thereon. The storeroom office furnishes the timekeeper with the cost of material used, and this, together with the cost of labor, is entered on the original form. This is then returned to the department of issue for the information of those particularly interested in the work.


UNION TRACTION CO. OF INDIANA
DEPARTMENT JOB ORDER
No. 22840
To Anderson shops Date 8/8/21
Please do work specified in detail below for Anderson Plant, Electrical Dep't.
charging all labor and material to Account No. A-48

QUANTITY	DESCRIPTION OF WORK
	Make necessary repairs to W.H. 250 K.W.
	converter armature No. 59461.

Date Completed 8/10/21 Morris
Material $12.36
Labor 10.30
Total $22.66
Signed J. O. Briston
Approved M. F. Sinder

FORM USED FOR JOB ORDERS


Monthly report of M. M. to S. M. P.
Anderson Station July 1921

Defect	W.H. 56	" 85	" 92	" 93	" 112	" 121	" 303	" 333	" 505	R 75	GE 57	" 73	" 87	" 205	
Low Bearings	3			1	2		3	1	1	1	2				14
Hot "	2	6		1									2		11
Gr'd Coils	4	8	1		3										[illegible]
" Com	1	2													
Open Coils															
Flat Com															
Loose Pinion															
Gr'd Fields	2	3													
" Brush Holder															
Coil Butts B.G. End Play	3														3
Loose Bands		2		3											5
Clean + Test						3	4	5				1		6	19
	15	21	1	5	5	4	10	12	1	1	4	1	2	7	89

J. E. Hester

ARMATURE REMOVED AT Muncie Car No. 405 Motor No. 3 By Smithson Date 7-20-21
ARMATURE PUT IN At Anderson Car No. 400 Motor No. 4 By Brown Date 8-1-21 Signed Green

UNION TRACTION CO. ARMATURE RECORD
Type W.H. 333
No. 3310
Cause of Removal Open circuit
Condition 3 open
Material Used Repaired open Cleaned + tested
Repaired by C. Davis
Date 7-25-21
Signed Morris

DAILY REPORT OF ARMATURE ROOM TO MASTER MECHANIC'S OFFICE, ANDERSON SHOPS
DATE Aug 1st 1921.

TYPE	ARM. NO.	DEFECT	CAUSE	REPAIRS	FROM CAR	MOTOR NO	DIVISION
W.H. 85	8524	Grd Coils	Hot B'g	Rewired.	618	4	Ft. W. Service
Do	8533	" Com	B.C. Cone	Front Cone	257	3	A. M. + N.
Do	8514	" Coils	Lightning	7 coils	678	2	Word Service
G.E. 57	5722	" "	"	Rewired	167	1	City.
"	8514	" Coils	"		5 (")		
G E 57	5722	Strip	C. Davis		1 (")		
"	"	Dress Com	"		2 (")		
"	"	Winding	"		5 (")		
D.J.O. 22560		Rewired	Rotary.	A. C. +	8 (")	33 Hrs	

SIGNED Morris
Foreman.

AT LEFT, MONTHLY REPORTS OF ARMATURE DEFECTS. AT RIGHT, DAILY REPORTS OF ARMATURES REPAIRED. IN CENTER, ARMATURE RECORD TAGS

Manufacturers' Problems Discussed

Mr. Thirlwall Gives Data on Recent Improvements in Electric Railway Equipment—Mr. Pellissier Describes the Buying Problems Which the Railways Are Called Upon to Solve

A "TWO-HEADER" meeting of the New England Street Railway Club was held in Boston on Oct. 13. The afternoon session was devoted to two addresses on the problems of the railway company and the manufacturer. George E. Pellissier, chief engineer and assistant general manager Holyoke Street Railway, spoke for the railway companies and J. C. Thirlwall, railway and traction engineering department, General Electric Company, spoke for the manufacturers.

MR. THIRLWALL'S ADDRESS

Mr. Thirlwall said that in considering the subject of the discussion he was tempted to suggest that it should be slightly changed to read "What the Manufacturers Have to Sell and What the Railway Companies Have to Buy." The manufacturers have many things to sell, but for some time past apparently there have been comparatively few things the companies felt they were obliged to buy. Broadly speaking, every successful manufacturer has to sell not only the fabricated product of his tools, but the ideas of his designers, engineers and salesmen, and their ability to save money or make money for his customers. In other words, in the long run, it is the ability of a manufacturer to give service to his customers that governs the volume of his sales.

The long period of stationary receipts and of mounting wage and material costs through which the electric roads have passed for the past five years has emphasized the necessity of service from the manufacturer, and in general the manufacturers need not be ashamed of the response. The period has seen many economies and methods of increasing earnings worked out by both operators and manufacturers. For instance, the Birney safety car is adding directly some $12,000,000 or $13,000,000 to this year's net earnings of the 275 companies using these cars, and indirectly, through rapid extension of one-man operation of other cars made possible by its success on the Birney type, has saved probably another $2,000,000. The development of other types of low-wheel, lightweight cars and of their equipment, and of automatic control for substations, are simply a few of the many contributions manufacturers have made to the concerted effort to help traction companies in their struggles for existence.

The speaker then pointed out some of the important developments made during the past twenty years, saying that he referred not only to those undertaken by the General Electric Company, but by all of the manufacturers of railway materials.

He first referred to power stations with their change in prime movers from reciprocating engine drive, with 25-cycle power and 5,000-kw. unit maximum, to turbine drives with 60 cycles and 45,000-kw. unit maximum; to the development of the diversified load in central stations and to the saving in fuel, attendance and lower reserve capacity accomplished during the period mentioned. The change in fuel consumption from these improvements is from 5 to 6 lb. of coal per kilowatt-hour for a small engine-driven generator to 2 lb. of coal or less per kilowatt-hour for the large turbine. There has been a corresponding saving in energy consumption of cars. On the basis of 36,000 miles and 4,000 hours per year the old double-truck car would take about 180,000 kw.-hr. as compared to 150,000 kw.-hr. for modern double-truck cars and 75,000 kw.-hr. for safety cars. With $7 coal the old double-truck car would cost for fuel per year about $3,150, whereas the cost for fuel with light weight safety car operation and large turbine generation would be only $525 per year.

Similarly the automatic control in substation permits closer spacing of substations, saves copper, increases the load factor, permits a better contact with the power company if power is bought, and saves approximately $3,000 a year in attendance for substations, together with other savings in light losses, etc.

A similar comparison was made between the old heavy, split-frame nonventilated motor with poor commutation, grease lubrication, soft bearing metal and gearings with the modern motor which weighs from 30 to 40 per cent less for a given working capacity so is less in first cost and has an average cost of maintenance of only 50 to 60 cents per thousand miles or $18 to $22 per year, as compared with six to seven times that amount for the old type. This is in addition to its greater reliability, which means fewer cars held in and fewer road failures. Small wheel design also saves weight in body and truck. The speaker also referred to control and brake improvements and in shop equipment, mentioning among the latter, banding lathes, baking ovens, electric hoists, paint-spraying machines, air-blowing machines for electrical equipment, armature slotting machines, pinion pullers, hot water heaters for mounting pinions, acetylene and electric welders, testing outfits for fields, armatures and other apparatus, etc. In conclusion the speaker said:

"We have all trimmed our sails during the passing storm; our prices have followed the receding waves of post-war inflation and are back to what we believe to be a fairly stable basis; we are in most lines prepared to make quick deliveries of standard material; we are anxious for orders."

What the Railway Company Requires and What It Should Buy*

The Function of a Railway Is to Furnish Satisfactory and Adequate Transportation as Cheaply as Possible and All Efforts Should Be Devoted Toward Accomplishing This Result

By GEORGE E. PELLISSIER
Assistant General Manager Holyoke (Mass.) Street Railway

FIRST—A railway's primary function is to furnish satisfactory and adequate transportation facilities to the whole community it serves at a cost which will be as low as possible consistent with the service required by the community, and this cost should include a return on the money invested in the enterprise sufficient to attract new capital and to act as an incentive to economical management.

Second—The industry should be conducted as a monoply subject to public regulation and control.

Third—The industry is entitled to all the rights, privileges and obligations of any other like industry under the constitution.

Viewed from this standpoint, what the street railway industry needs most, I believe, and what it has always needed most, is men with the capacity for real leadership as executives and operators. At the present time I know of no industry of like importance and magnitude which has fewer of the right kind of men available or a smaller reserve from which such men can be developed. I say this without any desire to disparage or discredit the work of those who have worked faithfully and hard, but who in many cases have not obtained results.

*Abstract of paper read at a meeting of the New England Street Railway Club, Boston, Oct. 13, 1921.

RELATION OF TRANSPORTATION TO INDUSTRY

The real trouble began with the promoter, who had few of the virtues and all the failings of the pioneer and a lot of failings that the pioneer did not have. He did not have the fundamental knowledge of the relation of transportation to industry, of the proper function of a street railway, of his duties and his obligations and even of his rights, or, if he had the knowledge, the courage to assert them has been demonstrated by the results. These men were rarely of the type that could make two blades of grass grow where one grew before, but sometimes were able to make one blade look like two, and thus established a reputation for good man-

agement wholly undeserved and created the impression that the industry was a gold mine.

This impression led naturally to the demand on the part of the traveling public for extension of service, lower fares, reduction of dividends, and finally public regulation, which was interpreted to mean authority without responsibility. With leaders lacking the power of analysis, lacking the knowledge of the actual cost of operation, lacking in many instances the knowledge of their rights and the courage to assert them, the industry followed the lines of least resistance and acceded to demands and regulations which should have been resisted to the limit. Expediency, not principle, was their guiding motive, and I regret to say that in many organizations the traditions then established still persist, with the result that such organizations are not only in a much worse position than the average but they have also done much to destroy the confidence of the public in the integrity of the industry, causing the innocent to suffer with the guilty.

When, as a result of decrease of fares, extension of service, added maintenance expenses due to age, wear and tear on physical property and accrued depreciation, revenues decreased and operating expenses increased the property was allowed to deteriorate and service to be impaired in the attempt to keep up dividends. To further aggravate the situation, wages in all other industries began to go up, accompanied by the labor organization movement. The failure of street railways to keep pace with other industries in increasing wages led to lack of cooperation, even where there had been any, strikes and general demoralization.

Hence, I repeat that the greatest need of the street railways today is for men with constructive minds, men who combine administrative ability with technical ability, men with vision, courage, enthusiasm and zeal for accomplishment, and who have the ability to select and inspire their co-workers with the same qualities, men of culture and initiative, thoroughly grounded in the fundamentals and trained for the work they have to do. Men of sincerity, integrity and broad human sympathies, and having a well-developed sense of values. Men capable of obtaining highest efficiency from the human element and enlisting the spirit of the men in the ranks, which after all is the most important part of the men.

Good Workmanship Requires Good Tools

What else do street railways need? Obviously, to furnish satisfactory and adequate transportation facilities at a reasonable cost, they need proper physical equipment. As the mechanic cannot do good work without tools, neither can the railways give good service without proper facilities, and at the present time the tracks, rolling stock and equipment of many companies, together with the facilities for maintaining them, are nothing less than atrocious.

Railways should buy the best material for the purpose required, all things considered, including cost, and it may not be the best or the cheapest thing available which should be purchased. As an illustration, if a company has 200 motor equipments of a certain type and requires two more, even though motors of another type with 5 per cent greater efficiency at 5 per cent less cost could be obtained, it would not be justified in changing standards, thus increasing the stock of repair parts necessary simply to avail itself of the slight gain in efficiency and cost, unless it had definitely decided to abandon the type it had altogether.

In the smaller organizations, where the executives may have to perform the duties of heads of departments, this problem is not so difficult, provided they have the necessary qualities of leadership, but if some of the essential qualities are lacking, their absence will be more noticeable than in the large organizations, just as one discordant note is more noticeable in a solo than it would be in an orchestra of fifty pieces.

Principles to Be Followed in Purchasing

In the larger organizations the absence of some of the necessary qualities of leadership will not be so apparent if the qualities of some members of the organization supplement those of the others, but when any of the members lacks a well-developed sense of values there is always danger that the interests of the whole are subordinated to the interests of a part. The engineer, for instance, may insist upon material conforming to his specifications regardless of cost. The purchasing agent may insist upon buying the cheapest because it will make a better showing for his department. The storekeeper may refuse to honor a request from the maintenance department for material until the proper amount of "red tape" had been unwound, even though in so doing the work might be halted and the company put to a loss, whereas the true interests of the company as a whole would lie in giving the true value to each element, taking whatever action was necessary to obtain the best results for the company as a whole. In purchasing, my own belief is that special specifications be avoided so far as possible, as they are bound to increase the expenses, and in many instances material made to these specifications actually is no better than the standard material of the manufacturers or that called for in the specifications of the A. E. R. A.

I further believe that street railways should purchase their material rather than manufacture it, unless there is some special reason for doing so. In most instances where companies think that they can manufacture for less than they can buy, I believe that a proper cost accounting system would show them to be in error, and this applies particularly to the smaller companies. When it comes to buying rolling stock and equipment, I believe that the greatest importance should be attached to the relative value of each element entering into the decision, and, having carefully analyzed the requirements, that material should be purchased which best fulfills the requirements, nor do I believe there can be any such thing as a standard car which will fit all conditions. All types undoubtedly have their field, but the attempt should not be made to crowd any particular type into the field for which it is not fitted, whether by companies or by manufacturers, and I might say here that the element of the likes and dislikes of the public should be taken into consideration. Adequate service does not necessarily mean satisfactory service.

This brings up the question of the position of the relation of the manufacturers to the street railway companies in supplying their material needs. It is my belief that the manufacturers' efforts should be confined to developing and supplying apparatus which they and the railways consider necessary. I believe their selling efforts should be confined to the companies with which they are doing business, and not devoted to propaganda directed at the general public with the view of compelling the adoption of devices which the manufacturers have perhaps designed without intimate knowledge of the requirements of the situation and which they desire to sell.

I also believe that in designing such apparatus the chief aim of the manufacturers should be to develop the best thing for the purpose rather than something distinctively their own product. In the long run it will be for the interest of the manufacturers as well as for the street railways for them to supply what will best meet the requirements of the situation, and in some instances good salesmanship might dictate the purchase of the other fellow's material rather than the purchase of material unsuited for the purpose.

Tenth Annual Safety Congress Held at Boston

AS AN adjunct to the National Safety Council, which held its tenth annual safety congress at Boston Sept. 26-30, the electric railway section has almost held its strength through the period of depression. Chairman J. H. Mallon, assistant general superintendent of transportation of the Metropolitan West Side Elevated Railway, Chicago, presented an encouraging report to the opening session of the section on Sept. 27. He stated that 110 electric railway companies hold membership in the section today. Sixteen dropped out during the year and seven joined, so that there was a net loss of nine. Under the circumstances, calling for curtailment of expenses, it is

encouraging to the movement that a larger number of firms have not withdrawn. Chairman Mallon, however, deprecated this form of economy. When the street railway company maintains a safety organization, perhaps expressed through its affiliation with the electric railway section, it induces the employees to feel that the company is more considerate of its employees and its passengers, and they, in turn, become more considerate and careful.

With these brief observations, Mr. Mallon opened the meeting, named his nominating committee and introduced as the first speaker Miss Laura M. Roadifer, the safety expert for the Philadelphia (Pa.) Rapid Transit Company.

An abstract of this paper was published on page 745 of the issue for Oct. 22.

At the second session John E. Cullen, assistant to the president United Railways & Electric Company of Baltimore, gave a talk on the attitude of the public toward the railway participation in no-accident-week campaigns. Mr. Cullen prefaced his remarks on this subject by giving a comparison of the former policy of silence of railway companies in regard to accidents and the present policy of frankness, and he cited instances of both methods experienced by him when he was a reporter on a newspaper. He showed clearly that the latter policy pays both directly and indirectly. He then described a "no accident" campaign conducted recently in Baltimore. The railway company with which he is connected took a prominent part in this campaign. It carried streamers and posters on the inside of the cars and placards on the outside with the slogan "Don't get hurt," and the motormen when passengers got off said the same thing. The speaker said that the plan was not only directly helpful, but he believed it convinced the public that the company was endeavoring in every way to do the right thing. The speaker also referred to the increase in hazards caused by the large number of automobiles now on the streets but said that it has been held in Baltimore that the street car has the right of way at every intersection over the vehicles.

A paper was also presented on railroad crossings and crossing signs by R. S. Messenger, claim agent Rochester & Syracuse Railroad. An abstract of this paper was published on page 744 of the issue of the ELECTRIC RAILWAY JOURNAL for Oct. 22.

The new officers of the electric railway section of the council are as follows: Chairman, B. D. Haskins, Chattanooga (Tenn.) Street Railway; vice-chairman, H. B. Potter, Boston Elevated Railway; secretary, M. W. Bridges, Metropolitan West Side Elevated Railway, Chicago.

Local Ownership of Utilities Emphasized

West Virginia Association Addressed by Governor Morgan and J. P. Barnes of Louisville Railway—Sale of Securities Locally Will Follow Clean Publicity and the Gaining of Bankers' and Editors' Confidence

ATTENDANCE at the annual convention of the Public Utilities Association of West Virginia in session at Charleston, W. Va., on Oct. 20 and 21 was representative of every portion of the state. The membership represented a total assessed valuation of $30,000,000, it was stated by Secretary A. Bliss McCrum, in his annual report. The membership includes all the important utilities in the state, with three exceptions, and it was planned to extend the membership so as to take in something like 150 small telephone companies, which will make the association include every line of public utility in West Virginia. C. P. Billings, manager of the Wheeling Traction Company, predicted that the coming year will see the association take rank among the best in any of the states in the country.

The association re-elected all the old officers as follows: Herbert Markle, Bluefield, president; C. P. Billings, Wheeling, first vice-president; Mentor Hetzer, Moundsville, second vice-president; E. W. Alexander, Charleston, third vice-president; A. M. Hill, Charleston, treasurer; executive committee: C. C. Bosworth, Elkins; W. R. Power, Huntington; A. H. Grimsley, Clifton Forge, Va.; A. C. Babson and C. S. McCalla, Charleston, and C. H. Brues, Wheeling.

The banquet the first day was one of the most successful occasions of the kind ever held in Charleston. Herbert Fitzpatrick, Huntington, acted as toastmaster. Governor E. S. Morgan, who formerly served as chairman of the Public Service Commission of West Virginia, was one of the speakers, and this previous connection made his talk the more interesting to the utility men. Judge E. D. Lewis, present chairman of the commission, also made an address. Fred M. Stanton spoke for the utilities, and the principal address of the evening was made by James P. Barnes, Louisville, president of the Louisville Railway.

Mr. Barnes treated the "pressing problems of public utilities" after the fashion of a medical adviser. He divided his subject into three classifications: (1) A study of symptoms, (2) diagnosis of ills, and (3) treatment for their correction.

"Influenza may stalk through the country claiming its thousands of victims," said Mr. Barnes, "just as the unregulated jitney may strike into the utility world, claiming its victims among the transportation companies. This does not argue unsoundness of the modern transportation system, but rather represents a new menace to the public life and welfare against which new or keener prophylactic safeguards must be employed. Truly, in the past, stocks may have been manipulated and property accounts watered in the interest of individuals. Admittedly this is not good business today, neither does the present physician bleed his patients, yet who shall say that many lives were not prolonged to the benefit of posterity by the old and now discarded methods of the practitioner? Blood renews itself, so has capital in many instances, and generally the true corporate history will show that the renewal of capital has not been from excess earnings but from withheld dividends.

"Auto-intoxication comes also from the disuse of normal organs. One who fails in self-analysis is failing in one of the ordinary processes of assimilation and elimination and will sooner or later find clogged with dead matter the channels which should be devoted to clearing normal business matters. In all too many cases this condition is the result of mental laxness or downright ignorance of cause and effect. The diagnosis of our public utility ailments has been delayed for many of us because of the acute discomfort of the symptoms. Our tendency has been to treat the symptoms in the hope of immediate relief from discomfort rather than seek to treat the disease."

Mr. Barnes advocated "the knife" as "treatment" and declared that "all deformities should be the source of "immediate operation." After that he advocates the "antiseptic treatment" looking to the "general upbuilding of the patient. No antiseptic for the ills of the public utilities equals the clear sunshine of fact," he emphasized. "All truth, comfortable or uncomfortable, must be recognized as truth. Clean publicity is for the corporation as clean living is for the individual, the surest safeguard against infection. Publicity is not necessarily advertising propaganda nor carefully constructed news stories. The most effective publicity may be and usually is a full and frank discussion of all corporate matters with every inquirer.

"Times have improved," he said, "the public conscience has awakened, individual conscience has awakened, the public is better represented today in its officials, elected and appointed, generally speaking, than it was in the past. Business morals have improved and with this general improvement there has been a vast improvement in the corporate morals of public utilities. Business practices generally recognized in generations past as not only defendable but admirable, would today meet a storm of protest and execration around any directors' table. Public utilities may be suffering from earaches in New York, ulcer in Detroit, cancer in Des Moines, but this does not imply fundamental weakness or unfit-

ness in the utilities themselves. Local irritation may produce a strange and unusual symptom requiring special treatment."

C. P. Billings, manager of the Wheeling Traction Company, told of the recent troubles that company had encountered and how the sale of 3,200 shares of stock to 1,300 different people had helped shape unwieldy public opinion. Mr. Billings advised the sale of stock through the employees of the company, contending that the employees knew the working of the corporation and that if the company was deserving they would recommend the purchase of the stock to their friends and kinsfolk.

A. H. Grimsley, of the Virginia-Western Power Company, Clifton Forge, Va., declared that "Every bank and newspaper in the territory served by a public utility should advise those who put their trust in bankers and confidence in editors to buy of the preferred stock of the utility.

"Any banker that will not do this if the utility is earning operating expenses, full depreciation, fixed charges, preferred stock dividends and has proper equity behind the junior securities is avowing himself as so selfish that he would rather have the use of the money of his depositors than to see them buy gilt-edged securities," said Mr. Grimsley. "Every editor who fails to boost will be advertising himself as a grouch who prefers to see public utilities owned by foreign capital than by home folks. All that is necessary is for the public utility to deserve the trust of bankers and the confidence of editors. If the public utility can't send a satisfactory statement to the bank and can't convince the editors that it is responsible, I take the position that there ought not to be a ready sale for its securities."

This phase of the relation of public utilities to the communities served came before the convention for discussion following an address by Judge George R. Wiles, of the Public Service Commission, on "Advantages of Local Financing."

Public Ownership a Fallacy

"The Utopian idea is public ownership of public utilities," declared Judge Wiles, "but the recent experience of the government with the railroads has shown the fallacy of this idea. One of the most valuable assets of a public utility and the most difficult to obtain is good will. The average man looks with suspicion on the average public utility. Most of the utilities in West Virginia are owned by outside capital. Williamson, my home town, has made an effort to sell stock in a public utility through the newspaper recently, which is an encouraging sign. I hope the time will come when the public will look upon the public utility with a more favorable eye."

Discussing the address of Judge Wiles, Mr. Grimsley told how in the old days his company had difficulty in getting an advance in rates; how there would be public meetings which were packed and jammed with indignant citizens. Since there has been an effort to place the securities of the utility in the hands of home people a similar meeting was advertised and twenty people turned out, of whom eighteen were in favor of granting the utility a just increase in rates.

Appeal for Reason in Utility Regulation*

An Encouraging Message from the Retiring President of Commissioners' Association—The Public is Vitally Concerned in Utility Expansion and Must Have Broader Vision in Utility Matters—Adequate Rates and Customer Ownership Urged

By James A. Perry

Member of the Railroad Commission of Georgia and President of the National Association of Railway and Utility Commissioners

FOR many years there has been a nation-wide agitation looking to the abolition of the rights of the different states to regulate railroads in any manner. The climax of this agitation came with the transportation act of 1920, as construed by the Interstate Commerce Commission. The construction of this act by the Interstate Commerce Commission outlaws state regulation and strikes at the very fundamentals of our system of government.

I have not the slightest doubt that one of the chief financial troubles of the carriers of the country today is the fact that rates, both freight and passenger, are so high as to result in an aggregate loss rather than a gain as contemplated. High freight rates, especially in cases of short hauls, have done more for the growth of motor transportation of freight than has all the progress of motor transportation itself, which necessarily results in a loss to the railroads.

If the construction of the transportation act of 1920 by the Interstate Commerce Commission is to remain the law of the land, a most hurtful blow has been given our dual system of government—a form of government that has stood the test of time, and chiefly because its form provides for representation of the people, for the people and by the people. The provision that it is by the people is, so far as concerns the regulation of our commerce, partially defeated and the right of local self-government is destroyed in the present construction of the transportation act.

It has always been with the individual states that we have gone forward in the first efforts of any new idea pertaining to our commerce. If proved good in one state, other states can take it up, and finally it becomes national in its scope. Far better that one state try it, should it be unwise, than for our entire country to be subject to an expensive experiment. State regulation of rates needs the demands of local traffic conditions, where an intimate knowledge can be quickly applied, whereas at one common center the truth in most cases will never be known. Remove, if you will, the state lines and you still have the problem of reasonable local rates, and to be fixed by one central body that can never have more than a smattering idea of the real local conditions. . . .

Rates that are higher than the traffic will bear stop the movement. All over the country, for comparatively short hauls, essential commodities are costing less than the freight to move them to market, with the result that in many intrastate movements motor power is hauling a good percentage of short-haul freight. . . .

Railroad property is as much the property of stockholders who put their money into it as your home and my home is property of ours. And when it is dealt with by any consideration other than that obtaining when the rights of private property are being considered, a wrong is done, first, to the man who has invested his money in the particular railroad; second, to the public, who, in the end, cannot hope to have the service, regardless of rates, if in the meantime the property has been destroyed by prohibitive operating costs and unremunerative rates.

There has been too much misunderstanding between the public and the railroads in this country. I am not unmindful that railroads here and there throughout the country have been guilty of the foolishness of seeking and receiving unnecessary benefits from legislatures now and then—only to serve their purpose for a while, with the result that an outraged people rise up to correct the wrong and, as is often the case, go so far as to do a real injustice to the railroad that ends with a loss to the public and the railroad alike. The railroads of this country can no more carry on their business in this country without the co-operation of the people they serve than they can get along without equipment, and this business of seclusion by centralization of all regulation of service and rates at Washington is going to prove the greatest hurt to the railroads and the commerce of this country that either has ever experienced.

The question of rates for utility properties has been one of nation-wide concern for several months. Dating from some two years ago, there is no question to my mind that any regulatory commissions throughout the country made the common mistake of holding light

*Abstract of presidential address delivered at annual convention of National Association of Railway and Utility Commissioners, held in Atlanta, Ga., Oct. 11-14, 1921.

and power, gas and street railway companies to rates that were too low, hoping that the immediate future would amply justify the rates prescribed. This hoped-for condition was not realized. The experience was just the opposite of what we had expected to see. The raw materials going into the manufacture of the products sold steadily increased in price. Finally, when business generally became depressed, public utilities had been required to do business on such small returns that they were not in a position to withstand, even for a short while, an increase in actual losses already sustained.

The public at once took the position that public utilities should not expect normal returns, but should endure with other business enterprises slight or no returns at all and, if need be, increased losses.

The law by which regulatory commissions are governed required them to prescribe just and reasonable rates, and the courts throughout the country have declared that a just and reasonable rate is one that with competent management will afford the utility a reasonable return upon the fair value of its property being used in the public service.

Just compensation for the use of private property by the public is a constitutional right which cannot be denied. It is the fair value of the physical property devoted to the service that must control, and it does not matter whether it came as a gift from earnings of years past, actual investment or otherwise.

The public is interested in the utility having such rates as will insure a reasonable return upon the fair value of its property, thus guaranteeing not only an unimpaired service, but such development from time to time as will always be sufficient to meet the requirements of constantly increasing demands for service.

At the present time, in many instances, a utility files an application with the regulatory board of the state in which it operates. This done, a copy of such application is served on the municipality affected by the change proposed. It makes no difference what the relief asked for may be, the mayor and council meet and promptly vote to instruct the city attorney to oppose the granting of the relief sought. No investigation is made as to the justice of the relief petitioned for, the city attorney is directed to oppose it, not to investigate and ascertain the truth, as information for the mayor and council, before action is taken one way or the other.

Regulated Monopolies on Trial

We seldom hear of a municipality under such circumstances making an investigation and ascertaining if there is any merit in the claim of the utility company. Seldom investigations are made, little information is had, and seemingly none is desired.

This, of course, is an unfortunate situation. In the end it will be overcome, but not without loss to the utility and the public while such a condition prevails. Competitive business had its day and failure. Regulated monopolies are now on trial. The public is still paying 100 per cent more for some merchandise than the same article sold for four or five years ago, but the thought of paying 50 per cent increase in utility rates as compared with prices for such service three and four years ago meets with scant sympathy. . . .

The public is vitally concerned in the expansion of utilities because a city can never grow faster or extend further than her utilities reach. The utilities of a community are the greatest developers any city ever had. No city can build beyond the lines of her street railroads, and this is true to a degree in comparison with the area covered by gas mains.

Will Capital Be Forthcoming?

Few sections of this country can finance utility development of any kind from local capital. The financial necessities of development, therefore, carry us to foreign fields for money. Is there a man anywhere, regardless of his business interest, with surplus money for utility investments, who is going to send his money into communities where there exists a citizenry hostile to foreign capital for such investment? Even worse, will such a man send his money into a state for such investments where the state regulatory board refuses rates that will earn even less than the lawfully prescribed rate of interest as a return for utility service? Will such money find its way into a state where condemnation of such property is the talk of the day?

The public should see to it that such conditions do not exist. It has an interest greater than the selfish interest of the few who would stop the utility development of every community while their political ambitions are satisfied or a personal grouch is assuaged. It is a sad picture to see a community of inflamed citizens following the leadership of one man, or even several men, in an effort to handicap or destroy a local utility, all because of selfishness on the part of the few self-appointed leaders. This kind of thing has got to stop in this country, otherwise the public will pay the high price of stagnation in such growth, with a breaking down of the service now rendered.

Public Is Willing to Pay for Service Received

What the people desire most is efficient service, so long as it is furnished at a reasonable price. This they are willing to pay. They have a right to expect both efficient service and reasonable rates at the hands of regulatory commissions. Is it not high time that the public and utility companies throughout the country were coming to a better understanding? . . .

The public is concerned in seeing that light and power companies, both steam and hydro-electric, are built in such large units and so connected as to cover a radius sufficient to overcome the interruptions in service resulting from high and low water, storms, breakdowns and other causes, all of which come at intervals and in spots; and by a proper arrangement for exchange of output between such large companies interruptions in service longer than the time consumed in throwing in a switch would never be heard of. . . .

The time has come when the public must have a broader vision in handling these questions if we are to keep pace with our opportunities for growth and development. We have got to get away from a local consideration of services of this kind. Far better for us that the lights we use in our homes and the power we use in our local enterprises be derived from power even hundreds of miles away from us, with such an interrelation of service as has just been mentioned, if by such an arrangement we have an added guarantee of continuous service.

Security Holders Must Increase in Number

I cannot believe the public will stand for a reactionary program that will certainly carry us back to crude methods, with less service and at higher rates. We may halt, temporarily, here and there over the country, but in the end electric power supply, as well as other utility services, is going to be carried on in a wholesale manner. Any other method is squarely in the teeth of the very fiber of our people and form of government. There are 1,450,000 citizens of our country who have invested in the securities of the electric light and power companies of America. This number should be increased many times. Indeed, such a new class of investors may in the end become the only solution of the problem of financing the present needs of our utility companies—saying nothing of the future—if such companies are to keep pace in development and expansion as the public needs require. Either the public will have to assume and practice a more friendly attitude toward capital belonging to the other fellow or the public will have to put up the cash, and from a class who have heretofore studiously avoided such investments.

This brings us face to face with the issue confronting the public utilities of the nation today. They have not the financial strength of expansion, and in many cases this came to be so from the fact that they have been required by regulatory boards to operate on rates that were too low. This issue should be presented to the public that it may decide for itself the manner in which such financing hereafter shall be done. If private citizens refuse to furnish the money, then the public must inform the other fellow that efforts at condemnation or confiscation of his property will not be tolerated.

Utility Commissioners Discuss Motor Buses

The Consensus of Opinion Seems to Be that the Motor Bus Is Not Dependable Without Proper Regulation—Bus Companies Are More in Favor for Passenger Transportation than Independents with a Single Bus

AUTOMOBILE transportation, omnibus and jitney, furnished the subject for a round-table discussion at the thirty-third annual convention of the National Association of Railway and Utilities Commissioners in Atlanta, Oct. 11-14. That there was much interest is evidenced by the remarks of several of the commissioners. All seemed to recognize that the jitney motor bus as a competitor is a serious menace to other organized forms of transportation. Regulation has entirely eliminated this form of wild-cat competition in some states, while in others it goes on unrestricted. Commissioner Lewis, Iowa, believed it utterly ridiculous to expect independent jitney operators to furnish adequate transportation to any community. Such transportation must be by large companies that can be depended upon to give regular service, pay their share of road upkeep, taxes, and other obligations to the community. Public utility commissions ought in every way to discourage the independent jitney operators until they meet these requirements. The afternoon session on Thursday, Oct. 13, was devoted to a round-table discussion on "Automobile Transportation—Omnibus and Jitney."

The New Jersey Jitney Situation

In opening the discussion, Harry V. Osborne, New Jersey Board of Public Utility Commissioners, who presided, said the jitney problem in his state was a serious one and it was presenting questions that were very difficult of solution. New Jersey has one of the largest street railways in the country, operating as it does more than 800 miles of track. The jitneys have absorbed about 25 per cent of its normal traffic with the result that the traction company is deprived of approximately $5,000,000 per year. This railway has complained very bitterly of this heretofore unrestricted jitney competition and with some justice, for it is entitled to reasonable protection on account of its large investments. Moreover, this protection is primarily in the interest of the public, though it must necessarily be contingent upon the ability and upon the policy of the company to furnish adequate service.

The problem has two aspects: first, its effect upon existing rail transportation systems, that serve a very large proportion of the public; and secondly, the effect on street traffic, particularly in the larger cities, where congestion has become so acute that it is almost impossible for anybody to use the streets. In Newark at the intersection of Broad and Market Streets there are 30,000 vehicular movements every day. That is a considerable tide of traffic to be obstructed by the none too carefully handled jitney.

The New Jersey commissioners are anxious to know what to do with the problem and it was not until last winter that the commissioners had any jurisdiction. Prior to that time all licenses for jitney operation were obtained locally from the various municipalities through which the buses were to operate. No other form of permit was recognized.

Commissioners Get Jurisdiction

As a result of considerable agitation on the part of Public Service interests as well as jitney interests the legislature gave the Public Utility Board a limited jurisdiction to the extent that all new jitney applicants after March 15, 1921, must have their permission to operate. That was not very much jurisdiction, but it was at least a start. This Legislature immediately raised the question as to what was meant particularly with reference to renewals of licenses. When an operator sold his bus was the vendee a new applicant or should he be allowed to continue as a matter of course to operate the bus because the original license was granted prior to March 15? The board in passing on this question construed that the legislature had, when the law was enacted, determined upon a fixed policy and placed its stamp of approval upon all buses operating on or before March 15 last. Incidentally that limited the number of jitneys with which the board had to deal, unless it appears upon hearing, as stated in the Becker decision, that the conditions have changed so as to make some other determination necessary.

Title to Bus Transfers Approved

All such applications up to the present time, have been heard and notices of the hearings have been given the railway company operating along the route in question. Where it was found that the application was for a mere renewal of an existing bus in operation, the application was granted as a matter of course under the Becker case decision.

In the case of a new line, planning to tap territory not already served by an existing street railway line but which must of necessity parallel an existing railway line to reach the center of the city, it automatically comes under the jurisdiction of the board. In such cases, the jitney is allowed to serve the new territory but it is prohibited from doing any local business when in competition with the existing trolley line, if it is shown at the hearing that a sufficient amount of service is being rendered by the trolley car company.

Legislative vs. Judicial Rate Making

Another aspect to the matter, which is going to be serious, is the encroachment of the Federal Court in the matter of rates. This happened in the recent case of the Public Service Railway. The commissioners had fixed a valuation of approximately $82,000,000 on the property, which the president of the company aptly declared was worth $200,000,000 for rate-making purposes. The board later granted a slight increase in the unit rate of fare, in the form of an additional cent for a transfer in the belief that it would meet the situation. The company immediately took the matter into the Federal Courts on the grounds of confiscation and in six or eight hours, in an *ex parte* application, the court granted an injunction and fixed a rate. Due to the protest that arose all over the State, the judge, either for that or some other reason, of his own volition rescinded the order fixing the rate and convened a special statutory court of three judges to say whether the rate set by the board was confiscatory. (See ELECTRIC RAILWAY JOURNAL, Oct. 8, 15 and 22, 1921, for decision of the statutory court—EDITORS.) Rate fixing, the new Jersey board holds, is not judicial but a legislative function and if the Federal Courts under any such guise are to fix rates the state commissioners might as well go out of business.

The question of jurisdiction over freight trucks in New Jersey has not yet been raised. On account of the expression in the statute "Jitneys or auto buses," it presumably will be a matter for later construction by the commissioners as to whether it is broad enough to include freight as well as passenger traffic.

Regulations in State of Washington

In the State of Washington, according to E. V. Koykendall, director, the Department of Public Works has been given jurisdiction over all passenger and freight motor vehicle transportation by the last Legislature. The law became effective on June 6 last and provides that all motor transportation companies operating in good faith on Jan. 15, 1921, shall be granted certificates of public convenience and necessity so as to continue their operations. Under the law an auto transportation company is defined as any company transporting either persons or property for hire between fixed termini and over a regular route. New companies must apply to the Department of Public Works for a certificate before they are entitled to operate, regardless of whether their operation is in competition with any other existing transportation company. Where there is a transportation company already in the field the law provides that additional certificates will not be granted unless that company refuses to furnish transportation to the satisfaction of the Department of Public Works.

In the State of Washington about a thousand applications have already been filed with the result that stage and truck operations are perhaps greater than those of any other state except California. This is due mostly to the large mileage of hard surface roads and to the excellent character of other improved highways. There are some stage companies operating in Washington today whose annual revenues will reach nearly $500,000.

The department has had great difficulty in determining when to assume jurisdiction in the case of freight trans-

portation by motor truck, especially in the cases where the company has no fixed termini or regular route, although tariffs based on weights and mileage are published.

Certificates Refused in Competitive Territory

Another question that has arisen refers to competitive services in substantially the same territory. So far the department in determining the question of public convenience and necessity for a new line has taken into consideration other existing means of transportation. If after a hearing it is concluded that the transportation furnished by the steam railroads, electric roads or steamboat lines in the immediate territory was sufficient and if reasonable and adequate service was already afforded by these existing lines, the application of the stage or motor bus company was refused. Sometimes, when the stage route did not parallel the rail lines but detoured several miles to reach towns and villages not otherwise served, a certificate has been granted. Many railroad attorneys have questioned seriously whether the department should take into consideration railroad or other transportation systems in granting a certificate of public convenience and necessity to a stage line, for the peculiar wording of the Washington statutes provides that "if the territory is already served by a certificate holder no additional certificates shall be given unless the existing companies fail to furnish the required service."

Motor Bus and Auto Trucks Are Common Carriers

All motor-bus and auto-truck lines in the State of Washington are considered as being common carriers, and are required to file tariffs and schedules showing the time of arrival and departure at each point served in the same manner as a railroad.

In the case of stage companies engaged in interstate traffic, jurisdiction has been assumed and exercised on the theory that while the Constitution of the United States grants the power to Congress to regulate interstate commerce, Congress not yet having seen fit to exercise that power in so far as motor vehicle transportation is concerned, the local state authorities may do so. This view, it is believed, will be upheld by the courts. It has been in a number of decisions in the past.

In New Mexico it was pointed out by Hugh H. Williams, of the State Corporation Commission, that on interstate lines to Arizona the State attorney general had held that they were common carriers. Under the State law these carriers are required to file only tariffs, giving a thirty-day notice of changes in rates. There is nothing in the law as it now stands to prevent competition on the same route between these auto carriers.

Continuing, Mr. Koykendall said the view taken by the department in applications for certificates for the operation of stages or motor trucks in competition with steam railroads has been not to grant them where transportation is already adequately cared for, unless the applicant desires to serve some communities, towns or villages which are not reached by the railroad. In some instances certificates have, however, been granted for operation in such competitive territory with certain restrictions, namely that service is permitted between two termini but prohibited in intermediate territory which was already adequately served by other means of transportation.

The wisdom of carrying that theory very far is doubted, for it provokes a good deal of trouble. Passengers waiting on the road always want to board the first bus that comes along, and to have regulations that prohibit one of these carriers from handling intermediate traffic means a complaint, for the passenger wants to know why he was passed up.

The Washington Department of Public Works has made no restrictions as to equipment. It has specifically decided that it was not the purpose of the law to limit operations in so far as equipment or frequency of schedule was concerned, as it existed on Jan. 15, 1921. In other words, it has been construed that it was not the purpose of the Legislature to block the wheels of progress, and if an operator wanted to change his Ford for a Packard or to improve his schedules he was not interfered with. Complaints, however, as to inadequate service are handled in exactly the same manner as against a railroad company.

All-year-round service depends entirely on conditions. The law permits a stage company to cease operations when conditions make it impossible to carry on operations. Generally speaking, though, certificates are not granted where operations can only be carried on a short time each year on the theory that it is an impracticable proposition. There are, however, many services that are seasonal, such as to Rainier National Park and to Mount Rainier and in such cases where conditions warrant it certificates are granted.

Loss and Damage Liabilities

Under the law either a $10 000 bond or insurance policy is required against loss of property and personal injuries for each passenger-carrying motor vehicle, with a loss accruing to any one individual of not to exceed $5,000 for any one accident. The department has also adopted a rule requiring an additional amount based on the passenger-carrying capacity of the vehicle. As for the freight-carrying vehicle it must have a $1,000 bond against property damage. These requirements make it as safe to travel by stage in the State of Washington as it is on the railroads.

In some cases the department believes the size of the bond required should be reduced but under the law this is impossible. This is especially true in mountain territory where it is impossible to operate a heavy car over the roads. Take for instance a mail carrier in the mountain districts who has a Ford and wants to carry passengers. The traffic is very light. To do so he must pay a premium of $300 to $400 per year for a bond and often his entire passenger income amounts to less than $100 per year. Moreover, some passengers, particularly in the sparsely settled districts, are willing to use such transportation facilities as may be afforded at their own risk. There should be some elasticity in the statute, it is believed, so that the department can make special provisions for liability to meet such particular conditions.

Feeders to Interurban Lines

In Washington an electric line can either arrange with an independent stage operator to extend its route to another point as a feeder and conduct it in conjunction with its own operations, or it can operate its own stages on such an extension rather than laying tracks and stringing trolley wires. That may be challenged in the courts but it has not been done so far. A railway company must, however, apply for a certificate, put up a bond and do everything that is required of the independent auto stage company.

There has also been adopted a rule which prohibits any one abandoning stage service without the consent of the department. If services are abandoned for no reason for a period of four days or more the operator must obtain a new certificate of public convenience and necessity before operations can be resumed; in other words, abandonment of service means forfeiture of the right to operate until the operator can show that conditions warrant resumption.

Maryland Conditions

In Maryland, as pointed out by E. B. Whitman, the Public Service Commission has jurisdiction over both passenger and freight-carrying vehicles. All such operators must get a permit from the commission before operating. The conditions under which these permits are granted follow very closely those already outlined for the State of Washington. The same can also be said of the difficulties met with.

In Baltimore, with the exception of one jitney line which was inherited by the present commission, independent motor buses are prohibited. Motor buses are, however, at present operated by the traction company on one of the principal streets. During the past year there have been a number of applications for bus lines in different parts of the city, some of which were badly needed. In the spring the question of operating these lines was taken up with the United Railways & Electric Company. The railway company, however, was not anxious to take up bus operation. The commission nevertheless kept after them and told them that permits would be granted to individuals if they did not operate bus lines in certain territories where transportation was needed. This brought the railway company around to the commission's point of view, namely, that the transportation systems of the city should be interdependent. They are now studying the whole transportation question and only recently their president and their general manager have returned from abroad after a study of motor-bus and trackless-trolley operation. It is expected that the railway company will soon install bus lines in territories not now adequately served by the trol

leys and where the cost of rail service would be too great to make it possible to earn a return on the money invested.

Where independent bus lines come in from the country they are not permitted to compete with the local railway but must make their terminal the point where they connect with the trolley line.

During the five years the commission has had jurisdiction it has found that the big lines give better service than where a route is covered by two or three independent operators. With these small fellows on the route the difficulty is in getting rid of them. A good many go out of business after their bus reaches the point where it needs repairs or is worn out, and it has been the policy of the commission in such cases not to reissue the permits to anyone else for a small part of what might be later a big system. The only solution of many difficulties is in having large companies, and even now when issuing permits for small sections they are conditioned on their getting off the road if a larger bus line comes in which will serve the community better.

In speaking of trackless trolleys Mr. Whitman said that he understood from investigations made by the commission that a trackless trolley could operate on a fare of about 2 cents per mile. Experience with motor-bus lines is that the fare must be between 4 and 5 cents per mile to come out whole.

Maryland has one of the best systems of state roads to be found in the country. The State has for many years been improving its roads systematically so that now it possesses a good many thousands of miles of improved roads. It is on 6 miles of these roads that come into Baltimore that the commission is asking the railway to install a trolley bus, as that part of the country is developing very rapidly and needs transportation.

Lewis E. Gettle, of the Wisconsin Commission, stated that the Milwaukee Electric Railway & Light Company is urgently insisting on putting in trolley buses for extensions rather than track in the newly-developed portions of the city. The commission has a very great doubt whether such a system would be a street car line or a bus line.

The Des Moines Situation

In Des Moines, the largest American city without street cars, Dwight N. Lewis of the Iowa Railroad Commission said that for the last six weeks the people had been dependent on jitneys without regulation for transportation. There have been a good many accidents. There is not much to be said except that these buses ought to be regulated. It is utterly ridiculous to expect independent jitney operators to furnish adequate transportation to any community. There must be companies of sufficient size to render a service that can be depended upon, and they should be regulated to pay their just share of the expense of keeping up the roads and the taxes of the community. They should also have such capital behind them that they can take care of their obligations to passengers and to the community; otherwise Public Utility Commissions ought in every way to discourage them until they meet these requirements.

The point has not yet been reached where the street railways can be dispensed with; that time may come and auto transportation so developed that it can be used in our communities. That time will not come until there is some adequate provision for their regulation, operation and maintenance.

In answer to the question as to why the street cars were discontinued Mr. Lewis stated that the railway company found it utterly impossible, with an 8-cent fare, to pay its operating expenses, let alone a return on its securities, with 5-cent jitney competition paralleling its lines for short hauls that took the cream of the business. The Iowa Commission is without jurisdiction in the situation.

With reference to freight transportation he also said there is a very necessary place for the auto truck due to the high freight and express rates for short hauls. With good roads and adequate regulation this institution has come to stay for handling short-haul freight.

Closing Sessions of Utility Commissioners

AT THE final session of the National Association of Railway and Utility Commissioners, held in Atlanta, Ga., on Friday, Oct. 14, the following were elected officers to serve during the following year: President, Carl D. Jackson, Wisconsin Railroad Commission; first vice-president, Dwight N. Lewis, Iowa Board of Railroad Commissioners; second vice-president, Alexander Forward, Virginia State Corporation Commission. Detroit, Mich., was selected as the meeting place of the next convention, which will be held on Sept. 26, 1922.

An account of the sessions on the first two days of the convention, Oct. 11 and 12, was published on page 708 of the issue of this paper for Oct. 15, and a report of the afternoon session on Thursday appears in this issue under the heading "Utility Commissioners Discuss Motor Buses."

The session on Thursday morning was devoted to the presentation and discussion of committee reports on federal and state legislation, litigation and valuation. The first named committee reported its efforts to have the Esch-Cummins bill amended to define more clearly the power of the states with reference to intrastate rates. As a result of this report the association adopted a resolution urging congress to amend the Esch-Cummins bill in such a way as not to relieve carriers from conforming to the laws of the states with respect to construction and operation within the states for intrastate transportation or with respect to the abandonment of such transportation. The committees on litigation and valuation devoted almost their entire attention to questions dealing with steam railroads. The latter committee reported its efforts to procure an amendment of the valuation act to relieve the I. C. C. from the obligations to include in its valuations its estimate of the "present cost of condemnation and damages in excess of original cost or present value" of lands.

At the session on Friday there was an address by M. H. Aylesworth, executive manager of the N. E. L. A. and former chairman of the Colorado Public Utilities Commission. Mr. Aylesworth's remarks were devoted largely to the subject of customer ownership of utilities. He pointed out that the results of such ownership can be observed in many sections, since at present more than a million and a half people own the securities of light and power companies under private management. Under such conditions not only are the best interests of security-holding customers represented in the development of electric service to suit the development needs of any community, but there is a correlation of the business of furnishing electric service with all those lines of business activities which the diversified group of security holders represents.

To illustrate the far-reaching effect of the right kind of "public ownership" and the conditions which make it essential to maintain the highest quality of service, Mr. Aylesworth recounted the events of the Pueblo (Col.) flood, where through the efficient organizations of the electric light, power and telephone companies the restoring of service in remarkably quick time shortened the period of distress by many days and aroused a lively appreciation of the public spirit that was displayed, even at risk to life, by company employees and officials. In a fuller realization of the community-building influence of adequate electric service, Mr. Aylesworth maintained, lies the solution of some of the future problems of the utilities, particularly the urgent need for capital to carry out the developments and betterments that are everywhere required. The selling of securities to the public through customer-ownership campaigns he dwelt on emphatically as one of the vital phases of utility financing in the future.

Traveling Passenger Agents Convene in Salt Lake City

ELECTRIC railroads were well represented at the forty-sixth annual convention of the American Association of Traveling Passenger Agents held at Salt Lake City Sept. 12 to 15 inclusive. Approximately 325 delegates were in attendance.

Among the pleasing entertainment features were trips to Saltair over the Salt Lake, Garfield & Western electric road, a trip to Ogden via the Bamberger Electric, to Ogden Canyon over the Utah-Idaho Central Railroad, where a trout and chicken dinner was served at the famous Hermitage hotel, and a trip to Logan via the Bamberger Electric and the Utah-Idaho Central electric road.

The Canadian Rockies was the se-

lection for the 1922 meeting, one session to be held at Banff, one at Lake Louise and one at Vancouver.

A total of 207 new members were taken into the association at this year's convention.

Officers for the ensuing year were elected as follows:

President, Frederick R. Parry, general agent of the Canadian Pacific Railroad, with offices in New York City.

Vice-president, C. H. Cutting, traveling passenger agent of the Salt Lake Route of the Union Pacific system, with offices in Salt Lake City.

Secretary-treasurer, Paul C. Benedict of the Baltimore & Ohio, at Chicago.

Publicity in Litigated Cases*

No Good Comes from Publicity Given to Injury and Damage Cases

By W. H. Moore
Claim Agent San Diego Electric Railway, San Diego, Cal.

EVERY question is debatable and there is an affirmative and negative side to every debate. In this particular case I have chosen the negative side. There seem to be more reasons for not giving publicity to litigated cases than otherwise. The least said about injury and damage cases so far as electric railways are concerned the better for the companies we represent.

The first reason is that as a rule the general public is not particularly interested when a public service corporation is successful in a suit. The success of the company arouses an antagonistic attitude usually and it is thought that it is another case of a rich corporation being able to hire shrewd lawyers and the other fellow having had to take what he could get in the way of legal advice.

Publicity to litigated cases of this character is used more or less as a guide post by the next fellow that gets in trouble, and he endeavors to avoid the mistakes of the first fellow as gathered from the published facts.

Publicity creates antagonism among attorneys in general. Many an attorney has an injury case against an electric railway presented to him by a client whom he can hardly refuse to serve. If the case is tried and the company wins and great publicity is given to that fact the attorney, who is a legitimate practicing member of the bar, takes offense at the publicity and feels as though it is a slap at him and in the future feels less sympathetic when he reads of the trouble and tribulations of public service corporations.

Take, for example, the case of an attorney who is presented with an injury case and has confidence that he can recover. The claim agent being equally confident that no recovery is possible and not being able to effect a compromise that is satisfactory to both sides, the case goes to court, with the result that the verdict is found in favor of the company. Publicity then is given to the fact. This attorney naturally takes offense inasmuch as he confidently felt that the claim was an honest one. He feels that the publicity given has a tendency to belittle his ability as an attorney.

Take, for another example, that type of attorney known as an "ambulance chaser." Suppose he presents one of his typical cases in which the allegations are gross exaggerations and you win. Suppose that in our success we come out with great scare headlines, what happens then? The attorney himself might, the next time he has a case against you, give the newspapers an equally good story in retaliation. What is the result? Does it not bring injury and damage cases into the spotlight? Does it not familiarize everybody with the idea that while public service corporations have been known to win cases, they also have been known to have been successful in their defense and have had to pay heavy damages? Does it not make people feel as though they will take the chance, having nothing to lose? I dwell particularly upon the attorney phase for the reason that attorneys are a necessary part of all litigation and it is their elimination that the publicity must have to be effective.

In my opinion the only publicity of value would be a mere mention of the fact that in the suit of Jones vs. the blank electric railway company for damages in a personal injury case the jury found for the defendant. The result is obvious and the least said about the case the more effective, leaving the reader to wonder why the plaintiff lost.

*Abstract of paper presented at the annual meeting of the Pacific Claim Agents' Association, Butte, Mont., Aug. 25-27, 1921.

Middle West Claim Agents Organize

REPRESENTATIVES of the claim departments of a number of the electric railway properties of the Middle West held an organization meeting at the Hotel Baltimore, Kansas City, Mo., Oct. 14 and 15. The purpose was to form a permanent organization of the claim men of various electric and steam roads of all the Middle Western states. The following member companies were represented:

Missouri: United Railways of St. Louis, Kansas City Railways, Kansas City, Clay County & St. Joseph Railway, St. Joseph Railway, Light & Power Company.

Illinois: Bloomington Street Railway, East St. Louis & Suburban Railway.

Kansas: Kansas City, Kaw Valley & Western Railway, Hutchinson Interurban Railway.

Other States: Denver Tramway Company, Fort Smith Railway, Tri-City Railway & Light Company, Lincoln Traction Company.

The following officers were elected for the ensuing year: President, W. C. Swisher, Kansas City Railways; first vice-president, Trevor C. Neilson, East St. Louis & Suburban Railway; second vice-president, W. P. Gottschalk, Bloomington Street Railway; secretary and treasurer, Oscar L. Borgquist, Kansas City Railways; member of executive committee, T. G. Kelly, Fort Smith Railway.

American Association News

T. & T. Executive Committee Meets

A MEETING of the executive committee of the Transportation & Traffic Association to plan the work of the coming year was held at the headquarters of the association in New York on Oct. 18. Those in attendance were: L. H. Palmer, president; G. T. Seeley, J. K. Punderford, Arthur Gaboury, and G. H. Clifford.

The executive committee decided this year to discontinue two of the committees which it had last year. One of these committees was the committee on freight, whose work during the past year was largely the drafting of a classification of freight accounts. This gives a basis for comparing the costs of freight accounting. Up to this time comparisons have been largely useless because of the different forms of accounting used. The executive committee believes that now that this classification has been adopted by the association, the most important step is to ask the companies to put the classifications into force. The other work, which would naturally be assigned to a committee on freight operation, would be the methods of promoting freight traffic, and this topic will be transferred to the field of the committee on merchandising transportation. The executive committee also decided, in view of the other subjects which had to be investigated, not to continue the committee on economics of schedules. It was believed that the work of the committee last year was so exhaustive that no further study was required immediately, except possibly in the drafting of additional definitions.

Five committees were agreed upon for the coming year. One of these will be on merchandising transportation, which will include, as stated, the merchandising of freight transportation. Another will be the committee on safety. The other three will be on personnel and training of transportation employees, traffic regulation and the transportation features of safety car operation, including probably the use of one-man cars in interurban service.

As the association has usually had six working committees, it is quite probable that another committee will be added to this list.

News of the Electric Railways

FINANCIAL AND CORPORATE :: TRAFFIC AND TRANSPORTATION
PERSONAL MENTION

Strike Moves Condemned

Criticisms Contained in Church Report Are Directed Against Municipality, Men and Company at Denver

The research department of the Federal Council of the Churches of Christ in America made public on Oct. 24 some conclusions contained in a forthcoming report of an investigation of the Denver Tramway strike which occurred during the summer of 1920. The investigation was undertaken at the instance of a group of churchmen in the City of Denver which created for the purpose the Denver Commission of Religious Forces. The Commission on the Church and Social Service of the Federal Council of Churches and the Social Action Department of the National Catholic Welfare Council participated in the inquiry.

The Protestant body was represented in the inquiry by Edward T. Devine, one of the foremost social workers and writers in America, and the Catholic, by Dr. John A. Ryan of the Catholic University of America and Dr. John A. Lapp, a well known investigator and an authority on social legislation.

The strike on the street railways of Denver arose over the termination by the company of its agreement with the Amalgamated Association and the announcement of a serious wage reduction. The company justified its action on the ground that without an increased fare it was impossible to continue to pay the prevailing scale which provided a top wage of 58 cents an hour. On this issue the report states:

> The tramway employees struck because they feared that as soon as the legal obstacle should be removed the company would reduce wages to 48 cents, which it has signified its intention of doing in default of an increased fare; because they believed their union was better able to face a contest in August than it would be in October or November when its morale would be weakened by the loss of its contract with the company, and when unemployment would be more widespread; and finally because they were enraged at what they believed to be a policy, on the part of the company, aimed at disrupting their union.
>
> Whatever may have been the financial condition of the company, the men could not be expected to accept a reduction of the top-wage to 48 cents an hour without the most vigorous and indignant protest. The requirements of an industrial enterprise make it necessary in practice to safeguard stockholders and to pay interest on bonds. Otherwise capital cannot be attracted, and the bondholders will throw the enterprise into bankruptcy. But in principle the men are right—and public policy will vindicate them—in maintaining that labor should be paid a good living before money receives its hire.

The public is declared to have a responsibility in this matter and also for maintaining order without depending on imported guards. On this point the report says:

> It is to be feared that the people of Denver, as is probably true in most cities under like circumstances, for the most part failed to take a broad public view of the tramway strike and of the situation which led up to it. Had the people interested themselves to provide such regulation of the street railway system as would insure its solvency and a living wage to its employees the whole unhappy conflict might have been prevented.
>
> Further, it is impossible to excuse a great municipality for not providing at public expense and under strictly public control an adequate, disciplined police force which would make the importation of armed guards an unthinkable alternative. There is no more disturbing influence in indu at the present time than the tendency to transfer the police power of government to privately controlled agents who are irresponsive to the claims of justice and who are devoid of that discipline which the successful exercise of police power requires. That the consequences of importing armed men to guard and operate the street cars included a heavy toll of life, for which no jury has fixed responsibility, is a disquieting fact which remains a moral liability of the entire community.

Of the use of the "spy system" to combat organization activities on the part of the workers the report says that the "whole system is undoubtedly one of the most disruptive influences in our industrial order."

The publicity methods employed to discredit the strikers are especially deplored:

> A frequent method of attacking labor during industrial controversies is to represent that labor has fallen under the vicious influence of radical agitators. Sober, home-loving and law-abiding workingmen whose patriotism cannot be questioned and whose hatred of every form of anarchy and lawlessness is deepseated both in their ancestry and in their whole education and training, are recklessly and wickedly charged with harboring sentiments which the men themselves repudiate, and with being influenced by outside agitators who exist only in the imagination of their calumniators. This particular kind of misrepresentation is a feature of almost every industrial controversy, and the tramway strike in Denver was no exception. . .

The men are criticised in the report for their precipitate action in striking while their cause was before the courts. On this point the report says:

> After the disturbances of the first week of the strike the men should have made all possible speed to terminate it. It was no time to stand on ceremony. When their executive declared the strike ended, they should have gone back to work.

At the same time the use of the injunction in cases of this kind is declared by the report to be questionable and fraught with danger.

Railway Case to Go Before Full Supreme Court Bench

Associate Justice Pitney of the United States Supreme Court on Oct. 26 refused to grant an order suspending the decision of the United States District Court in New Jersey, under which the Public Service Railway, Newark, N. J., was permitted to increase its fare to 8 cents.

Justice Pitney told representatives of the railway and of the State of New Jersey who appeared before him that in view of the magnitude of the questions involved in the case he preferred that presentation be made to the full bench when the court meets on Nov. 7, explaining that the court might be willing at that time to hear oral arguments.

Des Moines Rides Again

Electric Railway Cars Welcomed Back After Suspension of Seventy-Five Days

After a period of seventy-five days, during which the city depended for transportation upon buses and other makeshifts Des Moines is again riding in the cars of the Des Moines City Railway. Service was restored on the afternoon of Oct. 24 following the passage that morning by the City Council of the franchise proposed by the Harris interests with certain changes suggested by the Corporation Counsel.

The Council passed the franchise without any further modifications and early in the afternoon cars started leaving the carhouses and by the time the rush-hour crowds were ready to go home fifty-nine cars were in operation.

According to an agreement reached by all parties to the transaction buses will be permitted to continue to operate in direct competition with the railway until after the franchise has been voted upon by the people. It was felt that fifty-nine cars were inadequate to handle the situation, but as the present power facilities of the company do not permit the operation of a larger number of cars, it was agreed that during the interim it was best to allow the buses to continue.

As yet no definite plans for the franchise election have been made, but it is thought that the vote will be held Nov. 24 or Dec. 1. Thirty days must elapse between the first notice of the election and the actual vote.

In the event that the franchise receives the support of the voters it is planned to place service on a 132 car basis as soon as sufficient substation equipment can be placed to provide power for this number of cars.

Upon order of Judge Martin J. Wade of the federal court railway service in Des Moines was stopped at midnight on Aug. 3. On Aug. 26, upon the guarantee of officials of the Iowa State Fair Association to protect the company against loss, Judge Wade permitted resumption of service during the eight days of the fair. On Sept. 2, however, the cars were again returned to the carhouses.

Bus operators have announced that they will conduct a determined campaign to prevent the ordinance from being passed at the election.

M. H. McLean, representing the Harris interests of Chicago, issued a statement at the time service was resumed. This statement follows:

> A starved horse never pulled a full load. All that the Des Moines City Railway has ever asked is the right to a fair return so that it can render good service and attract capital for improvements and extensions, that is the right to live and function properly in the community.

The franchise is based on fundamentally sound principles. Fares are based on the cost of operation plus maintenance of a contingent reserve fund; fares to be lowered or raised as the reserve fund exceeds or falls below prescribed limits. Equally important is the provision that gives an incentive to efficient and economical operation The public must be served. That is of prime importance.

The Council having adopted the franchise, the company will, if it is approved by the people, endeavor to operate under it so as to give first class service.

The recent action of the employees of the company in voluntarily accepting a reduction of wages in order to assist in making possible a resumption of service is highly commendable and evidences their broad minded view of the situation.

I hope and believe that the franchise will be accepted by the people at the election by a large majority and that the vexed question of the Des Moines City Railway will be laid to rest and succeeded by a period of sanity and right dealing in respect to this important factor in the life of the city.

Mayor Barton also issued a statement on Oct. 24. In his memorandum the Mayor called particular attention to the fact that the franchise election would make possible the recording of an expression of opinion which will indicate definitely the extent of the demand which had been made for a resumption of railway service.

From the experience that Des Moines has had, it would seem that the franchise ordinance must necessarily be passed at the coming election. The public, however, has a short memory and political forecasts are always dangerous. Until the ordinance has been formally approved by the voters the need would not seem to exist for going into the provisions of the grant to any greater extent than has already been done in the issue of the ELECTRIC RAILWAY JOURNAL for Oct. 15, page 709, and Oct. 22, page 749.

As late as Oct. 17 Judge Wade felt it incumbent upon him to make a statement with respect to the railway suspension in the hope of making plain the facts which led to the suspension of service. His statement was more than a mere review of the steps fixing the responsibility for the suspension in that he took occasion to offer his service in the attempt to bring about a settlement. He said that his observations were made in order that any further discussion of the problem could be conducted in a spirit of justice, fairness and common decency. In concluding his remarks Judge Wade said that up to the time his statement was made no showing had been presented to the court that conditions had changed in any respect.

The Des Moines City Railway on Oct. 26 filed with the City Council formal notice of its acceptance of the franchise ordinance. Nov. 28 has been fixed by Council as the date for the special election on the franchise. The publication of the application for the franchise checkmates the move of the Improvement League to conduct a fight to test the legality of franchise. No move has yet been made by the Council to reroute buses so as to take them off streets where car lines are operated, but Mayor Barton has intimated that this will be done as a traffic safety measure. Buses which were shipped in to Des Moines from outside cities are beginning to leave the city.

Subway Abandonment Recommended

Committee of Cincinnati Chamber of Commerce Recommends Complete Change in Plans

Abandonment of the canal subway as a rapid transit project, on which the city of Cincinnati already has spent $3,000,000 is recommended in a report made public by an investigating committee of the United City Planning Commission of the Chamber of Commerce.

The committee said it was forced to the conclusion that money already spent on the subway is a dead loss and should be charged off the city ledger and the project of rapid transit abandoned.

The committee which made the report consists of Albert Krell, president of the Central Inland Waterways Association; George B. Fox, manufacturer, and Frederick W. Garber, architect. There is $3,000,000 still unspent of the $6,000,000 of bonds voted by the public.

The committee believes, however, that the right-of-way can be salvaged and the tunnels used for delivery of freight to industries in the central part of the city as well as in all the suburbs. The committee in its report also urged that immediate steps be taken to remedy traffic congestion, to extend trade and provide interurban railway inducements.

The report says:

The construction of the subway has been in progress two years, but it is to be regretted that moneys were provided and work upon the same was begun and carried on without proper study and careful investigation of the city's actual needs.

In a statement made in connection with the report Frederick Garber said the loop was not feasible for rapid transit purposes because there is no way of operating it profitably and because if it were operated it would serve only a section of the community.

The committee also suggests the use of the tunnel as a means of bringing interurban cars into the city in place of its proposed use as a means of rapid transit.

Alfred Bettman, chairman of the City Planning Commission, said that the report made public by the subcommittee was unauthorized and that he would investigate the matter thoroughly before making any statement.

Work has been going on on the rapid transit project for the past two years and three of the six sections have been built.

Twenty Per Cent Wage Reduction on Short Line

The Railroad Labor Board has reported to Rufus C. Jones, comptroller of the Electric Short Line Railway, Minneapolis, Minn., commonly known as the Luce Line, a decision for a reduction of 20 per cent in the wages of the engineers, motormen, firemen, conductors and brakemen of that system. The board has had the matter under consideration ten weeks. The matter was referred to that body on Aug. 2 with the consent of the employees. The board took into consideration the financial condition of the carrier. The earnings had been falling below cost of operation, and the road was paying only 75 per cent of the union scale. The decision will be acceptable to the employees it developed in conference.

The new scale in cents per hour is as follows:

In passenger service—conductors, engineers and motormen, 62½ cents; firemen, 57½ cents, and brakemen, 56¼ cents.

In freight service—conductors and engineers, 65 6/10 cents; firemen and brakemen, 59 4/10 cents.

In switching service—conductors and engineers, 62½ cents; firemen and brakemen, 57½ cents.

Daily Guaranty Assured Extra Trainmen

One of the points considered at length in the finding in the Connecticut Company's wage arbitration proceeding, noted in the ELECTRIC RAILWAY JOURNAL for Oct. 22, was the matter of pay for extra motormen. The men contended for a daily guaranty of $3 instead of the present weekly guaranty of $21 and said that the present scheme was faulty in that a man who failed to attend two roll calls in the course of a week might be deprived of the unearned portion of his guaranty for the entire week.

On this point Counsel Vahey, who represented the men, and Justice Beach said:

We recognize the importance to the company of some provision for effectively requiring the presence of the extra men when they are wanted, and we think the company and the public will be sufficiently protected for the balance of the year by establishing the daily guaranty with the proviso that for not more than ten weeks on each of its divisions during the balance of the year the company may on giving two days' notice to the division committee men put into effect the weekly guaranty instead of the daily guaranty.

If any controversy arises as to the interpretation or effect of this award it is to be referred back to the chairman for decision, which shall be binding on both sides.

The recent wage award brought out some interesting facts on wage scales of previous years.

In June, 1914, a maximum rate of 28½ cents an hour was agreed on. In 1916 this rate was increased by agreement to 32 cents. In 1918 it was increased to 40 cents, effective May 31, 1919. During the year 1918 the cost of living continued to rise, and in November the men applied for and the company voluntarily granted an increase of 5 cents an hour, on condition that the increased rate of 45 cents should be continued until June, 1920. This was agreed to but in August, 1920, the men again applied for and the company again voluntarily granted a second increase of 5 cents an hour, making the maximum rate 50 cents. In June, 1920, the maximum rate for the blue uniform men was by agreement raised to 60 cents an hour for the ensuing year, and at the same time the length of the graduated scale was reduced from five years to two, so that the blue uniform men recently reached the maximum rate at the beginning of their third year.

Improvements in Southern California to Cost $1,079,143

Since May, 1921, the Pacific Electric Railway, Los Angeles, Cal., has undertaken a large program of improvement work on its system, the greater portion of which became necessary principally through franchise and legal obligation. The estimated cost of all the improvements outlined is $1,079,143. The following is the schedule of the improvement jobs now underway:

Highland Avenue: 5,523 lin, ft. of double track reconstructed with 4-15/16 in. 75-lb. C. S. revised rail with tie plates, Redwood ties, rock ballast and paved with 5-in. oil macadam pavement.

West Sixteenth Street: 3,669 lin. ft. of double track reconstructed with 7-in.-128 lb. grooved girder rail—treated ties —rock ballast and paved with 6-in. concrete base and 2 in. asphalt wearing surface.

Echo Park Avenue: 6,283 lin. ft. of double track reconstructed with 4-15/16-in.-75 lb. C. S. revised rail rock ballast —Redwood ties—paved with 5 in. of oil macadam pavement.

West Sixth Street: 400 ft. of double track and 1,600 ft. of double track combination gage track. Present 60-lb. ASCE and 6-in.-72 lb. tee rail replaced with 7-in. 128-lb. grooved girder rail—reballasted with rock ballast—Redwood ties renewed with treated ties—repaved with 6-in. concrete base and 2-in. asphalt wearing surface pavement.

Santa Monica Boulevard, Colegrove Line: 11,978 lin. ft. of double track—reconstructed with 4-15/16-in. 75-lb. C. S. revised rail—rock ballast—grade change —Redwood ties—paved with 5-in. of oil macadam pavement.

San Bernardino-Mount Vernon Avenue, Colton-San Bernardino Line: 3,000 lin. ft. of single track reconstructed with 4-15/16 in.-75 lb. C. S. revised rail—rock ballast—Redwood ties—paved with 5 in. of oil macadam pavement.

Los Angeles, Eighth Street Freight Terminal: Constructed 4,600 lin.ft. of additional freight handling and storage tracks—constructed new freight terminal layout, by utilizing the brick-constructed carpenter, blacksmith and paint shop buildings formerly used by company shops before new Torrance shops were put in operation. Altering these structures and constructing additions thereto to provide enlarged and more modern freight terminal layout, as present freight terminal does not meet the company's rapid development of its freight business. New outbound freight station to be 390 ft. long; 50 ft. wide and platform full length of structure, width of platform 8 ft. New inbound freight station to be 420 ft. long; 67 ft. wide. Exclusive of these structures will be constructed an unloading rack for independently handling newspaper print.

Los Cerritos Stations-Long Beach Line: Retire 1,000 lin. ft. of present double track, pile trestle bridge spanning the Los Angeles River and construct 1,100 ft. of new double track pile trestle bridge and place seven 60-ft. skew girders. (420 ft.). Raise bridge 4 ft. above present grade. Raise approaches to new bridge each end approximately 4 ft. Provide riprap for protection of approximately 1,200 ft. of embankment. This work brought about by U. S. government constructing new flood control levee each side of company's structure for purpose of defining the channel of Los Angeles River, with ultimate purpose of preventing the river during flood periods from silting up the Los Angeles Harbor, at which point the river has during past flood periods left its course and damaged the harbor.

Another Municipal Line Opened

Clairmount-Owen Section of Detroit Municipal Railway Placed in Service—New Section Reached

Preparatory to starting service over the Clairmount-Owen crosstown line of the Detroit (Mich.) United Railway cars of the one-man safety type were started over the line on Oct. 22 to familiarize the operators with the line with a view to starting the regular five-minute schedule during the rush hour and ten-minute service the rest of the day, beginning on Monday. If it is found that a more frequent service is required, it is planned to put on more cars as needed.

While the Clairmount line passes through the residential section of the northwest part of the city, which has not had car service, it is not expected that the line will return a profit over operating expenses until such time as the day-to-day lines are taken over so that the Clairmount-Owen cars can be operated over extensions both on the east and west side of the city. This line will be connected with the present Epworth Boulevard line and the Grand Belt line of the Detroit United Railway, both of which are to be taken over by the city according to arbitration.

A resolution has been passed by the City Council providing that the proposed amendment to the city charter to provide for trackless transportation be again placed on the ballot for the coming November election. The amendment if passed, will empower the Street Railway Commission to acquire and operate gasoline motor buses, trackless trolley buses or such other type of trackless transportation as is deemed desirable. On Oct. 11 the amendment failed to receive a 60 per cent majority, 35,515 votes being cast in favor of and 24,693 votes against it.

Mayor Couzens and the Street Railway Commission are anxious to have the amendment receive a 60 per cent majority vote before proceeding to purchase trolley buses or similar equipment, although it was the opinion of some of the city officials that a simple majority vote was all that was required to provide for the purchase and operation of such equipment. It was the belief of the Mayor that the proposed amendment was not thoroughly understood prior to the October ballot and that many voters opposed it believing that it necessitated the appropriation of money other than that already provided for by the original $15,000,000 bond issue approved in 1920.

Trolley Bus Rapped by Peter Witt

Peter Witt, Cleveland, is in Seattle, where he has been engaged by the City Council to study Seattle's transportation problem. In a speech to the Council, Mr. Witt said he did not favor operation of city owned railways with the aid of taxes; that there is "nothing to the trackless trolley"; that the "one-man car has got to come," and that motor transportation "will never supplant the street railway."

Mr. Witt, said that any rate of fare which produces more revenue but does so from fewer riders is a mistake.

In referring to the use of taxation funds to support street railways, Mr. Witt said:

> That principle is economically unsound. It takes the management as well as the operatives of the system off their mettle.

He explained in detail his approved zone system of fares.

The coming of Mr. Witt to Seattle was strongly opposed by Mayor Hugh M. Caldwell, who asserted that Mr. Witt's engagement had been made by the Council without his being consulted. He even wired Mr. Witt stating that he had not approved of the investigation, and suggesting that Mr. Witt remain in Cleveland until an ordinance has been passed authorizing his employment and appropriating money for his services. The matter had been approved by the Council, however, and an ordinance appropriating $8,400 to pay for his services has been referred to the finance and utilities committee.

An Appeal Made for Unemployed in Columbus

The correspondence between the Columbus (Ohio) Chamber of Commerce and the Columbus Railway, Power & Light Company with respect to the unemployment situation in Columbus has been printed in the form of a full-page advertisement in the Columbus *Citizen*.

The Chamber of Commerce has appealed to the railway officials to start in motion its share of the improvement work on Main and Front Streets and if not actually able to initiate the work to procure the necessary materials so that some progress can be made in the late autumn. In making its request the Chamber of Commerce expresses its appreciation for the work already done by the railway.

The railway, through C. L. Kurtz, its president, commends the patriotic work of the Chamber of Commerce and other service organizations in their efforts to relieve the unemployment problem but states its inability to advance improvement plans when no funds are available for that purpose. The company gives a detailed account of the recent accomplishments of the railway, which is one of the largest employers of labor in Columbus.

Bus Proposal Accepted

Saginaw Council Favors Terms of Bus Company—Chamber of Commerce Is Opposed

If the Council can finance the advanced sale of transportation amounting to $125,000, the city of Saginaw, Mich., will, according to the proposal of the Wolverine Transit Company, Detroit, have motor coach transportation. At the regular meeting of the Council on the evening of Oct. 25 its proposal was accepted with some minor changes and to hurry matters, for Saginaw has not had any reliable transportation facilities since the Saginaw-Bay City Railway ceased operating its cars on Aug. 10.

MAYOR INTRODUCED ORDINANCE

The ordinance giving the company the right to operate was introduced by Mayor Mercer, who also introduced the proper notice revoking the franchise of the Saginaw-Bay City Railway. Commissioner George Phoenix, who has fought the traction company right along, refused to vote for the revocation of the franchise and the approval of the motor coach plan.

The Council issues an appeal to the board of commerce, clubs and societies to assist in selling the advanced transportation and within a day or two a decision on the matter is expected from the board of commerce. That body refused several weeks ago to entertain the proposal as then made by the bus interests in the name of the Wolverine Transit Company.

The essentials of the offer of the Wolverine Transit Company follow:

It will place in operation within ninety days thirty-five motor coaches each with a seating capacity of twenty-five. The rate of fare is 6 cents with universal transfers. In order to finance the plan the company proposes that the city arrange to sell in advance $125,000 of tickets, in books of 200 with a face value of $12, at a cost of $10. The money from this source is to be retained by a trustee appointed by the Council, and as each bus is delivered the trustee is to pay at the rate of $4,150 to the manufacturer. The trustee is to have a first mortgage on the equipment to the amount of the advanced transportation until the tickets sold in advance have been used.

The company is to deposit with the bus manufacturer $115,000 as a guarantee to it to start manufacturing and delivering the buses. The company further agrees to deposit with some local bank, $30,000 for operating expenses during the time the tickets are being used. The Council is to govern the service. Insurance will be carried on all buses to the amount of $5,000 for one passenger and $25,000 for one accident.

In order to insure service, the mortgage to be given the city's trustee is to run for one year, after which the company will furnish a $100,000 bond for continuation of service. The company does not ask a franchise or the elimination of the jitneys, asserting the service which it will give will compel the jitney operators to retire from business.

There is to be a special election on Dec. 7, called to submit a bond issue to complete the water plant, and at that time, the jitney owners ask that their proposal, which the Council rejected, be submitted. Commissioner Phoenix is circulating petitions for municipal ownership of buses and it is possible that this question too will be submitted.

Residents of Miami Must Decide

Miami (Fla.) voters will decide on Nov. 1 if they want to buy the defunct Miami Traction Company's track, franchise and rolling stock for $50,000 cash and a "bad account due" of approximately $73,000, which it is claimed the system owes the city for paving and bridge liens. The city is to vote on issuing bonds for $100,000, half of which will be paid the Tatum interests for the assets of the system. The liens are to be canceled. The other $50,000—if the city votes the issue—will be used to equip the 5 miles of the system with poles and trolley wire so that the lines may run as trolley lines instead of on storage batteries as previously.

Since the fire which destroyed the company's powerhouse and carhouse more than a year ago the line has not resumed operation. Many suggestions and propositions for operating the line have been offered from time to time. A few months back the Miami Chamber of Commerce offered its assistance in securing a franchise for some operator who would undertake to provide the city with railway service.

The present plan is to lease the system under some arrangement to the Miami Beach Electric Company, which is operated by the Carl C. Fisher interests.

Ordinance Passed Forcing Presentation of Electrification Plans

Favorable action has been taken by the City Council of Buffalo, N. Y., on the ordinance proposed by Frank C. Perkins, the Socialist member of the board, for electrification of the steam railroad lines within the city limits. The ordinance provides that a plan must be submitted by the railroads by Feb. 1, 1922, and carried out one year later. The action of the Council was unanimous.

For years the municipal authorities have been discussing the advisability of enacting such an ordinance as it affects the New York Central belt line operating largely through the north park residential section, but representatives of the railroads always have contended that the cost would be too great. Some time ago a hearing was held on the proposed ordinance and railroad engineers said electrification of rail lines within the city would cost millions. The ordinance enacted by the Council forces the railroads to submit an electrification plan within the next four months.

News Notes

New York Subway's Seventeenth Anniversary.—Posters of the *Subway Sun* and *Elevated Express* are featuring the seventeenth anniversary of the opening of th New York subways by the Interborough Rapid Transit Company. The posters show former Mayor McClellan and other well-known men marching from the City Hall to board the first train on Oct. 27, 1904.

Action on Extensions Deferred.—The public utilities committee of the Board of Supervisors of San Francisco, Cal., met on Oct. 19 to discuss the municipal Railway extensions. The advantages and disadvantages of the several tunnel routes were gone over thoroughly. Final action on the matter was put over for two weeks. It is more than likely that if the various improvement associations fail to agree on the extensions the Board of Supervisors will take the matter in its own hands and arbitrarily make decisions. The plans for this improvement have been referred to in detail previously in this paper.

American Legion Convention in Kansas City.—A special issue of the *Railwayan*, the monthly "organization magazine" of the Kansas City Railways, will be published in honor of the convention of the American Legion, in Kansas City, Oct. 31, Nov. 1 and 2. This issue will contain more than 200 pictures of army and battlefront scenes and portraits of members of the railway organization who had been in service. The company has slightly more than 3,000 employees, and among them are 1,500 ex-service men, said to be the largest percentage of former service men employed by any similar company of the size of the railway in the United States.

300 Veterans Meet.—The first annual banquet of the Veteran Employees' Club of the Twin City Rapid Transit Company employees in Minneapolis, St. Paul and suburbs was held on Oct. 11 at the Central Y. M. C. A. in Minneapolis. The "oldtimers" seemed to enjoy the get-together at which many "youngsters" listened to tales of the old horse car days. The occasion was just to "reminisce" and hear the story of railway development in those parts. Mike Donovan, who entered the service in 1875 and "worked under every management and master mechanic," was there and so also was "Hod" Carter of 1883 days. Horace Lowry, president of the Twin City Rapid Transit Company and son of the founder of the company, came to the gathering to commend his trainmen for their loyalty. He said: "With such support as we are given I don't see how any corporation could fail to succeed."

Financial and Corporate

Valuation Testimony Heard

$85,573,196 at Prevailing Prices Fixed As Reproduction Cost of United Railways, St. Louis

The taking of testimony by the Missouri Public Service Commission to determine the value of the property of the United Railways, St. Louis, Mo., took up Oct. 18, 19, 20 and 21 in St. Louis, with one witness on the stand. Hearings were then adjourned for a month to give the City Counselor and his associates time to study the figures submitted.

Counsel for Receiver Wells and the company submitted several sets of valuation figures as follows:

1.—Reproduction, based upon prevailing prices of material and labor, Jan. 1, 1920, $85,573,196, including depreciation.

2.—Replacement at prices prevailing June 30, 1921, $82,202,727, including depreciation.

3.—Replacement new if based upon average prices for a five-year period beginning June 30, 1916, and ending June 30, 1921, $70,201,102, including depreciation.

The inventory and exhibits submitted fill ten volumes of foolscap paper width and length, and include 4,500 pages of typewritten matter. W. B. Bennett, Madison, Wis., formerly engineer for the Wisconsin Railroad Commission, and now an associate of F. W. Doolittle, New York, in charge of the valuation work for the company, was the only witness during the four days. He is to be cross examined later. The commission sought to shorten the hearing and cut out much oral testimony, but counsel for the receiver and the corporation objected on the ground that they wanted the record to be complete in case the decision of the commission was such as to force the case into the courts for review.

James L. Harrop, engineer for the Missouri Public Service Commission, who appraised the property of the company, fixed the value at $48,936 805, in his report last spring. His estimate was based on average prices of labor and material for thirteen years between 1906 and 1918. That cost depreciated to represent physical condition of the property was $34,285,531. His figures were on the "investment" plan.

Neither the railway's nor Mr. Harrop's figures include any intangibles—allowances for consolidation, or as a going concern, etc. These items are to be added by the commission.

Taking Mr. Harrop's own figures, the railways submitted a fourth valuation of $66,867,486, which is an extension of the inventory brought up to date. The railways' "investment cost" figures were only $1,527,767 higher than Mr. Harrop's on the same inventory, complete.

In making the opening statement to the Commission, Thomas Elmer Francis, of the receiver's counsel, appealed for a liberal valuation on the ground that capital would not be attracted for sorely needed improvements and extension, and future rapid transit, unless the present security holders were treated fairly. He was cut short by the commission, which decided that arguments would be heard after all the testimony is in. Mr. Francis gave details of increased operating costs since 1916 and asserted that the universal transfer system had saved the car riders $7,784,000 in 1920 alone and more than $75,000,000 since the consolidation in 1900.

The outstanding securities of the corporation, now in receivership, exceed $100,000,000. Two years ago the city and the company agreed to a tentative valuation of $60,000,000. This was changed later by the commission to $50,000,000 for rate making purposes. The present fare of 7 cents is to run until Jan. 1, 1922, when it was supposed that the new valuation would be decided. A decision, however, is not expected in that time now and an extension may be granted. The latest report shows that revenue is hardly sufficient to pay 6 per cent on the $50,000,000.

City Counselor Caulfield stated the city would contend that the value of all United Railways property for rate-making purposes was not more than $45,000,000. It is expected that he will challenge the company to show that more than $25,000,000 had been invested by the stockholders. The other $20,000,000, he said, was "contributed by the public." He did not reveal the source of his figures.

Mr. Caulfield told the commission the burden is upon the company to show that it is entitled to charge more than 5 cents, the contract fare as fixed by the city charter. He declared: "If it fails to move the commission, whose aid is invoked to relieve it from its contract, the citizens will get a 5-cent fare."

In reply Mr. Francis said:

> I must utter a note of warning. My distinguished opponent (Caulfield) is pursuing a course that, like a boomerang, will return to smite those whom he represents. You cannot harm this company without inflicting injury upon the public which it serves. Any increase in taxes, any burden imposed upon it that increases its expenses or decreases its revenue; any action that will prevent or retard the flow of new capital to its treasury, is bound to affect its ability to give proper service.

The hearings are not expected to be resumed before the last of November.

Railway Line Not Profitable.—It is reported that the property of the St. John's Electric Company, the local operating railway in St. Augustine, Fla., has been offered to the city as a gift.

Electric Purchase Approved

California Commission Authorized Western Pacific to Purchase Sacramento Northern Railroad

The State Railroad Commission of California on Oct. 18 authorized the Western Pacific Railroad to purchase the Sacramento Northern (Electric) Railroad including all its properties, rights and franchises. Under the terms of the sale the Western Pacific is to pay $730,000 in cash for the physical property and to assume the payment of the outstanding bonds of the company. On the basis of the present market value of Western Pacific bonds given in exchange for the bonds of the Sacramento Northern the total purchase price is $4,450,000. This includes the $730,000 cash payment and the expense entailed in the exchange of bonds.

The Western Pacific Railroad Corporation, parent company of the Western Pacific Railroad, had already acquired more than 97 per cent of the outstanding stock and more than 98 per cent of the outstanding bonds of the Sacramento Northern. The bonds were acquired by the exchange of Western Pacific bonds for the bonds of the Sacramento Northern at the exchange basis of $80 Western Pacific bonds to $100 Sacramento Northern bonds. The stock of the Sacramento Northern was obtained at the rate of $27.50 per share for the first preferred stock, $15 per share for second preferred and $6 for common.

This stock control placed the Western Pacific Railroad Corporation in control of the Sacramento Northern and the directors of the Sacramento Northern voted for the sale of the property to the Western Pacific.

Of the outstanding stock of the Sacramento Northern $136,800 par value and of the outstanding bonds $80,094 have not been deposited under the Western Pacific offer. Additional time has been granted in which to make deposits.

The Western Pacific is to acquire the Sacramento Northern through a subsidiary company known as the Sacramento Northern Railway capitalized for $1,000,000. It was necessary to form a subsidiary company, it was pointed out, because under the Western Pacific mortgage it cannot advance any money to a company of which it does not own the entire capital stock. The Western Pacific Company, by the terms of the Railroad Commission's decision of Oct. 18, is authorized to use $4,450,000 of the proceeds obtained from the bond issue previously authorized; to acquire the stock of the Sacramento Northern Railway, the new subsidiary ern Railroad. The Sacramento Northern Railway is authorized to use $730,000 from the proceeds obtained from the sale of its stock to acquire the properties of the Sacramento Northern Railroad. The remainder of the proceeds are to be used as working capital.

Reorganization Ordinance Prepared

The city attorneys of Pittsburgh, Pa., have prepared an ordinance for presentation to Council authorizing the city to enter into the agreement with the Philadelphia Company and Pittsburgh Railways looking toward the reorganization of the Pittsburgh Railways. This agreement was drawn up by the city attorneys and counsel for the Philadelphia Company.

George N. Munro, Jr., special city counsel in charge of public utility legislation, said that while he was anxious to have the measure introduced at once and thus open the door for discussion on the proposition and an early decision, it would probably be held up another week. This delay, he said, was due to the fact that counsel for the Philadelphia Company, now absent from the city, has not had an opportunity to approve or reject a proposed amendment to the agreement.

The amendment as proposed by Mr. Monro provides that the new company shall assume full liability for the payment of all damage claims against the old company. Since the railway was placed in the hands of receivers many persons have been awarded damages in the local courts. These claims, according to Mr. Monro, now amount to $600,000.

He proposes to have the new company pay the claims in ten instalments, allowing ten years in which to pay off the debt. Lawyers representing a majority of those who were awarded damages have agreed to this proposition, Mr. Monro said. The proposed amendment is the only change which will be made in the agreement before it is considered by Council.

Many pamphlets containing a copy of the agreement on reorganization were mailed to various boards of trade and other civic organizations throughout the city, with the request that they study the proposition and offer criticism and suggestions, only a few have sent replies to Council. A majority of them approved the agreement, some with reservations, but each requested a public hearing before final action is taken by Council.

The terms of the agreement for the reorganization as proposed to be executed by the city and the railway were reviewed in the ELECTRIC RAILWAY JOURNAL for July 30, page 180.

Status of Security Holders Fixed

Judge Mayer in the United States District Court has handed down an opinion in the suit of the Westinghouse Electric & Manufacturing Company against the Brooklyn (N. Y.) Rapid Transit Company, defining the status of the lien of the Brooklyn Rapid Transit gold 5s of 1945, as a first lien in equity upon the property acquired with the proceeds of $2,125,000 of the bonds, and upon property acquired with later proceeds amounting to $889,705, and such property acquired by the Brooklyn Rapid Transit Company as is subject to the lien of the first and refunding mortgage dated July 1, 1902. The opinion was confined solely to the question of the priority liens as between the trustees of the two mortgages. The 1945 mortgage was made in 1895 to secure an issue of $7,000,000 of 5 per cent gold bonds and 1902 mortgage to secure an authorized issue of $100,000 000 gold 4s.

Daily Receipts Up $1,050

Despite Industrial Depression Connecticut Company Is Doing Much Better Than a Year Ago

President L. S. Storrs and the federal trustees of the Connecticut Company met on Oct. 23 with the Public Utilities Commission in Hartford and discussed the financial condition of the company. Coming after three consecutive hearings before the commission on petitions for a reduction in fares, it is believed that a formal statement from the Connecticut Company as to its attitude on rates will be made in the immediate future.

The federal trustees will meet in New Haven on Oct. 29 and it is expected that they will take a "positive attitude" on the fare situation as recommended by President Storrs in his memorandum now before the Public Utilities Commission. The company is now making some money and it is in a better financial condition than during the last two years, as was shown in President Storrs' statement to the trustees.

FARE CHANGES UNLIKELY BEFORE SPRING

Indications are that fare reductions will get more serious consideration next spring than this winter because of the uncertainties of winter weather and their effect on railway transportation.

Twenty or more buses on various lines are being continued in operation by the Connecticut Company at a daily loss of $150. The Public Utilities Commission was informed of this fact by W. J. Flickinger, assistant to President L. S. Storrs, during the hearings for lower fare rates. Mr. Flickinger said:

> We are running these lines only for the service they afford, not for revenue. Our experience has gone far enough to show us that bus operation costs more than trolleys because much rolling stock is required.

According to him, under present maintenance costs, buses would have to be operated at full capacity throughout the day at a 5-cent fare in order to make expenses. He said it cost $20 a day to operate a trolley-owned bus.

The financial statement of the company as made by Mr. Storrs covers the first seven months of each year from 1916 to 1921 and shows that the operating revenue in those periods increased more than $3,000,000 since 1916 and that the operating expenses nearly doubled. Taxes have increased from over $260,000 to more than $400,000. The non-operating income has decreased from approximately $150,000 to a little over $5,000.

The following table shows the net income available for return on the capital invested in the first seven months of the past five years:

1916	$2,133,726
1917	1,653,573
1918	1,274 890
1919	1,042,625
1920 (deficit)	266,913
1921	1,352,917

In his statement to the trustees Mr. Storrs said:

> It seems to be desirable to take a positive attitude in the matter of our rates of fare in order to meet the feeling on the part of the most conservative of the public that the time has come for reduction.
>
> This is based upon the argument that the company was relieved by the last Legislature of the paving and bridge obligations, a lower rate of taxation was established and above all the competitive motor bus has been very generally eliminated. Furthermore, the general reductions in the price of coal and other commodities should have a corresponding effect upon our operating costs and an anticipated reduction in the rates of pay will have a marked effect upon our pay-roll costs.
>
> There is no question that the 10-cent rate of fare is considered abnormally high and it is all the more of a burden to a majority of the car riders due to the drastic reduction in industrial rates of pay and unemployment conditions.
>
> There is no question but that the people of the State generally recognized the need for the higher rate of fare when it was inaugurated and are still willing to pay that rate without much comment, but are expecting us to make some voluntary reduction.

Mr. Storrs points out that the decrease in car riders is marked, but he attributes this solely to industrial conditions. He points out that at the present time the daily receipts are averaging $1,050 a day more than they did during November, 1920. The increased revenue has been obtained in centers where the jitneys have only recently been restricted.

Mr. Storrs predicts the net revenue in November and December will be the same as last year. The cash balance of the company, he says, is better than it has been the past eighteen months. On Oct. 1 the company had a cash balance of $419,120, with all due accounts paid, while in 1920, the excess of accounts due over cash on hand was $365,000.

Municipal Lines Have a Theoretical Surplus

According to figures reported by the City Comptroller, the receipts of the Detroit (Mich.) Municipal Railway for the month of September amounted to $31,137 and in the same period of time operating expenses, not including interest on bonds, sinking fund or taxes, amounted to $26,313. To meet the charges for sinking fund, bond interest and taxes, money is being taken from the construction fund, and this action it is cited is justified by the ruling of the Interstate Commerce Commission that such charges are capital costs and may properly be charged to construction until the street railway system is complete.

The municipal street railway officials expect that the returns from the municipal lines will be greatly increased as soon as the so-called day-to-day lines are taken over by the city. These lines will connect with the municipal lines already in operation making a more complete system of north and south as well as cross-town lines.

A 5-cent fare is being collected on

all municipal lines, and according to the city charter a rate of fare must be charged sufficient to meet operating expenses, sinking fund and interest charges and taxes. If it is found that the present rate is not sufficient to meet all charges and return the money taken from the construction fund the fare will be raised.

$4,464,828 Deficit for Interborough Rapid Transit

The Interborough Rapid Transit Company, New York, N. Y., closed the fiscal year ended June 30, 1921, with a deficit of $4,464,828, as a result of combined operations on its subways and elevated lines. The deficit is the company's worst showing for any year, being nearly double the 1920 deficit of $2,235,836, and exceeding the deficit of $3,810,339 in 1919, the largest heretofore recorded. High labor costs and inflated commodity prices are given as the cause of the poor income statement of the company, which points to its contractual obligations calling for a 5-cent fare as compelling the company to render service to the public at less than cost.

During the year the total number of passengers carried was 1,013,678,831, a record. Recent months, however, have shown a falling off in gross revenue, indicating a check in the growth of passenger traffic.

Gross revenue for twelve months amounted to $55,031,941, an increase of $3,553,531 over the preceding year, while operating expenses totaling $36,-024,646 showed an increase of $4,329,-437.

An increase in amount of taxes assignable to operation of $112,284 in 1921 further lowered the company's operating income, which shrunk from $17,159,791 in 1920 to $16,271,601 in 1921. Total income deductions for the year amounted to $21,375,551 compared with $20,003,996 in 1920.

A comparative income statement of the Interborough Rapid Transit Company for the twelve months ended with June, 1921 and 1920:

Gross	$55,031,041	$51,478,411
Net after taxes	16,271,601	17,159,791
Total income	16,910,724	17,768,160
Deficit after charges	4,464,826	2,235,837

The deficit of the charges is exclusive of deficit accruals under the provisions of Contract No. 3 and related certificates which under these agreements with the city are payable from future earnings. For twelve months to July 1, 1921, these accruals amounted to $11,016,654.

Railway Loses Money.—The operation of the Paducah (Ky.) Electric Company during the past twelve months has been at a loss, according to a report by Manager A. S. Nichols to the City Commissioners and Mayor. The report shows operating expenses to be $174,304 and gross earnings $171,338. Taxes were $7,948, leaving a shortage of $10,914.

Financial News Notes

Suit for Appointment of Receiver Refused.—Saul Zielonka, city solicitor of Cincinnati, Ohio, has refused the request of Robert S. Alcorn, attorney, that he bring suit for a receiver for the Cincinnati Traction Company and for $1,000,000 back franchise tax.

Long-Term Bonds Offered.—Edward B Smith & Company, Philadelphia, Pa., are offering $100,000 of the Philadelphia & Garrettford Street Railway's first mortgage 5 per cent gold bonds. The price is 77 and interest to yield 6.75 per cent. Due date is Aug. 1, 1955.

Must Resume Trolley Service.—The Mayor and City Commission of Manistee, Mich., have notified the Manistee Railway that unless service is restored within thirty days the franchise will be forfeited. Railway service in Manistee was suspended Sept. 1.

Another Indiana Company Surrenders Franchise.—The Terre Haute, Indianapolis & Eastern Traction Company has filed notice with the Indiana Public Service Commission of the surrender of all of its franchises in Indiana. There were some thirty franchises in all that will now be exchanged for the indeterminate permit of the Public Service Commission.

Claims Ordered to Be Filed.—The bond of R. W. Levering, receiver of the Lafayette (Ind.) Service Company, operating the railway system of Lafayette, was fixed at $5,000 following his appointment as receiver by Judge Anderson in Federal Court recently. Judge Anderson ordered that all claims against the company must be filed within ninety days. Mr. Levering was appointed receiver of the company on Oct. 18.

Wants Tracks Removed.—The San José (Cal.) Railroads has petitioned the State Railroad Commission for permission to remove its tracks on Keyes Street from Tenth to the end of the line. The company also requests the substitution of a single track instead of the double one on Tenth from Reed to Keyes Streets. Lack of patronage and the financial inability to meet paying expenses are advanced as the reasons for the removal.

Railway Must Pay Taxes.—By a decision of the State Supreme Court at Olympia, the Seattle Municipal Railway must pay taxes levied against it during the month of March, 1919, in which month the system was conveyed to the city by the Puget Sound Power & Light Company. Both the city and power company appealed from the judgment of the lower court, which held the taxes payable, and which refused to adjudicate the amounts payable as between the city and the company. The State Supreme Court affirms the lower court and holds that, in so far as the present action is concerned, there is nothing for the court to adjudicate.

Many Shares of Stock Bought.—The Milwaukee Electric Railway & Light Company, Milwaukee, Wis., reports that since June 30 more than 1,500 men and women have bought shares of the 8 per cent preferred stock of the company. These shares were bought with cash or in monthly payments. The details of the campaign describing the offering of this stock locally were reviewed in the ELECTRIC RAILWAY JOURNAL, issue of July 16.

Bonds Extended.—Notice has been given to holders of the first consolidated (new first) mortgage bonds of the Minneapolis Street Railway, issued jointly with the Minneapolis, Lyndale & Minnetonka Railway, due Jan. 15, 1922, that these bonds have been extended to Jan. 15, 1925. Interest will be 7 per cent from Jan. 15, 1922, and it is said further that holders may extend their bonds bond for bond with the payment to them of $10 for each bond extended, the privilege being subject to cancellation without notice. The cash payment is to be made at the time of the delivery of the bonds with the extended coupon.

First and Refunding Bonds Offered.—A new issue of $16,000,000 of Philadelphia Company, first refunding and collateral trust mortgage 6 per cent gold bonds, series A, dated Feb. 1, 1919, and due Feb. 1, 1944, is being offered by a syndicate composed of Lee, Higginson & Company, Ladenburg, Thalmann & Company and Hayden Stone & Company. The bonds are offered at $87 and interest yielding about 7.18 per cent. The issue is secured by first mortgage (subject only to $300,-000 bonds) on gas properties valued by independent engineers at more than $35,000,000 and by a first lien on securities valued at more than $21,000,000. The total valuation of properties and securities on which these bonds are a first lien is more than $56,000,000.

Briefs Ordered Filed in Depreciation Case.—No arguments were presented by either side at the preliminary hearing before the Interstate Commerce Commission in the matter of depreciation charges of the Washington Railway & Electric Company. The commission was satisfied with the presentation of an agreed statement of facts. The legal representatives of the Public Utilities Commission and of the Washington Railway & Electric Company were instructed to file their briefs within thirty days, after which a date will be set for oral argument. The railway contends that it is an interstate carrier and as such the Inter-State Commerce Commission would have jurisdiction over its depreciation charges. The commission contends that the railway is not an interstate carrier within the meaning of the transportation act.

Traffic and Transportation

Advance of Fare Case Urged

Supreme Court to Be Asked to Advance Proceeding Involving Right to Charge Seven Cents

The United States Court of Appeals at Cincinnati, Ohio, has certified three questions to the United States Supreme Court, in the appeal of the city of Louisville from the restraining injunction of Judge Walter Evans of the United States District Court at Louisville, preventing the city of Louisville from interfering with the Louisville Railway in charging a 7-cent fare. In this action the city held that the railway violated a contract, calling for a 5-cent fare, while the company contended that it had no contract. The Court of Appeals in June failed to reach a conclusion in the matter and in view of the number of questions involved decided to let the Supreme Court settle them.

It is understood that the city has already arranged to present a motion in the Supreme Court to advance the case to the spring docket.

The questions certified to the Supreme Court from the federal Court of Appeals were:

1. Did the act of 1856 have the effect of making revocable that immunity from rate regulation evidenced by the 5-cent contract which was purported by the charter and by the contract of April, 1864?
2. Did such immunity terminate with the end of the original charter term in 1894?
3. Did the acceptance by the company of the Constitution of 1891 have the effect of making revocable any such existing immunity?

Regarding the first question City Attorney Lawton said:

The court for all practical purposes decides that the city and the company had been delegated the power by the Legislature in the '60s and '70s to enter into a rate contract and the city and company did enter into such a contract for a 5-cent fare. At that time there was in existence an act of the legislature of 1856 providing that all the charters and franchises shall be subject to amendment or repeal at the will of the legislature, provided, however, that no amendment or repeal shall impair vested rights.

Relative to the second question, Mr. Lawton said that the charter of the old company expired in 1894, but in 1886 the Legislature had extended it ninety-nine years. This involves the question of whether the extension also continued the rate contract made with the city.

The third question asks for interpretations of several sections of the Constitution, Mr. Lawton explained.

Mr. Barnes maintained that there was no contract existing at the time of the institution of the suit, and that, "assuming that there was a proposed contract, it seems that it would not be binding either on the city or the railway company."

Mr. Barnes' views on the second question were:

The original charter of the railway was for thirty years, from 1864. It was extended in 1886. Did this extension secure to the railway the right to charge a fixed fare or did this immunity from change expire in 1894 and leave the right to the Legislature—by itself or through the city—to reduce the fare as might be equitable?

Mr. Barnes said in regard to the third question:

If the Supreme Court comes to the conclusion that under the act of 1856 (1) there is no binding contract, or (2) that whatever might have been the result of the arrangement between the company and the city in 1864, this arrangement expired in 1894, or (3) that the arrangement as to fare became revocable by the adoption of the constitution in 1891 there is no existing contract and the railway company has the right to insist on a rate of fare that will not be confiscatory.

One-Half Fare for Children in District of Columbia

A bill has been introduced in the House of Representatives by Representative Dyer of Missouri making it mandatory for the street railways operating in the District of Columbia to charge one-half the regular rate of fare for children between the ages of six and twelve years. The bill provides that children under six years of age should be carried free when accompanied by an adult. The bill makes provision for half fare for all pupils, under eighteen years of age, of day or night institutions of learning.

The measure provides that these tickets shall be honored only at times when the school of which the passenger is a pupil is in session. The tickets are to be sold in lots of ten each, and are to be furnished only upon presentation of a certificate from the principal of the school.

The half-fare provisions in the bill carry with it the privilege of a universal transfer. The measure carries a penalty clause which assesses a forfeit of $25 for each offense.

New Five-Cent Fare Zones Established

Additional 5-cent fare zones will be started on the lines of the Boston (Mass.) Elevated Railway on Nov. 24. The routes scheduled are as follows:

Allston Railroad Bridge Allston to Porter Square, North Cambridge, via Central Square, Cambridge.
North Beacon Street, Market Street to Allston railroad bridge
Western Avenue, Watertown Arsenal and Central Square, Cambridge.
Market Street, Washington Street to Western Avenue.
Cottage Farm, Brookline Street, Central Square.
Pearl Street and Putnam Avenue to Central Square.
Harvard Square, Kendall Square line via Broadway.
Spring Hill, Kendall Square line.
Porter Square, Kendall Square via Broadway.
Sullivan Square, Central Square, Cambridge.
Harvard Square, Dudley Street line between Harvard Square and Charles River road, Cambridge.
Jeffries Point line between Harvard Square or Central Square and Charles River road, Cambridge.
Beacon Street between reservoir and the Boston-Brookline line.

Relief Sought in Jacksonville

Railway There Merely Meeting Expenses on a Seven-Cent Fare—Company's Cards on Table

Relief from city assessments for paving and sewers, a higher fare or some relief for the company is the plea of the Jacksonville (Fla.) Traction Company, a Stone & Webster property, made before the City Council by Peter Q. Knight, Tampa, general counsel in Florida for Stone & Webster. It resulted in the appointment of a committee to meet with Receiver E. J. Triay to see if some agreeable and equitable solution cannot be reached.

Mr. Knight argued that the present fare, 7 cents, granted by the Railroad Commission of the State last year, has enabled the line to pay operating expenses only and that not a cent has been laid away to meet indebtedness of $1,000,000 hanging over the system when receivership was instituted.

There will be a city levy of $100,000 on the paving of Main Street, he told the Council, and he stated that the company could not meet it. It cannot borrow further, he said, because it is not paying its present indebtedness.

This system is paying a levy of 3 per cent of its gross revenues to the city under its franchise—a sort of franchise tax—and it is possible that some relief in this connection may be the avenue taken to solve the problem.

In discussing the matter later, Mr. Knight said to the representative of the ELECTRIC RAILWAY JOURNAL:

We considered it the best plan to lay all our cards on the table. So we have done so. This is a matter which concerns all of the people of Jacksonville. Their representatives on the City Council will confer with the receiver for the traction company and they will find out just what the situation is. We would be glad indeed to be able to earn our way with a 7-cent fare, or a lesser fare, if it were possible.

The fact is, the street railway business throughout the country is in a bad way and has been for years. Everything that enters in their operation has increased in price in recent years, and there are very few places where the people enjoy, as in Tampa, a 5-cent fare.

In Pensacola the traction company is in a receivership and the fare there is 8 cents. In Miami the railway threw up the sponge about a year ago and has not operated a car since, and the city is now considering purchasing the property and operating it as St. Petersburg did with its traction line about two years ago. At St. Augustine the owners of the railway recently offered virtually to give the city its property, if it would undertake to make the betterments which the city government there is insisting shall be made by the traction company.

"Two Bells" Will Contain Bulletins

Two Bells, the official publication of the Los Angeles (Cal.) Railway, will hereafter print bulletins which have heretofore been posted in division bulletin books. This change will enable the trainmen to read the notices at their leisure and therefore avoid the unnecessary crowding around the bulletin book. The bulletins will be effective on the day *Two Bells* is issued unless otherwise mentioned. Division superintendents keep a complete file of this booklet.

Permits for Jitney Operation Granted in Tacoma

The city of Tacoma has undertaken the regulation of jitneys operating on its streets, the applications for permits having shown a marked increase since their ousting from Seattle streets. The Council has granted a number of permits for jitneys, after they were recommended by Commissioner Fred Shoemaker, who passes upon all applications. The jitney routes avoid following street car lines as nearly as possible. Where the electric railway has not provided service, the city has given the jitneys full power to operate. Open hostilities between the platform men of the Tacoma Railway & Power Company and jitney drivers broke out following the granting by the City Council of a number of petitions to operate jitneys.

Bus Company Will Seek City Authorization

As a result of the recent ruling of the Attorney General that the Ultimate Bus Company, Wheeling, W. Va., comes under city and not state supervision the company will apply for a city permit. Counsel Beneke for the bus company recently made this statement. Since the ruling there has been no further development in the long struggle between the bus company and the Wheeling Traction Company, and the buses have been running unmolested.

The State Railroad Commission had previously refused a permit to the line and had ordered it to cease operation. Following the order the ruling came that the city had jurisdiction in the case. The various moves in the case were reviewed in the ELECTRIC RAILWAY JOURNAL, issue of Oct. 8.

Seattle's Mayor for Private Buses

An ordinance providing for the purchase of motor buses for operation by the city of Seattle into the suburban districts, such as Cowen Park and South Beacon Hill, at a cost of $50,000 has been vetoed by Mayor Hugh M. Caldwell. The Mayor states that he can see no necessity for the city to invest such a sum in motor buses, when private interests stand ready with buses to continue the service that they have been giving for years.

Mayor Caldwell said:

I have never favored the entire abolishing of jitney buses. I have advocated and still believe in regulated bus service. Putting the traveling public both ahead of the bondholders represented in the acquisition of the municipal railway, and ahead of persons who have operated jitneys without restriction, I feel that rapid transportation, properly regulated, should not be abolished until we have something to offer in place of it. . . . Personally, I favor the issuance of permits for through buses furnishing rapid transportation to those sections of the city not supplied by the car lines, and I will not while in office voluntarily agree to stifle the growth of the city by exterminating all other forms of transportation than that which can be accommodated upon the surface street railways, which are fast becoming antiquated and obsolete as a modern form of transportation.

Mayor Caldwell, however, approved a bill providing for exchange of transfers between city street cars and privately owned for-hire cars, acting as feeders to the municipal railway. He stated that he signed the bill because it was in the nature of an experiment by the Council to endeavor to afford relief to certain sections of the city that have been deprived of transportation, and that he did not wish to stand in the way of such experiment, although doubting its success.

The Mayor expresses the opinion that more money would come to the city by accepting the offer of the jitney men to pay $20 a month for every private jitney operated on the Cowen Park line than could be made on municipal buses.

Free Buses in Muncie

Thrifty suburban dwellers at Muncie, Ind., are riding to and from the business district without cost in jitneys that formerly charged them 5 cents. As a result of the war between the jitney owners and the Indiana Union Traction Company, the latter backed by an ordinance passed recently by the Council, all jitneys now carry the sign "Free."

While the buses pursue their accustomed routes over streets used by the street cars, the policemen, charged with the duty of keeping buses off these streets, appear rather perplexed. Apparently, if the jitney drivers do not charge for the use of their machines they are not violating the city ordinance, which says that these buses shall not be operated for hire in streets which have car service.

The truth is, of course, that the drivers are receiving money, for they accept contributions offered by those who ride in their cars. The law, apparently, does not cover this, and it also is rumored that one who fails to make a contribution is not "seen" by some of the drivers the next time one waits to be picked up.

Bus Regulatory Ordinance Passed

The Council of Columbus, Ohio, has passed the bus regulatory ordinance which has been pending for some time. The measure contains among other provisions the following:

Bus companies must ask Council for franchises.

Bus companies must pay the city an annual license fee of 1 cent per mile for each bus operated, payment to be in advance.

Companies must deposit with city a surety bond of $25,000 or shall carry liability insurance of $5,000 for a single accident, $25,000 for an accident injuring one or more persons and $5,000 for an accident damaging property.

Council reserves the right to map out bus routes and regulate fares.

Buses cannot operate on streets where there are street cars except where designated by Council.

No bus to be more than 86 in. wide.

Buses must have suitable signal lights at night, be properly lighted at all times and heated when the temperature falls below 35.

Bus Company Wants Permit.—The Rochester Interurban Bus Line Company has applied to the Common Council for permission to operate buses to Perry, Conesus Lake, Livonia and Le Roy.

Another Bus Route Urged on Connecticut Company

Nathaniel J. Scott, manager Connecticut Company's Hartford lines, conferred recently with George A. Ray and others representing the municipal government, regarding the installation and routing of another bus line at Hartford. The proposed route is on Maple Avenue. It is generally understood that a favorable report will be made on the project to the Common Council. The action to be taken regarding the bus line on Maple Avenue is the result of the introduction in the court of Common Council by Alderman Ray of a resolution requesting the Connecticut Company to establish such a line before Jan. 1, 1922. The resolution was referred to the Common Council railway committee, and it is declared is favored by all of the members.

Will Consider Stage Line

A hearing will be held by the State Department of Public Works on the application for a certificate of necessity to operate a stage line between Seattle and Portland. The company, whose name has not been made public, plans to operate in competition with the railroads, and will pick up passengers at intermediate points. The trip by railroad at present requires about seven hours.

Interurban Hard Hit by Autos

Asserting that the inroads made by the bus lines operating between South Bend and Elkhart, via Mishawaka, and between South Bend and Niles, Mich., are such that the Chicago, South Bend & Northern Railway must increase fares or go bankrupt, Ralph Smith, general manager, appeared before the City Council recently with a plea for aid. The buses operate in South Bend on a schedule three minutes ahead of the interurban cars, and pick up passengers waiting for the electric trains. The Council has taken the matter under consideration. It is believed that the Council will pass an ordinance permitting the buses to enter the city for a stated license fee on streets which are not used by the railway.

Bus Service Extended

The Ritter Motor Bus Line is now operating routes between Bloomington and the following outlying towns: Atlanta, Farmer City, Colfax and El Paso. Two round trips are being made now daily between Bloomington and Atlanta. The Farmer City Line is an extension of the Leroy line. When the bus operated as far as Leroy three round trips were made daily, but with the Farmer City extension of 10 miles two round trips daily are being made. The line between Bloomington and Colfax has been especially profitable. So far none of the lines has competed with the lines of the Illinois Traction System, which extends west and south from Bloomington.

Rehearing Granted on Interurban Line Fare in City

The Public Service Commission has ordered a rehearing on its recent decision granting the Buffalo & Lake Erie Traction Company, Buffalo, N. Y., a 10-cent fare without transfers within the city. No date has been set for the new hearing. The decision is regarded by the municipal authorities of Buffalo as the first step in the fight to upset the ruling of the commission, involving recent legislation giving the utilities board power to overthrow existing franchises between public service corporations and municipalities.

In its order the commission says it finds the city has just grounds for its application for a rehearing. Following the ruling of the commission giving a 10-cent fare without interchange of transfers with the International Railway, Buffalo, the Buffalo & Lake Erie Traction Company renewed its service within the city from the terminal at Lafayette Square and the Lackawanna city line. This service had been discontinued for some time.

Get Acquainted Movement in Springfield

The Springfield (Ill.) Consolidated Railway officials have advanced a little on the Aristotelian theory of "Know Thyself." Their philosophy is "Know Your Conductor and Motorman." Passengers will not have to study and analyze their moods, manners, etc., just to learn their names will do so that a courteous relationship will be established between the patrons of the line and the men who are responsible for the operation of the car. The company will placard the men's names and Springfield riders will soon be saying "Good morning, Jim" in answer to a conductor's cheery greeting.

Complaint Made Against Seven-Cent Fare

Once again the municipal authorities of Buffalo have opened a fight against the International Railway, operating the city traction lines. Upon recommendation of Frank C. Perkins, the Socialist member of the board, the City Council has passed a resolution directing William S. Rann, the corporation counsel, to draft a complaint to the Public Service Commission against the 7-cent fare. Commissioner Perkins advised the Council he was unable to obtain from the company or the commission a statement showing the increase in revenue obtained by the International through the boost in fare and the cut in wages of the company's employees. Restoration of the 5-cent fare with free transfers is sought by the city.

Complaint also will be filed by the city against what Commissioner Perkins calls "wretched service" now being given by the company. It is declared that railway service has been reduced 20 per cent by the company, and that more than 125 regular runs have been abolished and many of the extra trips during the rush hours have been curtailed.

Commissioner Perkins contends that about 150 cars lie idle in the six carhouses during the top peak of traffic and there are 260 fewer platform men employed than a year ago. It also is contended by the city that the installation of one-man safety cars on the Connecticut Street line results in a considerable saving to the company.

Ruling on Increased Rates Indefinitely Postponed

The North Carolina Corporation Commission instead of authorizing or refusing the increased rates of fare sought by the Carolina Power & Light Company, operating in Raleigh, and the Durham Public Service Company has indefinitely postponed the issuance of the order. The matter has been pending several months.

In Raleigh the fare is 7 cents and the company was seeking a 1-cent increase. In Durham the fare charged is 7 cents, but the petition called for a 10-cent rate.

There will be no change in the present schedule in these cities and no date has been set for the hearing on these petitions.

Pleasing the Public Spells Success

The Charlottesville & Albemarle Railway, Charlottesville, W. Va., is at it again. This property, under the direction of John L. Livers, is constantly up and doing, putting its business (transportation) before the public and actually selling it. The latest stunt is extending the hospitality of the line on certain days to the favored ones whom the company wishes to have as its guests.

Recently there was a state reunion of Confederate Veterans in Charlottesville and for the three days of the reunion the railway carried all the veterans free of charge. The invitation to ride on the lines of the Charlottesville & Albemarle Railway was extended through the daily newspapers which assured the men that their badge or uniforms would identify them. A large sign was carried on the front end of the cars which read "Welcome Veterans, Ride With Me."

Lending a Helping Hand

With school funds depleted and pupils facing the necessity of paying tuition in Dade County (Fla.), Manager Ellis of the Miami Beach Electric Company has addressed an offer to the Chamber of Commerce agreeing to carry school children free in Miami Beach provided the action would not interfere with the rules of the State Railroad Commission and the state laws governing utilities, which are very strict regarding "passes" and free transportation. The railway has been commended for its action.

Transportation News Notes

Barnes' Article Reprinted.—In the Oct. 15 issue of *Trolley Topics* the official publication of the Louisville (Ky.) Railway, extracts are reprinted from J. P. Barnes' article contributed to the Sept. 24 issue of the ELECTRIC RAILWAY JOURNAL. The article, "Relationship Between Management and Men — A Traffic Factor," has been a subject for comment in the papers in Louisville.

Applies for Rehearing.—The New York State Railways has applied to the Public Service Commission for a rehearing on its application for an 8-cent fare in Utica. The new application was made through Kernan & Kernan of Utica, counsel for the company. The story of the rejection of the former application for a 10-cent rate and the finding of the commission were reviewed at length in the ELECTRIC RAILWAY JOURNAL, issue of Sept. 24.

Cut in Fare Acceptable.—As the result of a petition before the Public Utilities Commission in which protest is made by the towns of Leicester and Auburn against the high rate of fare from the Worcester city line, the Worcester (Mass.) Consolidated Street Railway has made a cut of 4 cents. The adjustment now provides for a 10-cent rate from the city line to these towns. The Selectmen through their attorneys have accepted the proposal.

Buses Active in Ohio.—Since the Ohio Legislature last year passed a law placing motor buses under the same regulation as public utilities, bus lines are being started in nearly every section of the state. The books of the State Public Utilities Commission record that ninety lines have been registered and twenty more applications have been returned for technical corrections. It is estimated that this number is not more than half of the actual number of bus lines that are operating in the state.

Hearing Date Set.—Final date for the hearing of the city of St. Paul against the St. Paul (Minn.) City Railway on an order to show cause why it should not be restrained from putting in force the increase in fare from 6 cents to 7 cents has been set by Judge H. R. Brill of the Ramsey district court for Nov. 15. The city will not be ready before that date. A temporary restraining order was effective on Sept. 5 against putting in the 7-cent fare and four tickets for 25 cents as granted by the Minnesota Railroad & Warehouse Commission. The hearing on the Minneapolis Street Railway's emergency fare of 7 cents or four rides for 25 cents will probably not come up until the commission determines the permanent rate.

Legal Notes

ALABAMA—*Relative Rights on Street of Railway and House Mover.*

Use of a public street to move a building, requiring consent of the proper municipal authorities, also requires exercise of reasonable care so as not to interfere unreasonably with the public right, and such right so to use the street is subordinate to other lawful uses, as by a street railway, which is not under duty to remove obstructing posts or poles on demand of the mover of the building. Such poles, when erected under proper authority, are not *per se* nuisances. If a house mover is prevented from a reasonable use of the street by a railway he is entitled to recover the reasonable difference in the cost of removing the house in the manner in which he did have to remove it over what it would have cost to remove it but for the obstructions caused by the defendant. He cannot sit idle when he encounters an obstruction and recover for this lost time. [Birmingham Railway, Light & Power Co. vs. Ashworth (two cases), 86 Southern Rep., 82, 84.]

CALIFORNIA—*Railway Held Liable for Assault and Arrest by Guards Employed During Strike.*

Where a street railway, during a strike, employed guards, acting under instructions from the president, at points where attacks had been made upon the railway's employees and cars, the railway was liable for the acts of such guards who assaulted and arrested a pedestrian in the mistaken belief that he was one of the strikers and had participated in the attacks, such assault and arrest being within the scope of their authority, regardless of the mistake that was made. [195 Pacific Rep., 958.]

FEDERAL COURT—*Conditions Defined Where Franchise Has Expired.*

Where the franchise of a street railway company has expired, the city may require the company within a reasonable time to remove its tracks and other property from the streets without depriving the street railway of its property without due process of law. Day to day arrangements by which the continued operation of the railway is permitted do not give the company rights in the streets after the expiration of its franchise, though they do entitle the company to reasonable compensation while it is operating under the ordinance. The motive of the officers of the city and the electors in adopting an ordinance to construct a municipal railway are not the proper subjects of judicial inquiry, so long as the submission of the question to the people conforms to the requirements of the law. [Detroit United Railway vs. City of Detroit, 41 Supreme Court Rep., 285.]

ILLINOIS—*Company Liable for Injuries Reasonably to Have Been Anticipated from Overcrowding of Its Cars.*

Though it is not negligence as a matter of law for a street railway company to permit its cars to be overcrowded, it is bound to know the danger to passengers resulting from such crowding, and if it accepts too many passengers or runs cars so infrequently as to cause too many to seek to ride on each car, it is responsible for injuries which reasonably ought to have been anticipated. [Walsh vs. Chicago Rys. Co., 128 Northeastern Rep., 647.]

IOWA—*Settlement of Claim for Personal Injury Not Subject to Attack.*

Where a person, who had sustained a fracture of the leg on an electric car and had been assured by his physician that the bone had properly healed, accepted a lump settlement offered by the company, and there was nothing to show that the company was guilty of any fraud or bad faith, the injured person, when he finds the physician's diagnosis incorrect, cannot have the settlement set aside, since the purpose of such settlement is to avoid litigation. [Pahl vs. Tri-City Railway, 181 Northwestern Rep., 670.]

MISSOURI—*Husband's Negligence in Driving Not Imputable to Wife.*

Where a man and his wife went in an automobile to a depot to get their daughter, they were not engaged in a joint enterprise, and the husband's negligence in driving the car, if any, was not imputable to the wife so as to prevent recovery for negligence of operators of an interurban car at a street intersection. [Corn vs. Kansas City, C. C., & St. J. Ry., 228 Northwestern Rep., 78.]

NEW JERSEY—*Negligence Will Not Be Presumed.*

The body of a man with one arm and leg cut off was discovered about midnight on the tracks of a railway company. There was no eye witnesses to the accident. The court declared that negligence is a fact which must be proved and could not be presumed, so no damages were awarded. [McCombe vs. Public Service Railway, 112 Atlantic Rep., 255.]

NEW YORK—*Passenger May Be Arrested for Taking from a Railway Car a Package Left by Another Passenger.*

Where a passenger took with him from the car in which he was riding a package forgotten by another passenger and refused on demand to surrender it to the company's representatives, there was legal ground for his arrest and prosecution for petit larceny. A railway company is obligated to use reasonable and ordinary care and watchfulness to protect passenger's possession of his property while a passenger on its cars as against other passengers or persons. [Foulke vs. N. Y. Consolidated Ry. Co., 127 Northeastern Rep., 237.]

PENNSYLVANIA—*Slight Service Paid for by Pass Does Not Make Man an Employee.*

The employee of a power company, who in consideration of the receipt of an employee's pass from a railway company agreed to read a meter in the station of the power company and hand a record of this reading to a conductor, was not an employee of the railway under the meaning of the Workingmen's Compensation Act. Hence his remedy for damages for injury received while riding on the cars was that of any other passenger. [Strohl vs. Eastern Pennsylvania Railways, 113 Atlantic Rep., 62.]

RHODE ISLAND—*Last Clear Chance Doctrine Held Inapplicable in Automobile Collision.*

The doctrine of last clear chance was held without application in an action by the driver of an automobile struck by a street car when he crossed the tracks on a turn ahead of him. The motorman's duty to try to stop the car was considered not to arise until the plaintiff driver's peril was apparent. [King vs. R. I. Co., 110 Atlantic Rep., 623.]

UTAH—*Reserved Power of State to Fix Fare Can Be Exercised Despite City Ordinance.*

As power to fix street railway fares has been retained to the state by the public utilities act, such power can be exercised by it whenever the necessity requires, despite an ordinance of a city granting the railway the right to operate over a street. Such action does not impair the obligation of the contract. [Murray City vs. Utah Light & Traction Co., 191 Pacific Rep., 421.]

VIRGINIA—*Carriers Are Not Required to Coerce Passengers Into the Exercise of Ordinary Care.*

A carrier must exercise the highest degree of care for the protection and safety of its passengers but is not required to coerce passengers who are adults and mentally competent into exercising ordinary care for their own safety, as by not alighting from the baggage door of a combination passenger and baggage car. [Davidson vs. Washington & O. D. Railway, 105 Southeastern Rep., 669.]

WASHINGTON—*Possibility of Automobile Motor Stalling Should Have Been Foreseen by Motorman of Electric Car.*

An automobile driver, who started to cross the track when the electric car was 100 ft. distant, and who would have had ample time to make the crossing if his automobile had not unexpectedly skidded, causing him to stall the engine while the machine was on the track, was held not to be negligent as matter of law. The motorman should have kept his car under such control as to have stopped it in the event of such an occurrence as stalling of motor of the automobile. [Brennan vs. Tacoma Ry. & Power Co., 191 Pacific Rep., 813.]

Personal Mention

Mr. Hasbrouck of New York Service Commission Joins Accounting Firm

H. C. Hasbrouck, for many years with the Public Service Commission of New York as head of the accounting and statistical department, has resigned, effective Oct. 31, to become associated with H. C. Hopson, New York, consultant in utility rate and accounting matters. Mr. Hasbrouck is a native of Troy, N. Y. He received his early education in the public schools of that city. After his graduation from Cornell University, where he specialized in economics, history and political and social science, he served for a time as assistant to the Cornell University registrar. In July, 1908, he left that position for an appointment as junior statistician with the then only recently organized Public Service Commission for the Second District, and has been with that body in various capacities ever since.

In 1913 he was put in charge of the commission's division of statistics and accounts and continued to perform the duties of that position until the reorganization of the Public Service Commissions in July of the current year. When the two commissions were consolidated, Mr. Hasbrouck became deputy chief accountant of the commission, in immediate charge of the accounting and statistical work of the Albany office, through which most matters relating to finances and accounts of the up-state companies have been handled. Since July 1 he has, therefore, had supervision over most of the work previously done by the division of capitalization and the division of statistics and accounts of the up-state commission.

Mr. Hasbrouck is known to public utility interests outside of New York State by reason of his membership for several years on the committee of statistics and accounts of public utilities of the National Association of Railway and Utilities Commissioners. He was chairman of the special committee of three which prepared the original draft of the uniform systems of accounts for electrical and gas companies which the 1920 committee presented to the National Association at its annual convention last year with the recommendation that they be made the basis for uniform accounting requirements in all states.

Edward Kelleher has been appointed by Governor Edwards to the position of assistant secretary of the New Jersey Board of Public Utility Commissioners. The office is a new one. Mr. Kelleher will look after the operation of jitneys throughout the state and will have an office in Newark. Regulation of jitneys came within the jurisdiction of the commission by a law pressed several months ago. Mr. Kelleher was formerly connected with the federal revenue office in Camden.

Mr. Jackson Elected

Chairman of Wisconsin Body Will Direct Activities of Utility Commissioners

Carl D. Jackson was elected president of the National Association of Railway and Utility Commissioners at Atlanta, Ga., Oct. 12. James A. Perry of the Georgia Railroad Commission is the retiring president.

Although the Railroad Commission of Wisconsin is not so old as some of the other commissions, having been organized in 1905, it has done much original work under the chairmanship of Mr. Jackson and Halford Erickson, whom he succeeded. This work has been widely studied and followed in many details by other commissions. In railroad affairs the commission's study of the costs of railway movements was the first made in this country. In the public utility field similar studies have been made, notably on rates and forms of schedules. One of the special features of the Wisconsin form of regulation is the indeterminate permit, which does away with the indeterminate franchise. Elsewhere in this issue is an article which completely describes the duties, methods and procedure of the Wisconsin Commission.

CARL D. JACKSON

Mr. Jackson has been chairman of the Wisconsin Railroad Commission since 1916 and has for an equal time been active in the affairs of the national association. In 1919 he was elected second vice-president and in 1920 first vice-president. He has served on numerous committees, and as chairman of the committee on state and federal legislation in 1920 he did much noteworthy work. During the past year he has served as chairman of the executive committee.

Mr. Jackson was born at Evanston, Ill., in 1870 and was graduated from Harvard in 1894. Following graduation he practiced law continuously in Wisconsin until his election to the commission in February, 1915.

Mr. Atwood Made Head of B. R. T. Employees

William W. Atwood has been appointed president of the Brooklyn Rapid Transit Employees Benefit Association to succeed the late George W. Edwards. Mr. Atwood will succeed Mr. Edwards as secretary of the B. R. T. Board of Pensions.

Mr. Atwood is a practical railroad man and has been connected with the Brooklyn Rapid Transit organization in positions of responsibility for 18 years. He entered the Brooklyn Rapid Transit Company on Sept. 1, 1903, as trainmaster in charge of the eastern division of the elevated system.

Mr. Atwood continued in charge of the eastern division of the elevated lines until April 1, 1910, when he was transferred to the main office and appointed supervisor of the record branch, transportation department. He continued in charge of the record branch until he was selected to fill the vacancy in the office of president of the Employees Benefit Association, caused by Mr. Edwards' death on July 31.

Robert Ridgway, chief engineer of the New York Transit Commission, has recently returned from a tour of London, Paris, Berlin and other European cities, where he studied transit conditions and means used to meet them. Mr. Ridgway said that while the rapid transit lines of European cities are trying to obtain higher fares they are not stopping with that, but are making efforts to meet the situation by increasing the number of car riders.

Martin Schreiber, chief engineer of the Public Service Railway, Newark, N. J., and manager of the Southern Division of the company with offices at Camden, was recently appointed by Mayor Ellis of Camden a member of the Camden Development Plant Commission. This body consists of three members of the city council, the city engineer and three citizen engineers approved by the chamber of commerce. Mr. Schreiber was appointed as one of the latter. The commission will work out proper plans for the ultimate development of Camden, including those for city streets, transportation parks and playgrounds, zoning, and the like. One of the first things the Commission will do no doubt, will be to arrange for proper approaches and gateways through the city for the entrance to the bridge. Mr. Schreiber has a large amount of experience in this kind of work and was for two years, the chairman of the Development Plan Board of Engineers of Jersey City.

Obituary

J. Fithian Tatem, treasurer and general manager of the Five Mile Beach Electric Railway, Wildwood, N. J., died recently at his home in Haddonfield, N. J., at the age of fifty-two. Mr. Tatem was also vice-president of the Marine Trust Company, Wildwood, N. J., and solicitor and director of the Ocean City (N. J.) Title & Trust Company.

W. E. Mandelick, for many years secretary of the London Underground Electric Railways Company, Ltd., died last week. Mr. Mandelick went to London from New York about 20 years ago, at the time when Charles T. Yerkes of Chicago was in control of the property. Previously Mr. Mandelick had been connected with the Sprague Electric Railway & Motor Company and the Sprague Electric Company of New York. He had been in failing health for a number of years.

Younger Alexander, fifty-two years old, electric railway builder, financier, oil magnate and one of Lexington's, Ky., most prominent citizens, died recently. He promoted the Central Kentucky Traction Company, which built interurban lines to Georgetown and Paris, and for more than ten years was president of the Phoenix-Third National Bank in Lexington, which position he resigned five years ago to develope extensive oil interests in Eastern Kentucky.

B. E. Parker, aged fifty-three, for a number of years superintendent of the Marion division of the Union Traction Company of Indiana, Anderson, Ind., died Oct. 20. He was the first superintendent on the Marion division of the Union Traction Company and was advanced to this position from the Anderson City Railway. He resigned Jan. 1, 1911 to accept a position as general superintendent of the Rockford & Interurban Traction Company, Rockford, Ill., later holding positions at Evansville, Ind., and Akron, Ohio.

H. E. Billau, for nearly thirty-five years a field representative of the Sherwin-Williams Company, Cleveland, Ohio, died on Sept. 19 in Freemont, Ohio. Mr. Billau was exceptionally well known in steam railroad and street railway circles and was recognized everywhere as an authority on paints, particularly on railway paints and railway painting. Many of the car painting systems now in use in railroad and street railway car shops were originated and installed by him. For the past several years Mr. Billau's work has been concentrated largely in Cleveland, Detroit, Toledo, St. Louis, Chicago and other central cities. Loyalty to his friends, his customers and his company were dominant features of Mr. Billau's career.

Manufactures and the Markets

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

ROLLING STOCK PURCHASES BUSINESS ANNOUNCEMENTS

Steel Rail Price Cut $7

U. S. Steel Corporation Announces a Reduction to $40 a Ton

The United States Steel Corporation on Oct. 22 announced a reduction of $7 a ton in the price of standard steel rails. The cut is from $47 to $40 a ton, according to an official statement issued by Elbert H. Gary, chairman of the board of directors. This is the first change in the price of rails put into effect by the corporation since the United States Industrial Board established a price of $47 on March 21, 1919. The Industrial Board price was a reduction of $10 a ton from the quotation prevailing at the time of the signing of the armistice, which price was established during government control of the industry. The official statement issued by Mr. Gary follows:

"We have decided to recommend that our subsidiary companies reduce the selling price of standard rails to $40 per ton base, f. o. b. our mills. The present costs of production do not justify this action, but it is hoped and expected that reductions in freight rates and otherwise, together with large operations, will soon have a beneficial effect upon our costs."

An inquiry made this week among the manufacturers of girder rails indicates that there has been no change in the price of girder rails corresponding to that just announced for standard rails.

The announcement came as a complete surprise. There has been talk at various times in the last year that rails might be reduced, but steel men always have scouted the suggestion, pointing to the extremely high cost of production. In fact it has been hinted from time to time that there might even be an increase in the schedule for rails. As a result, the rail price has remained unchanged, through three or four successive reductions in the entire industry of other products.

Among the independent mills there has been a disposition to sell rails at less than $47 a ton, but so far as is known no firm schedule which shows a price under that mark for the product has ever been made up by any of those producers. In some cases, it is understood, rails have even been sold for less than the new price announced by the United States Steel Corporation.

The new $40 price, it is understood, will apply to openhearth rails and the schedule for Bessemer rails probably will be fixed at $38 a ton, the customary spread between the two types. It represents the second reduction from the high mark of $55 to $57 for Bessemer and openhearth established during the war the first cut amounting to $10 a ton.

It is believed that the independent producers of steel rails will make a public announcement of a corresponding reduction soon, notwithstanding that they have been making concessions in the immediate past which just about correspond to the new corporation price. It is believed also that the new price may stimulate rail buying to a marked degree. Railroads throughout the country are sorely in need of new rails, but buying has been almost at a standstill because of the sustained price. The drop of $7 a ton, it is expected, will bring into the market a large tonnage which has been withheld for just such a contingency.

The normal rail requirements of the electric railways of the country are approximately 100,000 tons annually, so that the railroads as a result of the reduction will benefit to the extent of approximately $700,000 on next year's supply of rails.

Purchases Below Normal

The carriers, however, have not been buying their normal supply of rails, because of their financial position and partly because of the price. As a result they are understood to be far in arrears of having a normal supply on hand, and many more rails will have to be replaced next year than in a normal year, because of the economies which have been practiced of late. Consequently rail purchases in 1922 are expected to be above normal.

The Steel Corporation adhered to the prices fixed by the Industrial Board throughout the steel boom of the latter part of 1919 and greater part of 1920, and as a result its price for standard rails during this period has never been changed from the $47 level. Independent companies, however, had increased their prices, and as a result of their advances the average price of steel rails for 1920 was $52.64 a ton as compared with $47.50 in 1919 and $57 in 1918. The average prices for the last few years compare as follows:

1921	*$40.00	1917	$38.00
1920	52.64	1916	32.75
1919	47.50	1915	28.00
1918	57.00	1914	28.00

* New price.

The average price of steel rails from 1902 to 1915 was $28 a ton and in 1901 the average was $27.40.

Last to Be Adjusted

Steel rails were the last of the important steel products to succumb to the adjustment which the steel industry has experienced since the Fall of last year. All of the important products including plates, wire nails, beams, bars, tin plate, billets and pig iron

have been sharply reduced from the prices which prevailed previous to the falling off in the demand for steel, but even in the face of the reductions in all of these products steel rails held their own.

Strike Would Bring Coal Shortage in a Week

Hasty surveys of the state of coal stocks reveal that supplies are sufficient to weather a brief railroad strike only. With the mobile reserve of coal suddenly frozen up, only a week would be necessary to bring about acute industrial suffering and physical suffering as well if it should happen to be cold. This is the opinion of one of the government's foremost coal specialists. It is pointed out that while the total coal in storage is reasonably large, its distribution is not such as to afford anything like the general relief that might be assumed from the total tonnage. Communities would be affected very unevenly if there were as much as a week's paralysis of transportation. Tidewater ports, lake ports and many railroads junction points would be congested with coal but the average inland city would suffer severely.

Among railroad officials there is a distinct current of optimism. They think the chances are very much against any strike. Even if the unions should do all they threaten, there is a feeling that if the men insist on striking this is the best possible time. The railroad management seems to be in an unusually favorable position.

Copper Demand Small with Price Weakening

Copper demand is small. While most producers are holding at 13 cents or better a tendency is appearing to cut prices somewhat on nearer deliveries and to extend the period over which 13⅛-cent copper will be sold. While home consumption continues fairly good, domestic buyers seem to prefer to await results of railroad negotiations before making further commitments.

Price of electrolytic copper is 12¾ to 12⅞ cents a pound delivered for prompt shipments, 12⅞ cents for November, 13 cents for December, and 13⅛ to 13¼ cents for first-quarter, 1922, deliveries. Price of Lake copper is 13 to 13¼ cents delivered for prompt and November delivery.

Proposed Elevated Electric Railway in Osaka, Japan

The Osaka Hanshin Kyuko Electric Railway Company, which operates a railway between Osaka and Kobe, according to *Electrical Industries*, is planning to construct an elevated electric railway between Osaka and Juso, and also to double the present lines, at a cost of about 3,000,000 yen. The company also contemplates building an underground railway from its Kobe terminus to Motomachi, to cost approximately 7,500,000 yen.

Rolling Stock

Baltimore (Md.) Transit Company is asking for bids on ten motor buses similar to those described elsewhere in this issue.

New Orleans (La.) Railway & Light Company, recently placed an order with the Nichols-Lintern Company, Cleveland, Ohio, for 200 mechanical sanders.

Georgia Railway & Power Company, Atlanta, Ga., has just placed an order with the Nichols-Lintern Company, Cleveland, Ohio, for 176 mechanical sanders.

Rockland (Ill.) City Traction Company contemplates purchasing eight buses at an aggregate cost of about $56,000. With these buses the company expects to furnish a service supplementary to that given by its railway lines.

Edwards Railway Motor Car Company, Sanford, N. C., has sold to the Atlantic & Western Railway, Sanford, one gasoline railway passenger motor car having a seating capacity of forty-six passengers and in addition baggage and mail space totaling 70 sq.ft.

Track and Roadway

Hull (Que.) Electric Company will relay a half mile of track on Main Street, Aylmer.

Hamilton (Ont.) Street Railway has been requested by the City Council to lay new tracks on King Street West, Aberdeen Avenue, Wentworth and Margaret Streets.

Berkshire (Mass.) Street Railway has begun its repair work on Ashland Street, North Adams. The work includes the laying of some new rails and steel ties between Chestnut and Porter Streets.

York, Ont.—It was announced at a recent meeting of the Township Council that the Government would be asked to move the tracks of the Toronto Suburban Railway through Mount Dennis to the center of the road so that the Township can pave the Weston Road from the city of Toronto to Weston.

Pittsburgh (Pa.) Railways will open up its Mignonette Steel loop East End, on Oct. 26. The loop, which cost $40,000, will be the route of cars now looping over Center and Highland Avenues. It will relieve the present congestion at Penn and Highland Avenues.

Lima, Peru. The original concession for an electric railroad from Lima to La Punta was for a double track railroad, but a recent modification now provides for only 11 kilometers of single track at this time from Lima to the village of Bella Vista which must be put into use within eighteen months from the date of the contract. The prolongation to La Punta and double tracking of the line must thereupon be completed within a time of approximately two years.

Miami Beach (Fla.) Electric Company may extend its lines right to the beach instead of stopping in the residence section of the beach property. Three routes have been proposed and are under consideration, to extend the line to Biscayne Avenue from First Street, thence along Biscayne Avenue to its end. Another proposed route was to extend the line over Collins Avenue to Biscayne Avenue to Ocean drive and First Street, passing all the casinos in this vicinity. The third plan was to open South Alton road and carry the line to Biscayne Avenue over South Alton road and then east to Collins Avenue.

Trade Notes

William J. Delaney, for many years connected with the Erie works of the General Electric Company has recently been appointed sales manager of the Cincinnati Car Company, Cincinnati, Ohio.

Ralph R. Rugheimer has been appointed representative of the Automatic Reclosing Circuit Breaker Company of Columbus, Ohio, in charge of the eastern Kentucky, Virginia and southeastern Ohio territory.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., is planning to establish a new branch at Huntington, W. Va., to supply the demands of its patrons in the states of West Virginia, Ohio, Kentucky and Tennessee. This branch will occupy a three-story building, 100 ft. square, located at the corner of Ninth Street and Second Avenue.

Blaw-Knox Company, Pittsburgh, Pa., manufacturer of steel produces, has announced the addition to its staff of H. O. Davidson. Mr. Davidson will have entire charge of the Prudential Sectional Building Department of the Blaw-Knox Company, and will be also general manager of the C. D. Pruden plant of the Blaw-Knox Company. Mr. Davidson will be located at the C. D. Pruden plant at Baltimore. Mr. Davidson was connected for eight years with the Hydraulic Steelcraft Company, being general manager of that organization at the time he severed his connections to become a member of the Blaw-Knox staff.

Insulation & Specialty Corporation of America, Wilmington, Del., was organized on Sept. 1 with a capital stock of $500,000 for the manufacture of an insulating material which will be sold under the name of "Fibre Granite." This material will be manufactured in sheets from .005 in. up to 12 in. in thickness and it will also be available in the form of tubes and rods which will be made in lengths from 40 to 60 in. and in diameters from ⅛ to 12 in. On Oct. 1 the capital stock of the company was increased to $1,000,000. P. C. Hennig is president and chairman of the board of directors.

Quigley Furnace Specialties Company, 26 Cortlandt Street, New York, has announced that its pulverized fuel department has been acquired by the Hardinge Company, 120 Broadway, New York. The Hardinge Company states there will be no change in the method of conducting the business at their offices, as the organization of the engineering department has been taken over practically intact. The experience and manufacturing facilities of the Hardinge Company enables them, with their present equipment and augmented staff, to further extend the activities of the Quigley pulverized fuel system.

Nic LeGrand, one of the best known and respected salesmen in the electric railway field, has hung out a shingle for himself. With headquarters and manufacturing plant at 1615 Third Avenue, Rock Island, Ill., he will supply various malleable, brass or aluminum foundry and machine shop products required by electric railways for trucks and miscellaneous car parts. He will also engage in the conversion of old single and double-truck cars for one-man operation, furnishing the material required or contracting to do the entire reconstruction work. Mr. LeGrand has been associated with the electric railway field for many years through long sales connection with the St. Louis Car Company and more recently with the National Safety Car & Equipment Company. Besides establishing his reputation as a salesman, he has won the confidence of a host of customers and friends. It is now his ambition so to conduct his own business that this personal confidence in him may be extended with increased measure to the dealings with him as a principal. Undoubtedly, the quality and price of his products will reflect the principles of square dealing which account for his success.

New Advertising Literature

E & B Manufacturing Company, Detroit, has recently brought out a "snap" connector for flexible cable.

Model Specialty Company, New York, has placed a small portable bench-drilling machine on the market.

Brown & Pengilly, Los Angeles, Cal., are marketing an overload relay "Merco" designed for the protection of alternating-current motors.

Ingersoll-Rand Company, New York, has recently developed a new motor-driven air compressor known as the "Imperial Type XCB."

Russell & Stoll Company, 17 Vandewater Street, New York City, has developed a new type of cable support for long vertical runs.

National Electric Corporation, Whitman, Mass, has developed the "Barnes Universal" tree insulator, designed to protect high-voltage distribution wires.

Hobart Brothers Company, Troy, Ohio, has just put on the market a new automatic motor-driven air-compressor pump and tank, equipped with magnetic pressure release.