

Overcoming the Enemies of Tire Mileage

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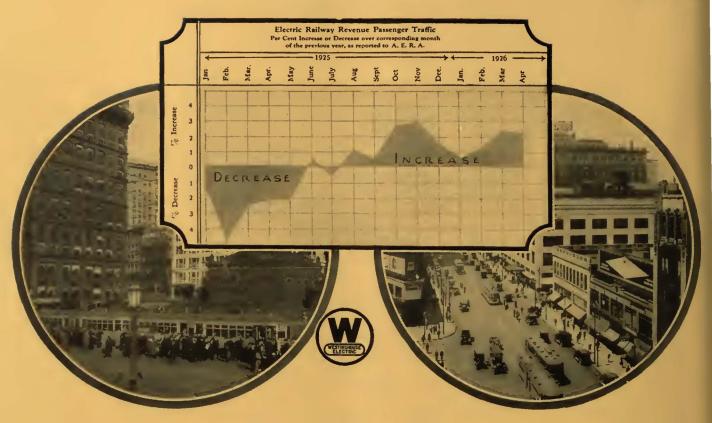
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ROYAL CORD

Motorcoach

UNITED STATES TIRES ARE GOOD TIRES



The Tide Has Turned!

HAVE you been following the Tractions—the growing confidence; the more cordial public relations; the increasing patronage? Not so long ago only the stronger companies—a few of the more virile in leadership and salesmanship, could show gains in the face of changing conditions. But in every month, for the past twelve months, the total traction patron-

age throughout the United States has GAINED over the corresponding month of the previous year.

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Vol. 68 No. 4

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Couplers That Help You Make The Most of More Traffic

So rapidly has interurban freight traffic increased that modernization of rolling stock and car equipment has hardly kept pace. Yet, experience has shown that with growing traffic and longer trains has come the need for sturdier equipment. Coupler equipment, especially, must be adequate to these new demands if cars are to be kept in constant profit-earning service.

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introduces a new order of economy in the cost of current collection—

HERE is a trolley wheel and harp that gives 18,000 miles or more average per wheel; an axle that outwears many wheels, and a harp good for years of service—

an assembly that provides ample conductivity with uniform, low resistance throughout the wheel life—

a wheel that needs no maintenance, no oiling, no attention from the day it is put into service—

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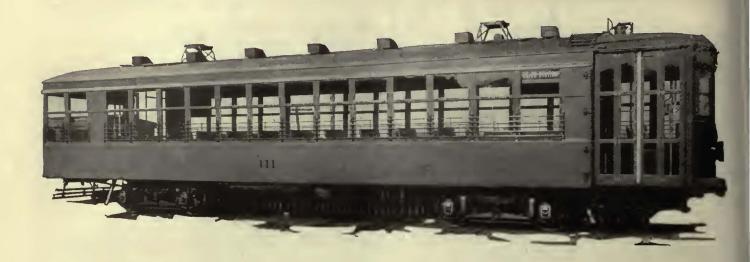
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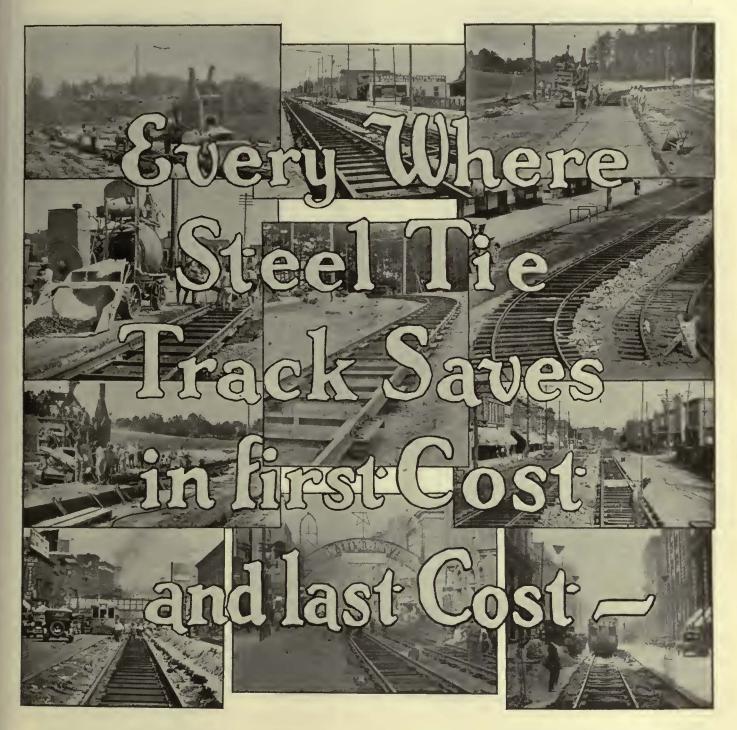


Information regarding Westinghouse Variable Load Brakes may be obtained upon application to our nearest district office— Ask for Descriptive Catalogue T-2045.

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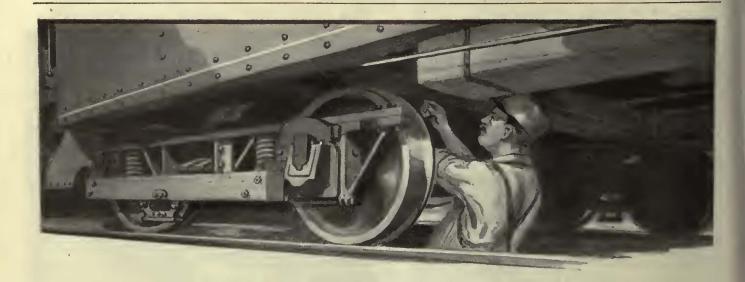
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COMPLETE the modernization of equipment by the use of the modern wheel.

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Illumination
Convenience
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Golden Glow Headlights have a glass reflector which project a soft golden beam that easily penetrates fog, dust, rain, mist and natural darkness.

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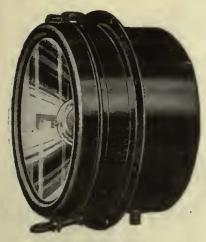
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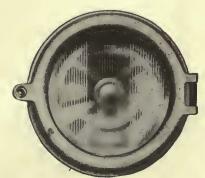
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Dash Type for Railway Cars

The glass reflector of Golden Glow Headlights never scratches, tarnishes or corrodes—and is therefore permanent and easy to keep clean.

These headlights, made in various styles and sizes, meet every requirement for both cars and buses.



Golden Glow Headlights for Buses







Designed with divided back and spring cushion pads, this is an exceptionally graceful and comfortable double chair.

It's a well-known fact that a "public be pleased" attitude is a business getting policy which is reflected in increased dividends.

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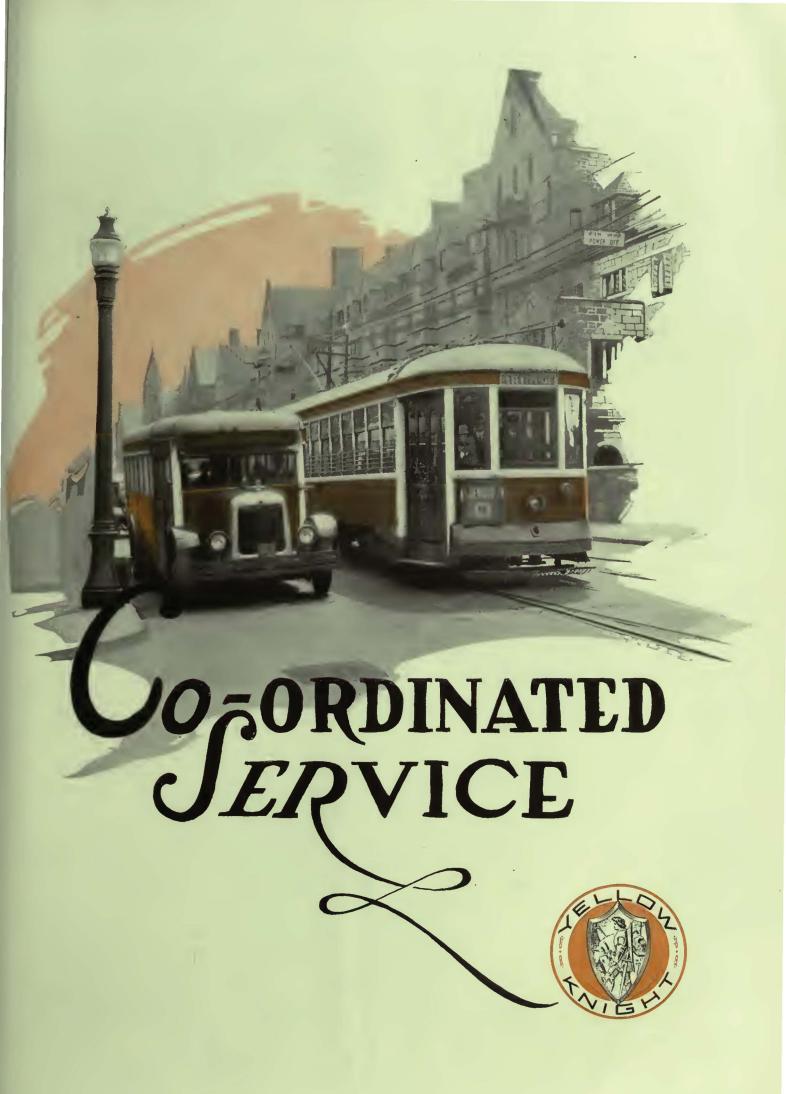
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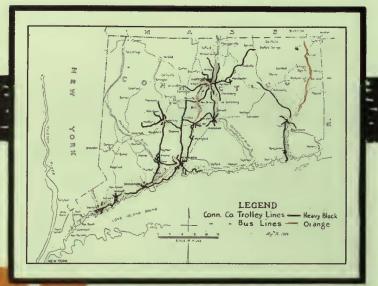
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Motor coach service, as rendered by the Connecticut Company, is divided into three classifications.

First—service given to new districts which have grown up at considerable distances from existing car lines.

Second—service over certain routes where street car operation has been discontinued.

Third—service which connects important terminal population by bus routes shorter than those of cars.

As practiced by the Connecticut Company, co-ordinated service means that the routes of the car and





needing varying types ONNECTICUT CO.

bus lines have been laid out so that all sections of the city of New Haven are provided with adequate transportation facilities.

Yellow Coaches fit into this plan of co-ordination—48 of them; a fleet which has grown rapidly since the first Yellow Coach was purchased in January, 1924. Two months later three more were added and others purchased frequently and today, in number, Yellow Coaches predominate in the service of the Connecticut Company.

Called upon to meet very heavy short peaks where for a few hours equipment must be increased as high as 100 per cent, stopping and starting constantly in busy congested streets, swinging along over highways and connecting small towns with a net-work of service, Yellow Coaches are meeting all demands at a cost of operation which has built up continually the number of Yellow Coaches operated over the routes.

Motor coach service is given wholeheartedly by the Connecticut Company, therefore the success of the operations. And in no small measure is economy secured by the wholehearted performance of the Connecticut's fleet of Yellows—performance that keeps them on the road where they may earn.

nother meaning of Co-ORDINATED SERVICE

THE vast operating experience of Yellow Coach combined with the research facilities of General Motors offers a co-ordinated service that stands ready to point out the logical and most economical solution to your transportation problems.

Placed at your service are all the united resources of these two great institutions, each contributing to make your operation profitable. Manufacturing facilities, research, financial stability, transportation experience; these are some of the advantages which this co-ordinated service means.

Yellow Coach plus General Motors is in business to stay. Danger of "orphan equipment" is eliminated. Initial investment is protected.



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A gate or door, promptly opened to admit you, is the surest sign of hospitality and welcome. Passengers do not have to wait or bang upon the doors of cars equipped with National Pneumatic Door and Step Controlling Mechanisms. Doors open promptly, courteously and quickly and close in the same way when once the passengers are out or safe inside.

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built to Operate-Not to prove theories

One-motor drive, battery excitation, automatic field resistance control, simplicity and accessibility in the Mack Gas Electric bus represent the results of design from the operator's standpoint, just as with the other features of exclusive superiority which characterize Mack mechanical-drive bus. Mack buses are designed for maximum satisfaction, economy and dependability in operation—not to prove arbitrary engineering theories.

A car with two engines was once marketed in this country. Its duplicate power plants were supposed to give reserve power,

reliability and to economize on fuel in ordinary running with one engine shut down. However, its duplicate power plants weighed more, cost more, used more fuel and required more maintenance than a single engine such as used today.

In the development of the gas-electric bus in this country, two-motor drive has been used by all but Mack. Two-motor drive is supposed to permit a smaller motor; smaller drive shafts, universal joints and driving gears and to eliminate the differential. However, the duplication of small parts actually increases weight, electrical losses, cost and space occupied by the parts, while at the same time making for higher maintenance, greater electrical and frictional losses and serious interference with accessibility. It does allow the mechanical differential to be dispensed with, although hardly a part of a modern bus gives less difficulty, and substitutes an electrical one.

Mack one-motor drive follows rational, commonsense lines, saving cost, weight, space, complication and yielding maximum efficiency, reliability and performance, preserving high road clearance, accessibility and a low, flat floor in the bus.

All of the experience of the organization that built the first gasoline bus in America contributes to this eminently practical result.

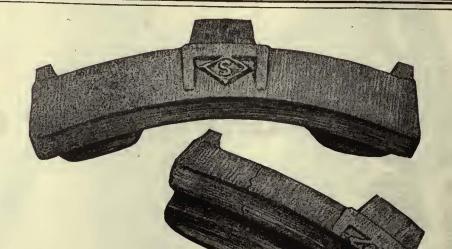
One of Mack's one hundred and seven direct factory branches is close at hand, prepared to demonstrate these and other points of superiority to your own satisfaction.

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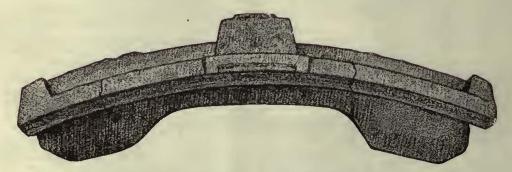




When is a brake shoe worn out?

CRACKED brake shoe, when held properly together by the steel reinforcement, has greater braking efficiency and durability because it fits the wheel better. A partially worn American Brake Shoe, therefore, is often better than new and is good for service until worn down to the mark which indicates its wearing limit. You continue tires on a motor car until the fabric shows through the tread. Why discard a brake shoe which has not worked for you to the full limit of its wear?

"BEST BY TEST"



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Decay, insects, white ants, woodpeckers, grass fires and storm damage. Eliminate these causes of pole failure and protect service and investments with *International* Creosoted Pine Poles.

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International Pressure Creosoted Yellow Pine Poles

21



Gary's New Lightweight Cars replace heavy type equipment



The Gary Railway appreciates the power of attractive cars to build up riding, as evidenced by the new cars just placed in service. The new, one-man, two-man cars replace much heavier two-man cars. Comfortable plush - upholstered seats for forty-six passengers, linoleum floor covering, special lighting and vestibule cabinets covering the air piping, all combine to present an interior invitingly attractive and decidedly comfortable for long rides. Cummings No. 62 trucks are used, with four 35 h.p. motors. The entire weight of car is 37,000 pounds.

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Successor to McGuire Cummings Mfg. Co.
111 W. Monroe Street
Chicago



Again service tests decide: "G-E Motors and Control shall be used"



General Electric has made many contributions to the progress of mass transportation in New York City. The purchase of G-E Car Equipment for these articulated units is another expression of confidence on the part of operating engineers who are solving the complex transportation problems in this metropolitan district.

More articulated cars, 67 of them, are to be G-E equipped. This number of triple units was recently ordered for the B. M. T. Rapid Transit Lines. They will be duplicates of the two articulated cars, G-E equipped, which the company has had in trial service several months.

Each three-unit car will carry a complete G-E 4-motor equipment, with Duplex PC Control specially adapted to the service of this modern rolling stock. All of the 268 motors will be type GE-282, characterized by the same sturdy qualities possessed by the GE-248 Motor of which there are 1800 in operation on the B.M.T. Lines.

330-16

GENERAL ELECTRIC

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review
Published by McGraw-Hill Publishing Company, Inc.
CHARLES GORDON, Editor

Volume 68

New York, Saturday, July 24, 1926

Number 4

Strike on Interborough Subway Collapses

O THOSE fully acquainted with the facts of the strike of the motormen and switchmen of the Interborough Rapid Transit Company, New York, the collapse of that ill-advised suspension of work was inevitable. And it came on Thursday night. As this is being written the depleted forces of the strikers are bidding again individually for permission to be put back to work. This is the condition set by the company for re-employment. The bravado of the last few days on the part of the men fooled no one. Each succeeding day there came from the company a statement showing the increase in the extent of the service—a statement that the public saw reinforced by a similar one from the Transit Commission. Then a few days ago came the last straw. The company announced that its extensions into Brooklyn, on which no attempt had previously been made to furnish service during the strike, would resume. That presaged the end.

It was inevitable that there should be a lot of complaining on the part of the men. The leaders of the strikers could hardly appear publicly to accept the onus of their own acts. And so, as is usually the case, they began to bellyache. They said the general press reports of the strike were misleading, that the presentation of their side was distorted and that they were lied about. They said there had been a lot of trickery on the part of the company. This, of course, is the doctrine of despair. It is true that in its early aspects the strike appeared to be serious enough, but the strike, and particularly the strikers, got columns more of space daily than either one or the other deserved. If the men were given short shrift in the editorials it was only because that was what they deserved. As for trickery, the charge lies more against the union than it does against the company. Is it trickery on the part of a company to sue employees who have actually ignored the terms of a contractual relationship?

Great credit is due to the Interborough officials. They had to withstand many violent verbal onslaughts which linked the strike with what was conjured up to be a deep laid drive for an increase in fare. To this scant attention was paid. The officials never let themselves be diverted from the work of replacing men who went out. They did a smart thing in shutting down the lines to Brooklyn, the patronage of which could easily be diverted to the lines of other companies, and concentrating on the restoration of service on the lines in Manhattan and the Bronx. There was considerable comment adverse to the company's suit against the employees. One of the main criticisms was that the company, knowing it had the men licked, stood to lose public favor by threatening to sequester the property of

its men. This criticism, of course, turns on a fine point. Some of the strictures against this move are, perhaps, not without merit, considered solely from the standpoint of public relations, but a public utility is under compulsion to give a service that is continuous and a suit against its employees is certainly justified if that is the only way in which the obligation of the men to the company and the public can be brought home to them. It would have been altruistic on the part of the company not to have made this move, but altruism is not, per se, desirable. After all is said and done, it is unfortunate that it was within the power of this band of recalcitrants, small by comparison with the total number of employees, to cause the company the loss it did. to try to confuse the issue with politics, and to put the public to no small degree of inconvenience. The controversy was not sought by the Interborough. That company, confronted as it was with the issue of capitulation to this band of recalcitrants or of replacing them, refused to accept the domination sought to be imposed a refusal that was not only in its best interests but in the last analysis was in the best interests of the riding public of New York.

Cleveland Will Produce a Real Car Exhibit

EVER in the history of electric railway conventions have conditions for exhibiting appeared more auspicious than this year. Never has a convention been held in a more central location with respect to the industry than this in Cleveland. And never has such a situation been gripped by a more able body than the local convention committee centering around the executives of the Cleveland Railway. Nearly 110,000 sq.ft. of space is assigned. This will be housed in excellent quarters requiring an extension to the new building of 180 ft. The planning of the show is well under way. The exhibit committee met last week and made the final assignment of space, which will be in five distinctive locations.

Not enough is it, apparently, that the space sold inside the building is well above that of any other year, but the local convention committee wants this particular exhibit to reflect the awakening of the industry from the coma in which it has been for several years. Cars are wanted for the open-air tracks to make a real exhibit. If present and prospective plans develop the people of Cleveland, if not many of the delegates, will receive a real surprise when they witness the spectacle of modern cars which will hold a central position in the 1926 convention. Neatly planted between the two buildings will be fourteen tracks, each capable of holding at least five full-sized cars. The illustration of the convention layout reproduced elsewhere is

not an idle view but the definite aim of the men producing the exhibit.

Now, if ever, is the time to break precedent and send the physical representation of every latest conception of modern rail transportation. So far the prospective exhibitions are about equally divided between manufacturers and operators. Exhibits on the part of operators are especially commendable. They have nothing to sell except transportation to their local communities. The operators realize, however, that it is essential to show to electric railway men and the public generally that they are alive to their opportunities and have radically improved their facilities. Here is a chance to deal a deathblow to popular fallacy that the railways are decadent.

The exhibit will be open to the public at least one day and evening; in fact, the open-air exhibit will be in view of thousands of Clevelanders each day. Besides this it is planned to have a parade on certain of the city streets that will attract wide interest throughout the nation.

Nor will buses lose ground, as manufacturers of this class of equipment are planning a visual representation of their share in the production of modern transportation throughout the year. There will always be a spirit of rivalry between these dissimilar types of vehicles, just as between various manufacturers of similar equipment. It is more evident than ever before that proponents of each type of vehicle share one common viewpoint, that of providing better transportation. It remains with the operators, working in conjunction with the manufacturers, to place common carrier transportation among those industries that occupy the front ranks today.

It can be done—and the prediction is that Cleveland will prove so.

South Shore Road Rehabilitation and Financing Attract Attention

COMPLETION of the first unit in the rehabilitation program of the Chicago, South Shore & South Bend Railroad and of the public offering of \$1,060,000 of equipment trust certificates secured by rolling stock of that company were announced almost simultaneously. Either of these events would have been sufficient to attract attention in electric railway circles, but the two of them coming almost together certainly emphasize the work that has been done on the road and testify to the appreciation by the bankers of the strong position in which the company has been placed.

So far as the conditions are concerned that surround the terms under which the bonds are secured there is nothing particularly new about them, but the basis upon which it has been possible for the company to do its financing is significant. The equipment trust certificates run for ten years. They are priced to return the investor from 4½ to 5¾ per cent. In total amount they represent about 80 per cent of the cost of the new equipment. To electric railway men the issue is significant in that it may be said to represent terms under which money can be borrowed when bankers are assured, as they were in this case, that the rehabilitation of a road is thorough and that the line will be developed intensively.

It may seem trite to say so, but it would appear that

this is another case of virtue being its own reward. The Insulls, by whom the road is now owned, have back of them the record made with the Chicago, North Shore & Milwaukee Railroad and their other properties, but they have no corner on the market for the intelligent application of selling methods. Others have done almost equally as well as they have done.

In the news of the events now recorded there are lessons for others not only in the speed of completion of the rehabilitation of this road but in the terms of the financing and the type of equipment that is being placed in service. Where others failed the Insulls saw an opportunity to re-establish this road operating through the so-called steel section of northern Indiana and they set about it with a vim and on a scale that some at first were inclined to regard as stupendous. An undertaking of this kind, however, was not new to them. It was not the first time they had spent large sums of money on projects others regarded as hopeless. They had learned from experience that, other things being equal, you get out of a thing only what you put into it. And they put into the Chicago, South Shore & South Bend Railroad not only money but enthusiasm intelligently directed.

How to Care for the Paving Charge

INJUSTICE of the paving charge borne by most street railways is generally admitted. The difficulty in getting rid of it is to find some other place to put the burden. In most municipalities the taxes are now very high, and any increase in assessments is reflected almost immediately in larger appropriations for schools, paving which the city has to do, or in other ways which the city has to spend its money. No matter how just theoretically it would be to relieve the electric railway company from its paving obligations, no great amount of enthusiasm can be expected from the citizens on such a plan if it means that the paving cost, now borne by the railways, is placed in the city budget.

Such relief may come in special cases, as where an old franchise expired and a new one is negotiated. But a much more popular method in most cases would be to devise some means by which the paving expense, when lifted from the railway company, would be placed on the shoulders of some one other than the citizens of the municipalities in which the railway operates.

If the city is not to assume this expense, the only other available place to put the burden is on the state, and fortunately a logical argument can be given that the state should defray this expense. This was developed in an address delivered at the League of Boroughs Convention at Stroudsburg, Pa., on June 23, 1926, by A. W. Robertson, president of the Philadelphia Company of Pittsburgh, and for many years its general attorney. He pointed out that last year in Pennsylvania the state collected \$4,657,752 from the gasoline tax alone, and that the auto license fees in the state were six times as much, a grand total of \$26,447,943.77. These fees and taxes were paid in very large part by citizens of municipalities who were also street carriders, yet practically all of it is being spent to improve highways that are wholly outside the limits of the inunicipalities.

The speaker did not mean to imply that the highways outside of the cities are not used to a considerable

extent by city dwellers. It is reasonable to believe, however, that a very much larger proportion of the revenue of the state from these sources comes from dwellers in cities than is represented by their proportionate use of the state highways. At any rate, the electric car rider, per se, gets no use at all from this large revenue and would be very much better off if the sums now spent on paving by the electric railway which he patronizes should be expended on new cars, better track or more service.

In other words, it is Mr. Robertson's idea that the dwellers in cities, individually and collectively, would be very much better off if the paving burden were taken from the electric railways and placed on the state, its cost being defrayed out of the general highway appropriation, as it should be.

The plan certainly seems logical, and it is the hope that its reasonableness will appeal to the general public.

The Mayor's Chickens May Come Home to Roost

In The feverish heat of an election struggle last year Mayor F. X. Schwab of Buffalo. New York, had the temerity to commit himself to a platform of bus operation on the basis of a 5-cent fare. Perhaps he was sincere in his belief that such a Twentieth Century miracle could be negotiated. At any rate, the plea was successful and he found himself in the course of time duly re-elected. For a time all was quiet. Then, certain newspapers began unfeelingly to remind the Mayor of his campaign promises. Here was the International Railway operating buses on a 10-cent fare and seeking permission to make numerous additions to the service. Where was the relief promised by the Mayor?

Alas! His Honor was in a quandary. He began to develop a temperament. He periodically fulminated against the International Railway and its flat refusal to consider a reduction in fares. He threatened repeatedly to declare a transportation emergency within the city's boundary. Then he departed for Europe.

Heralding his return to this country, not long ago, came the announcement that the city would endeavor to put the local transit company in its place by establishing a rival bus operation at a lower fare. But mysteriously the 5-cent fare had departed. The Mayor by a stroke of genius conceived the idea of delegating the operation of the city's vehicles to the police department. A unique method, surely, for cutting down the overhead.

Now, one may ride in buses of the city of Buffalo at an 8-cent fare, the same rate as the cash fare charged on the street cars, but with no transfer privileges. Furthermore, timid souls may be reassured by observing the minions of the law attired in full regalia and operating the buses so impressively.

But oddly enough the International Railway seems not overly worried by this punitive action. Some clue to this indifference may perhaps be gathered from the circumstance that the total revenues from the first day's operation of the city's first bus line took in receipts of but \$35—not enough to pay for the gasoline consumed

by the five buses. Fortunate, indeed, that the "operators" need not be paid from the receipts.

No apparent hesitancy has been felt by the Mayor and his followers on the City Council in throwing good money after that already sunk in the venture. In the meantime, the International Railway appears to be biding its time while extensive operating plans are being laid and more buses ordered that the city will ultimately have on its hands.

No Battle Was Ever Won by a Defensive Position

PEGASUS, the winged horse of ancient lore, has found a new pasture. He now crops daintily at the greenery which is found within the environs of Philadelphia. Twice daily he wafts himself lightly over to the nation's capital. But when he goes there is upon his neck a steady rein and there is astride his back a group of mere humans, willing now to intrust themselves to the gallant old steed who has long since left behind him the friskiness of coltblood. The present-day manifestation of this mythical beast, while lacking the temperamental uncertainties of his immortal forebear, still possesses all of the grace and beauty which the gods are said to have bestowed upon their favored steed.

Doubtless it was something of a shock to those professional mourners who have been for years descanting upon the hopeless lethargy that has fallen upon the electric railway industry when one of its representatives came forward with a revolutionary concept for public transportation. Today it is more than a concept—it is an established fact. Every day passengers are being carried between Washington and Philadelphia in the luxurious planes of the Philadelphia Rapid Transit-Company. And this transportation is being rendered at a price which is within the pocketbook of the average American business man.

It quite behooves one to pause for a moment and speculate upon the possibilities which are opened up by this move. The primary object in establishing the service was not to make money, although with the degree of popularity which is being attained that seems bound to follow. First and foremost the undertaking serves to keep the railway before the eyes of the people as one of the most progressive factors in community life. The bugaboo which haunts so many electric railways today is ultra-conservatism. The effectiveness of any new idea lies in striking while the iron is hot. To wait until some other company has given the test of years to a suggested plan is to lose 90 per cent of its value to the one who perhaps conceived it but hesitated to carry it out. Any business, particularly one which must bid for public patronage, must necessarily be in the vanguard of progress if it is to succeed today. While it is perfectly true that the establishment of a commercial air service would not be feasible for the majority of railways, the adoption of some other idea which may have been lying dormant for months might be the means of achieving noteworthy results. The good will of any community is one of the most priceless possessions of its

utilities.

Private Operation of Utilities Best for America

W. H. Sawyer, after study of Australian systems, is convinced that under conditions existing in this country public operation is less satisfactory. He talks to "Journal" representative of investigation made by him of the Victoria electricity supply system

ACK from Australia after a five-month survey of the publicly owned electricity supply system of the Victorian government, W. H. Sawyer, president of the East St. Louis & Suburban Railway and associated companies, speaking to a representative of ELECTRIC RAILWAY JOURNAL, said that he is strengthened in his conviction that private operation of public utilities is to be preferred under conditions that exist in the United States. During his stay, Mr. Sawyer, assisted by H. W. Eales, chief electrical engineer of the Union Electric Light & Power Company of St. Louis, prepared and presented a report on the status and affairs of the State Electricity Commission of Victoria and the scope and working of the state electricity commission acts.

In order to further the work, Mr. Sawyer was appointed a Royal Commission by the Earl of Stradbroke, Governor of the State of Victoria. The investigation covered the system of the State Electricity Commission for power generation and distribution, with particular regard to the general layout, the quality and efficiency of the plant, equipment and accessories and the methods employed; the works and projects now in progress and under consideration for extending the state's generating capacity; the sources of revenue from electricity supply and prospects of growth; a study of operating expenses and the reasonableness of the tariffs and charges; the agreement for the ultimate acquisition of the Melbourne Electricity Supply Company's undertaking; the economic value of and methods of working the brown coal deposits at Yallourn; the internal organization of the commission, and the system of distribution of electric power.

MR. SAWYER A PRODIGIOUS WORKER

The above outlines very briefly the job faced by Mr. Sawyer—a sizable proposition. In $2\frac{1}{2}$ months he had not only completed a report, but had secured the acceptance of the major recommendations. Chief among these were the need for more practical information and experience in the work.

"Fundamentally," said Mr. Sawyer, "the undertaking is, as a whole, economically sound and by virtue of the importance of electrical energy to the state, it must go forward. The estimates given me by the commission showed that it will become directly financially profitable during 1927. With these estimates I differed. I agreed closely with the estimates as to the revenue to be ex-



W. H. Sawyer

pected within the next few years, but I believe that the operating expenses will be greater than have been assumed.

"In my opinion, the commission has proceeded in the past with information of an incomplete nature from its staff. The estimates now being made profit, to a certain extent, from past experience, but in general are even now too optimistic and are not based on the thorough analysis necessary in such undertakings. The net loss from the electricity supply system for the fiscal year ended June 30, 1925, was £241,000, and for the year just ended was approximately £200,000. For neither of these years was depreciation taken into account. With this included, as the commission proposes to do, beginning with July 1, 1926, I expect to see a net loss for the fiscal year ending June 30, 1928, but by the fiscal year ending June 30, 1930, there should be a net profit on the present combined undertaking and on practically every present separate undertaking.

"It seems to me scarcely to be necessary to refer to the immense amount of brown coal deposits in the State of Victoria, with which the generating station at Yallourn is supplied. The coal, while containing 50 to 65 per cent moisture, can be burned. There is a supply of it that is practically inexhaustible. It is so near the surface it can be mined by the open-cut method.

"While I criticised the estimates, the design, and the operation as to portions of the undertaking, it should be appreciated that many new and complicated problems were presented. Although the staff is composed of technically skilled men, generally speaking, it has lacked the practical experience to cope, to the desired degree, with the problems which confronted it. There is admittedly a scarcity of engineers in Australia who are familiar with large power-house design and operation and the other problems confronting the staff, including the complex problems of how to win and burn most successfully brown coal with 65 per cent moisture."

One of the outstanding recommendations in Mr. Sawyer's report was that the Victorian government permit more complete and frank publicity of the affairs of its public utilities, particularly as to finances. This he considered one of the past errors of the commission.

"One of the most difficult situations with which I had to cope," he said, "was the general disinclination to give frankly a statement of the situation. It was difficult to find out just what the situation was, and to get accurate and unbiased estimates. There usually was a desire to make the situation appear better than it was.

"Public office is looked on by Australians as a public duty. There are many high-class men giving their time to the state. Men who have been successful in business are willing to give of their time and energy to upbuilding the institutions of the country, even going to the extent of giving up other activities to do what is needed. This has resulted in a class of government it is difficult to match anywhere."

Mr. Sawyer's report on the power situation was received with enthusiasm by all parties. Before publishing his recommendations in final form, he had conferred with persons involved and had received assurance that the changes would be put in effect. In fact, many of the recommendations were adopted before the report was finished. The chairman of the Electricity Commission, Sir J. Monash, asked by a local newspaper man if any reply would be made to the report, said: "Why should we reply, when we have received so satisfactory a report."

Newspaper comment, of course, varied with the political complexion of the individual paper. But all of it was favorable to the report.

"My convictions are greatly strengthened," said Mr. Sawyer, "that privately operated public utilities with government regulation as in the United States are much to be preferred. This is despite the many conditions in the state and municipal governments in Australia that are an improvement over those of the states and cities in this country.

"Graft, as we understand it here, is virtually unknown. While the chief offices are elective, and their incumbents are changed from time to time as in the United States, the working staffs endure, so that there is a continuity in the government that is lacking here. On the contrary, one of the handicaps of successful governmental operation of public utilities in Australia is that the system does not furnish the proper incentive to the persons in charge. Further, there is no appeal from the government methods if they do not furnish the proper service, while in this country when a public utility fails to supply the desired service its patrons can appeal to the regulatory commissions and compel the furnishing of adequate service."

On his trip Mr. Sawyer inspected a number of tramway and railway systems, both in Australia and New Zealand. He was impressed by the multi-side door cars, which were used to a considerable extent. These cars, he said, are somewhat similar to our old-style open cars, except that the sides may be closed in case of inclement weather. Loading and unloading are accomplished very quickly.

Moreover, the accident record is quite low, lower than one would expect with the running board along the side of the car and passengers boarding or alighting while the cars are in motion. Payments for damages are less than 1 per cent of the gross in some cases.

"Nature has been kind to Australia," Mr. Sawyer replied when asked regarding the characteristics of the country. "I was there during the fall, and found the climate very agreeable. The winters are mild and the summers, at least along the coast, somewhat cooler than ours. The vegetation is not unlike that of California, but it seemed to me the flowers are even brighter.

"The people of Australia seemed to me to be of the highest type. While they are typically British, they appeared even more cordial and sympathetic. Officially and unofficially every possible courtesy was shown me. At times, I felt overwhelmed by the wealth of hospitality and courtesy extended me everywhere. I also appreciated greatly the frankly helpful attitude of the many public utility officials, and of the manufacturers and manufacturers' agents. All of them not only furnished me with all data required but were of assistance in every way possible. Without this aid it would have been entirely impossible to complete my work in so short a time."

Typical Newspaper Comment on Mr. Sawyer's Report

Melbourne Herald, May 21

HERE will be a general feeling of relief in the community following upon the report of Mr. W. H. Sawyer on the State electricity scheme. The pronouncement by an acknowledged expert, after due investigation, that the scheme is "fundamentally sound" should allay all the fears generated in the minds of the public over a period of years by ill-informed critics, whose continued carping onslaughts were undermining public confidence. Mr. Sawyer's report, while pointing to certain necessary reforms, is a vindication of those who have been carrying it out in the face of heavy odds. . . .

The Government is to be congratulated for its wisdom in securing the services of an investigating expert at a time in the development of the scheme when such a course was necessary in the public interest.

Melbourne Age, May 23

R. W. H. SAWYER, the American electrical expert, has completed the task with which he was entrusted by the Government of the State. He has investigated the various phases of the Electricity Commission's numerous activities, and the report he has presented deserves to be most carefully studied. The intelligent citizen is certain to be impressed with the common-sense spirit in which the investigation has been conducted, and with the practical observations and recommendations submitted. . . .

It has been a matter of extreme difficulty to get either Ministers or Commissioners to understand the precise nature of the public demand. Yet Mr. Sawyer seems to have understood instinctively. At his first attempt he has furnished much of the information the citizens of Victoria have! wanted very urgently.

Melbourne Age, June 1

ACH political representative in this State should study the Sawyer re-I port with meticulous care. It is a document concerning which he is destined to hear much in days just ahead. Neither members of Government nor of Parliament should allow themselves to be deceived by the seeming calm that has set in since the expert has made public his opinions on our State electricity scheme. . . . The Yallourn scheme may be a great success at some remote future date; that has never been in dispute. All that has been asked is—are we not moving too fast? The exis—are we not moving too fast? pert's answer is an emphatic affirmative. Several lines of economy and curtailment have been indicated. It is the Govern-ment's move. Members of the Cabinet should hesitate before they decide to try and hedge. They should not be misled by the public's apparent quietness. The public is eagerly waiting for the Government's action on the Sawyer report.

Los Angeles Railway Provides New Instruction Room

Car Equipment Effectively Displayed for Instruction of Men in Both Mechanical and Operating Departments

THE mechanical department of the Los Angeles Railway, under the direction of Chief Engineer P. B. Harris, has completed and made ready for use an unusually well equipped instruction room. The entire car equipment is presented to the men in such a way that

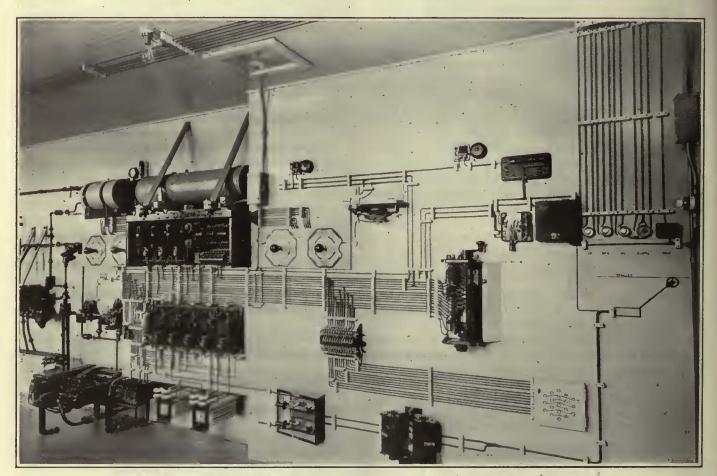
by different colors, and the complete motor wiring can be traced during demonstration to the men.

The signal bell system for both single unit and train operation is demonstrated and the wiring traced.

A complete car lighting system including sign lights is installed on the ceiling. This system is operated by a set of switches placed in the same manner as on a car. All wiring is open.

The air equipment is complete and all operations can be demonstrated and explained. The department intends to install the K control equipment as well as the HL.

An 18-ft. desk is placed about 5 ft. from the equipment for the use of the class in making notes and



All of the Important Elements of Electrical and Pnenmatic Apparatus Are Effectively Displayed in This
New Instruction Room of the Los Angeles Rallway

they can acquire a good working knowledge of the various parts. All of the important pieces of car equipment are included in the layout as well as circuits and switches for car signals, lights, etc. It is displayed in such a manner that it easily may be seen by the men.

The equipment of the multiple-unit or HL control type of car is installed on the north wall of the room set apart as the instruction room. This equipment is used on the "H," "K," "F" and "L" types of car, of which there are 327 in use on the Los Angeles Railway lines.

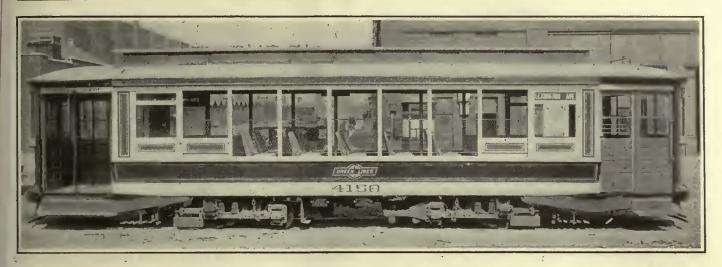
Both the wiring and the relation between various operating parts may be easily traced and demonstrated. Pilot lights are placed over each switch. Lamps inserted in the motor circuit show both series and parallel positions, and can be operated with the motor cut-out switch in a manner that is very much the same as when in actual service.

Main and interpole field coils are easily distinguished

diagrams and for spreading out their blueprints or charts for study.

Selected men in the mechanical department will be given a complete course of instruction on this equipment. This course will consist of a series of short lessons extending over several months. Men will be required to make notes and diagrams and pass an examination after the course is finished. Only those mechanics who can pass a satisfactory examination will be given an opportunity to work on multiple-unit equipment. Many requests have been made from men outside the mechanical department, including a large number of trainmen, for the privilege of attending classes, so arrangements are being made to extend this privilege to as many as possible.

Those who are working directly with the equipment, either in inspection, maintenance, trouble shooting or operation, will be given first consideration for instruction



In This Convertible Car the End Side Panels Are Stationary, but the Others When in Place Are Held by Bolts and Nuts

New York Railways Experiments with Convertible Car

Novel Design Developed in Shop from Open Car to Avoid Use of Duplicate Bodies—Features Are the Method of Attaching the Side Panels to the Side Posts and the Use of Easily Detachable Platforms

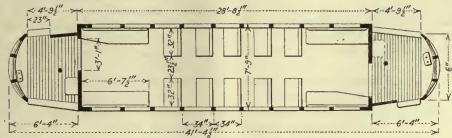
NDER the conditions of short-haul riding, which makes up a considerable proportion of the business on the lines of the New York Railways, open cars are considered to be attractive to passengers in summer. This, together with the difficulty of carrying out any extensive physical improvements under the receivership which existed for some time, accounts for

the presence of 180 cross-bench open cars on the New York Railways property. After the receivership was lifted, in 1925, the obvious limitations of this type car, combined with the

high storage cost of duplicate equipment in New York City, led to consideration of possible improvement.

The solution for this situation seemed to the management to be a car having, as far as possible, the desirable features of the open car, so as to attract the shorthaul rider, yet capable of being changed with the approach of winter to a closed car of the standard type.

This naturally meant a convertible car, with removable side panels, and this is the type of car which has been developed by the company for experimental purposes from a



Floor Plan of Reconstructed Car





The Interior View at the Left Shows the Arrangement of Seats, that at the Right the Method of Tapering One Longitudinal Seat at Each End to Provide a One-Piece Door with 37-In. Opening

former open-bench car. It differs, however, from other well-known cars of this type in several particulars, notably in the method of attaching the adjustable side panels to the side posts.

As shown by the illustrations, the adjustable panels extend from the letterboard down only to about opposite the top of the seat cushion, leaving a permanent lower panel about 18½ in. high, measured from the floor line. This permanent lower panel was adopted partly on the idea that it would be more comfortable for women passengers and partly to permit the use of a truss for the side sill. The adjustable panels are of wood and have two sash. The lower large sash is permanently fixed in the panel and the upper narrow sash is capable of being dropped. This plan permits additional ventilation for mild days in the spring and fall besides that afforded by the louvres in the monitor deck.

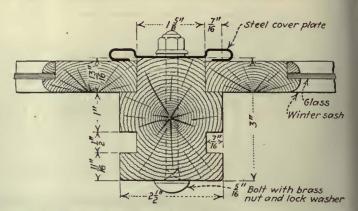
The adjustable panels described are seven in number on each side of the car, leaving two post spacings at each end on each side. This end spacing is permanently closed. The spacing next to this end panel has a lower solid permanent panel and a shorter adjustable panel with sash. The purpose of the lower permanent panel is to protect and conceal from the outside the backs of the longitudinal seats, of which there is one on each side at each end of the car.

When the panels are out the space between the side posts is fitted with a wire frame 24 in. high. This height was chosen as being just sufficient to prevent a child standing on the seat from leaning out beyond the side of the car.

The method selected for attaching the adjustable panels to the side of the car was chosen because it promised to provide a tight fit which would keep out draft in winter and permitted the use of attachments which would not rattle in summer. Briefly the panels are held in place by a steel plate, No. 16 gage, attached to the side posts by bolts. The vertical sides of these plates are bent over in U form, so as to provide continuous tension against the sides of the panel. The bolts which hold these steel plates to the side posts are fitted with brass nuts and lock washers as they are exposed to the weather.

The construction of the platforms is an interesting feature of the car. The framework upon which the convertible car was reconstructed, as stated, is that of the old open car. This meant when the car was changed to a closed car that platforms of ample length for entrance and exit had to be added at each end of the body. These platforms, which are 6 ft. 4 in. in length, are independent of the framework of the car and are arranged so that they can be detached in case of injury and another platform substituted. They are supported on each side by a \frac{1}{8}-in. plate knee, attached to the side sill by five bolts. The platforms are fitted with Kass safety tread, both on the floor and on the steps. The latter are of the non-folding type.

Following the practice of both the New York Railways Corporation and the Third Avenue Railway on lines where there is a great deal of short riding, there are no platform doors, but there is a bulkhead between the body of the car and each platform. This bulkhead has a single sliding door, with 37 in. wide opening, the door being on the brake side of the car at each end. As the door opening is nearly half the width of the car, the left-hand rear longitudinal seat and the right-hand



Section Through Side Post Showing Steel Cover Plate for Holding Side Panets in Winter and Wire Screens in Summer

front longitudinal seat are tapered in width toward the door to give aisle space.

Besides these four longitudinal seats, there are ten cross seats, giving a total seating capacity of 40 passengers. There is also one drop seat for use on the front platform. The backs of the cross seats have hand grips, and at each end of the car, over the longitudinal seats, there are five Rico retrieving handles for standing passengers.

The register is of the Sterling-Meeker make, but is operated pneumatically by an electric solenoid actuated by the conductor's foot. Line voltage through a resistance is used for this solenoid. All lighting and heater wiring is in conduit, terminating in a cable box. The rest of the equipment includes K-27 controllers, two Westinghouse 310 motors, Westinghouse circuit breaker and air brakes, air sander, Peacock hand brakes, Columbia brake rigging and Hunter signs.

The outside finish of the car is in green, with cream striping and cream above the water table. The weight of the completed car with winter sash in place is 33,500 lb. or 817 lb. per seated passenger. The weight of the former cross-bench open car from which this car was constructed was 29,670 lb. The new car is designed for two-man or one-man operation.

While this car is being tested in service, to determine the possibilities of the design, the company is planning to rebuild one of its closed cars along these same general lines. It then hopes to determine its future policy in regard to the type of car best suited to the requirements of its service.



The Platforms Are Supported on Knee Plates Bolted to the Side Sills. A*Platform Can Be Removed by Taking Out Five Bolts on Each Side

The Industry Needs a Modern Business Viewpoint*

Ample Opportunity Exists for Outstanding Success in the Electric Railway Business—Selling Sense Must Be Developed if Factors in the Way of Local Transportation Progress Are to Be Removed—Possibilities for Improvement of Equipment and Methods Have Not Been Exhausted

By Charles Gordon

Editor ELECTRIC RAILWAY JOURNAL

HERE is every reason to have faith in the possibilities of the local transportation business. I am convinced that this industry can be put upon a sound financial and operating basis. I look on the future with optimism. There has been no decrease in the desire of people to move about from point to point within their communities. In fact, there has been an enormous increase in this demand—so much so, that in even the smaller cities the outstanding problem of the day is to find space in which to move about. Surely under such conditions one must indeed be a pessimist to admit for a moment that the business of furnishing transportation for hire cannot be made of increasing service to the community and profitable to those who invest their money and energy in such an enterprise.

There is to my mind ample opportunity for outstanding success in the electric railway industry. Public transportation is a fundamental necessity to the development of modern communities. In most cities transportation development is notoriously behind the city's needs. That is because no industry will develop and expand until it has been put on a profitable basis.

I have no formula or panacea for eliminating all electric railway difficulties. There are, however, a number of considerations which suggest opportunities for improvement. Examination of these leads me to believe that we are just on the verge of an unprecedented period of local transportation development and prosperity but are held back today by our own state of mind and not by any fundamental defects in the industry itself.

I listened recently to a discussion on the need for courage, by men high in the industry's councils. Some of those present objected to any inference that electric railway men lack courage. In support of this contention was cited the fact that we have hung on in the face of most discouraging conditions and apparently insurmountable obstacles. But what else could we do? I would define that as perseverance and tenacity rather than courage. It takes courage to take the offensive. It takes courage to send good money after bad to build back an industry with nothing but faith in its possibilities as justification.

The industry needs imagination. It needs vision. It needs enthusiasm. It needs more self-analysis and more fundamental thinking. It needs to stop thinking poor. It needs to stop splitting pennies. It needs the nerve to demand rates of fare that will not only keep it

*Abstract of a paper presented before annual meeting of Midwest Electric Railway Association, Denver, Col., July 8-10, 1926.

cut of receivership but will make it sufficiently profitable to attract new capital for extension and development.

Above all else we need a modern business viewpoint. We need to recognize not only that we are in a competitive business but that a selling sense is essential to the very existence of such a business.

THREE FACTORS THAT RETARD PROGRESS

There are today three general factors that stand in the way of local transportation progress. These are franchise restrictions, burdensome taxes and special charges like paving and street cleaning, combined with inadequate fares. Under franchise restrictions I havo in mind primarily inadequate duration to permit proper financing and the inflexibility of many provisions that do not allow for changing conditions. I recently listened to a two-day discussion of these subjects at a sectional association meeting. Out of that meeting there came a thought which seems to warrant more than passing consideration. The general tenor of that discussion was a recital of what the electric railways should have. Organized effort was being made to convert public officials to a recognition of the needs of the transportation companies-not for adequate development and expansion, but for mere existence. At best these were mere expedients to give some measure of relief.

I tried to imagine myself for a moment in the position of one of those public officials. Assuming that he is an honest and conscientious public servant, harassed by the exigencies of modern public life, I tried to look on the electric railway situation and the electric railway executive as he would see them. And out of all this came the realization that in every contact with an electric railway man, he is asking for something. He rarely comes to offer something new. He rarely comes to sell anything. He rarely has anything that would afford a popular issue to put before the public.

On most properties the subjects of franchise conditions, tax and paving burdens and rates of fare are of primary importance from the standpoint of making electric railway operation profitable. But these measures for relief encounter public apathy or open opposition when they are presented as measures for the relief of the railway as such. It remains, therefore, to find a way of securing the improvement sought by presenting the situation from a new angle.

The procedure seems comparatively simple. Grand Rapids has made rapid progress in this direction, and other properties would profit from application of the same idea. The public judges electric railways and electric railway service by the condition of the cars and the employees with whom it comes in contact. Through improvement of the car itself rapid progress can be made.

Take, for example, an electric railway property which has an unfavorable franchise, heavy tax burdens and an inadequate rate of fare—and there are many properties in that condition. Introduce, if you please, a comparatively small group of new modern equipment of the finest type obtainable. Give all the publicity possible to the fact that the people of your city are entitled to such cars and the improved character of service which would be made possible with them. In other words, sell the idea that your town is entitled to such cars. Give the people a taste of the kind of transportation that can be given through improvement of the car-and then tell them how to go about getting it. Give them just a sample of what franchise improvement and an adequate fare would make possible. You are then "selling" the idea of transportation improvement rather than asking for it.

MANY CARS EXCESSIVELY LARGE

On many comparatively small properties there grew up years ago an ambition to operate large cars, of types comparable to those used in very large cities. There are today many of these cars in service. They are heavy, awkward looking and very expensive to operate. Although there may be a very short period during the rush hours when they are filled, they operate most of the day with a large number of empty seats. The operating cost is practically double what it needs to be. In addition the track construction is either needlessly expensive or is inadequate to withstand the pounding of heavy cars. Due to the high operating costs, headways are infrequent and many profitable prospective shorthaul riders walk to their destinations instead of riding.

There is a peculiar tendency on the part of electric railway men to object to any inference that a car which was built before the inception of many modern improvements has outlived its usefulness. This may in part be attributable to the fact that an operator who has sponsored a given design of car considers it more or less a reflection on his own judgment and ability to admit that its operation is no longer justified. Operators take a peculiar pride in the very age of their cars, particularly if those cars were built under their direction. How often have you heard or used the expression "There's a real job of car building. That car has seen twenty years of service and all she needs is a new floor, a little patching here and there and she'll be as good as the day she left the shop." Mechanically, that statement may be justified. But remember that we are not operating street cars to see how long we can make them run. We are in the business of selling rides in them. And if your twenty-year-old car won't attract enough passengers at a sufficient fare to keep your ledger balance in black ink it is time that you either find one that will or make up your minds that street cars have outlived their usefulness.

We have for several years been trying expedient after expedient in the vain hope that conditions will change or that the public will recognize our predicament and come to the rescue with measures for our relief. That is to my mind a poor business conception. If the transportation business is content to accept public charity, it may expect to live in the poorhouse. If

you don't believe there is something else in this business of selling transportation besides merely providing a vehicle that won't break down in service, try to explain to yourself why you traded in that two-year-old automobile this spring for a brand new model. Maybe friend wife had something to do with it. Remember at the same time that wives and mothers doing their shopping formerly made up a goodly percentage of that off-peak riding which is so rapidly disappearing.

There has developed no fundamental limitation in the street car itself. It is the most efficient and economical vehicle for hauling large numbers of people between their homes and destinations. If it is crowded out of existence, it will be because of our own lack of imagination, vision and courage and not because of any limitations in the vehicle itself. We have not begun to exhaust the possibilities for improvement of the car. There is not, so far as I have been able to find, any good reason why a car ride cannot be made sufficiently attractive to win ample volume of riding at a fare high enough to make its operation profitable.

But unless the industry arises to the need of the present situation, there is some danger that the street car may be swept aside by an impatient American public which demands change, improvement and progress. There has already grown up in the public press a dangerous tendency to stampede to the conclusion that street cars are an obsolete form of transportation. There are being held in New York City a series of hearings to determine whether certain street railways in that metropolis should be purchased by the city for the purpose of acquiring their perpetual franchises in order that the lines may be scrapped as nuisances and obstructions to traffic. The owners of those lines are willing to sell out on that basis. Even at the price of admitting that their lines are a nuisance and an obstruction to traffic they are trying to unload.

WHAT NOT TO DO IN TRANSPORTATION

It would take far more than a brief discussion such as this to analyze the New York transportation situation. To my mind, however, it offers the best examples of what not to do in local transportation to be found anywhere in this country. It requires little more than a glance at the equipment on some of the lines in that city to understand the wave of street car obsolescence discussion that has found its way into the press.

Nor is all the obsolete equipment which is giving this industry a "down-at-the-heels" reputation in the eyes of the public located in New York City. Country-wide surveys of the equipment situation have been made and published. There is no need of repeating them here. I commend them to your most earnest consideration. It is on the basis of the condition which these figures divulge, however, that I qualify my optimism regarding the future of street cars with the warning that they are in danger of being swept aside by an impatient public which knows little and cares less about the unprecedented combination of difficulties and unfair conditions which have been faced by our industry.

There is just another word to be added on this phase of the subject. A survey of car purchases for the first six months of this year indicates a total of 802 new cars. At this rate there would be a total of 1,600 cars purchased for the year, approximately the same number as during 1925, the lowest for several years.

A moment's consideration shows where this is lead-

ing the industry. Assuming that all cars bought are for replacements and not for additional facilities, it would take at least 45 years to renew cars now in service. Of these, 25,000 are now more than twenty years old. Many are even much older. It requires no prophetic power to anticipate what will happen to the industry long before its cars are permitted to get into any such condition as is indicated by these figures.

There, gentlemen, is a most serious situation. The industry is today faced in the wrong direction so far as the condition of its cars is concerned. Street cars cannot run forever and any attempt to dodge the facts is suicidal.

There is not a single instance in this country today of a property which has even begun to exhaust the possibilities of improving street cars and street car service. How can we entertain for even a moment, therefore, the thought that the street car has outlived its usefulness? It has merely been the victim of our own lack of imagination and initiative.

I am not for a moment overlooking the fact that many railway executives have maintained a dogged determination to find a way out for their properties, in the face of the most severe and discouraging handicaps, obstacles and limitations ever faced by any industry. But now that we can look back on the past it becomes evident that we did not awaken to the changed conditions that were developing until they fairly engulfed us. We had been trained in the operation of a monopoly and we were nearly helpless when faced with the entirely different situation brought about by the sudden growth of competition.

The electric railway industry is far from obsolete. There is ahead a bright future of expansion and development on a profitable basis. The application of good selling principles to the improvement of the street car will do much to open the minds of the public and of bankers to the possibilities, that with imaginative enthusiasm and courage can be pushed forward to accomplishment.

The Human Element in the Industry*

Success Is Possible Only with the Co-operation of Men and Management—The Men Must Be Given Full Knowledge of the Aims and Purposes of the Company If Loyalty Is to Be Expected of Them—Results in Kansas City Show It Can Be Done

By F. G. Buffe

General Manager for the Receivers the Kansas City Railways

SSENTIALLY the electric railway industry depends on the human element. Approximately 60 per cent of its total operating expense goes for wages direct. It draws upon the skill and labor of almost every profession and craft. Its sales force, made up of its trainmen, is recruited from almost every walk of life. These men are all engaged in preparing and selling a service to an exacting public, under trying conditions.

The very nature of the occupation, especially for the transportation force, requires long, uneven and exacting hours. A trainman must work while other folks sleep; he works hardest when other folks

play. He is subject to the delays, annoyances and hazards of our increasing traffic problem. He meets with a public who too frequently show their cranky side when dealing with him. Of necessity he must obey a multiplicity of operating rules and be subject to strict discipline.

The electric railway industry operates and will continue to operate on a very narrow margin, and the morale of its organization can easily write the results either in black or red ink.

There was a time in the development of the electric railway industry, as well as in all industry, when little attention was given to the human side of the equation. Even today we find men in executive positions who, trained under the old régime, approach the human prob-



F. G. Buffe

lem in their industry with a mental reservation. Too often it was the case that capital demanded that labor make all the sacrifices in times of stress and always that dividends come first. It is today generally admitted that no industry should survive that cannot and does not pay a fair wage.

It is almost elemental that every plan for the improvement of the human equation, for better co-operation, for more intelligent service, must start with the payroll as a fundamental. It is an indictment that too often men have had to band themselves into an organization to secure fair wages and decent treatment,

rather than into an organization for making the business that pays them a success.

There is no especial quarrel with unionism. It is to be regretted that the old order of things often made it the only refuge for labor. As today organized and directed, it is part of our economic structure. I do not believe that in the electric railway world the same family feeling nor the same co-operation can be secured with a union as where there has been substituted for it a close working harmony between officials and men, where the men look to their officials as leaders rather than to outsiders. Personally, I would rather sit down around a table to work out problems than across one.

But union or not, the human element is there. It is only more complicated. Another factor enters to be taken into account. It is still possible to arouse inter-

^{*}Abstract of paper presented before annual meeting of Midwest Electric Rallway Association, Denver, Col., July 8-10, 1926.

est and enlist co-operation. Confidence can be secured. Improvement can be made.

The average intelligence of trainmen is high. They make hundreds of daily contacts. They are not in a rut. They look at life through a moving window. They will follow a forward looking management if given the opportunity. Because of the nature of the work and our peculiar relations with the public, it is essential that we get a co-operation of intelligence and spirit as well as of work. A large national concern has analyzed the average payroll and divided men into three groups. Out of every 100 employees there will be 10 per cent good, who are co-operating to the extent of their power; 10 per cent bad, who are radicals, loafers and disturbers, and 80 per cent neutral. If this large neutral class can be educated and developed into the good class, given an inspiration and an incentive that will place a personal touch in their daily work, make them alert for the best interests of their company, any effort and money spent in this direction is well placed. Capitalized at 7 per cent, the payroll of the Kansas City Railways represents an investment of \$70,000,000, or twice the physical value of the plant.

Men are naturally loyal to an organization of which they are members. There is a sense of pride in a connection with a progressive concern. Such loyalty can be turned to good account, but not unless a man knows something of the concern for which he works. There has been much said about laying our cards on the table and letting the public know what we are doing, but we certainly should consider that our own employees are entitled to more detailed information than the general public. Changes of policy, monthly reports, interesting facts in connection with the management should be taken up in general meetings and explained by the general officers of the company. Such a program stops gossip, kills false rumors, dissolves suspicion, arouses interest and adds to initiative.

There must be some method of self-expression; some voice in the conditions of employment; an opportunity for the adjustment of so-called grievances. Men should have some protection against the mistakes of authority when authority makes mistakes. The old days of "sending a man walking down the track talking to himself" just because some gang foreman said so are gone in modern industry.

AMERICANS EXPECT TO LOOK OUT FOR THEMSELVES

So-called welfare work is often a misnomer. Every upstanding American citizen prefers to look after his own welfare. He doesn't desire to be patronized or paternalized. Decent work rooms, proper toilet facilities, showers and clean-up facilities, good light, fresh air—these are not welfare. They are rights. They are as much a part of the job as benches, lathes and tools

The industry, however, does owe to those who compose it an obligation to look after their interests. These obligations include protection in case of sickness or accident; medical attention; opportunity for saving and investment; co-operative effort in every line; family protection in case of death. These obligations should be fulfilled, but not handed to an employee as a matter of course. An employee should pay his proportionate part for the benefits received, and the industry should meet him half way in these payments. All such co-operative activity should be entirely in the hands of the employees, conducted by men elected from their num-

ber. The officials should help and assist by advice and counsel, but the actual handling of such matters, being paid for by the men, should be handled by them.

Such co-operative activities should be voluntary. A man should no more be made to take an insurance policy than he should be made to take a dose of castor oil. The opportunity should be given him, the benefits accruing to himself and his family pointed out, but if in the last analysis he cares to make his own insurance arrangements on the outside he should be permitted to do so.

With the help of the officials of the company, and guided and directed by the councils of the men, educational work should constantly go on. This educational work should not be entirely confined to those things that directly affect the property, but should cover a broader field and give to every man who desires to take the time and expend the effort an opportunity for self-improvement.

Company publications, when newsy and not full of bunk and propaganda, are very desirable, especially on a large street railway property where the various divisions and departments are scattered and where there are so many and varied forms of activity. Such a publication should not be a medium for company preachments, but should be an interesting magazine full of news for employees and their families.

SELECTION OF MEN VITALLY IMPORTANT

No obligation exists until a man is hired and becomes part of the organization. It would seem, therefore, that too much care cannot be taken in selecting applicants for employment. It costs no more to employ and train a 100 per cent physically perfect man than it does one who is imperfect. Every effort should be made to induct into the organization young men, because every large corporation, as time goes on, must face the problem of taking care of old and physically incapable employees.

In addition to an exacting physical examination, the applicant's record, his references and everything pertaining to his former experience should be carefully checked up, the idea being, of course, to secure the very best from the standpoint of training, environment, past record and association.

There is still a wide field for development in the various psychological and mental tests now being applied, and large companies everywhere are using certain of these plans in an experimental way.

Every employee of a company should feel that as a member of its organization he is part of the clan and that so long as he does his part he will be helped and protected in all of his affairs. Free legal aid and advice should be furnished; he should be protected against the rapacity of money lenders and installment sharks; he should be helped in time of personal trouble, and should naturally turn for protection in every case to his officials.

Fun and the social side of life should not be neglected, and every reasonable opportunity should be made to develop a harmonious family feeling in connection with the work. It is a good thing for the families of employees to become better acquainted with each other and with their officials. On the surface this seems unimportant and perhaps frivolous, but it has a most important place in the development of the human element.

Many of the books and papers I have read on this and allied subjects deal more or less entirely with men and

very little with management, meaning by management the supervisory forces from straw boss up. Surely management is a most important part of the human element. The business is essentially one of departments under department heads. Such being the case, it is essential to success that there be harmony, good feeling and team work between these departments. Personalities must be secondary to the primary purpose. Complete information, responsibility for results, and enough latitude so that these results can be obtained, will develop energy and initiative. Our interior departmental policies should be well defined. These policies should be a sort of North Star, the guiding principle by which every department head and every supervisory official can steer, and within the limits of these principles a good man should be given every opportunity to work out his salvation without nagging or petty interference.

"Yes men"—may the industry be delivered from them. And executives who won't permit their officials and assistants, high or low, to differ with them or to prove they are wrong, which frequently they are. There are organizations where they "yes" the old man to his face and damn him in secret. They let him blunder into mistakes because they have been taught to say "Yes, sir," and no more. They are saving their ideas and their energy for the man who some day will have brains and patience enough to listen to their suggestions.

Staff meetings are important and should not be confined entirely to the higher department officials, but should at times comprise the entire official staff. At these meetings company policies, especially affecting the personnel problem, should be thoroughly explained and discussed. It is often the case that foremen and other immediate contact points with the rank and file are out of step with major policies. Often lesser officials are not really considered part of management, but occupy a sort of an anomalous position. This can frequently be the source of trouble and misunderstanding, and every point of direct contact should be protected against misplaced and ignorant authority.

SOME CONCRETE CASES CITED

To keep down any imputation that this discussion is impractical, I am going to cite some concrete cases. Philadelphia, Brooklyn and Pittsburgh are examples of properties where the co-operation and support of the employees have been secured to a remarkable degree.

Kansas City began its present employee policies in 1919, when it had the opportunity to build up an entirely new operating organization following a severe strike in the early part of that year. Such success as the receivers and their officials in Kansas City have had has been largely due to the splendid functioning of its organization. It was one of the earliest properties in the country to adopt throughout a representation plan which provided for employee representation in every department of the property. It has a brotherhood, membership in which is voluntary, and to which 99 per cent of the employees belong. Each employee pays \$1.75 per month, the company helps financially, and the following benefits are provided:

Sick and accident insurance of \$15 a week for 52 weeks. \$1,000 life insurance with the option of purchasing \$2,000 additional at the co-operative rate.

Free medical attendance.

Nurse service.

Co-operative grocery stores and meat shops.

The brotherhood also provides social entertainment

throughout the year for all departments and maintains a seven-team baseball league as well as a capable band. It is managed entirely by trustees elected by the employees and is an active institution.

A building and loan association with assets of \$500,000 is maintained and managed by the employees for the purpose of encouraging thrift and building homes for its members. Over a period of thirteen years it has never had a foreclosure.

The average age of Kansas City Railways employees is 37, and for the past six years every applicant for employment has passed a rigid, insurable examination.

Frequent meetings are held in every division, at which officials of the company explain financial statements, company policies and all other matters of interest.

All rules in connection with seniority, discipline, the purchase of uniforms, and other things affecting the men, are taken up and threshed out in the various committees.

There is a live company publication.

The men are helped in other ways, such as loans, repayable in installments without interest; free legal advice and help, and many others, small in themselves but important in the aggregate.

ENCOURAGING LOYALTY AND PRIDE

Loyalty and pride in the company and the organization are encouraged in every possible way. The results have been outstanding. When jitney competition was the chief factor in bringing about the receivership, the employees invaded the City Hall, petitioned their aldermen, and could not have been more active if the property was their own. Several years ago an attempt was made by imported organizers to form a union. This was put squarely up to the men, and I have in my files resolutions from every division and department that no such activity be permitted, and that any man who was approached by an organizer and who did not report the matter to his superior officer be immediately discharged. When the property went into the hands of the court, the employees employed an attorney to intervene in the case and petition the court that there be no change in the policies as affecting their Brotherhood organization or their other co-operative activities. These are only examples of what are every week occurrences.

Here I want to emphasize again that this type of co-operation from the human element in Kansas City, Philadelphia, Pittsburgh and elsewhere can only be secured when based squarely upon a just, fair and equitable scale of wages. I don't mean fancy wages, because these are not in the picture either for capital or labor. They must, however, be based upon living costs and be comparable with other trades, taking the steady nature of street railway work into account.

I am not a believer in the implied idea that a job, wealth or social position make any difference in our elemental processes and emotions. Mankind has the same feelings, the same ideals, the same aspirations, the only differences being those of education and environment. Under the veneer surge the same hopes, the same fears. Only yesterday we were skinclad and fighting for existence in primeval forests against the forces of nature. Fair treatment, a proper recognition of the brotherhood of man, and absolute sincerity will avail against prejudice. That concern in any industry is fortunate when its human element, both management and the rank and file, work whole-heartedly together for its success in mutual respect and esteem.



Here May Be Seen the "Kendrick" and Also One of the New De Luxe Buses

Wings the Latest Style for Railways

Philadelphia Rapid Transit. Company Has Established a Regular Daily Passenger Air Service Between
Philadelphia and Washington—This Is the First Commercial Service in the Country
to Operate on Daily Schedules—Fokker Planes Used

HERGING from its cocoon on the morning of Friday, July 16, the Philadelphia Rapid Transit Company's passenger air service spread its wings as an established institution. Twice daily in each direction flights are made between Philadelphia and Washington with large tri-motor Fokker monoplanes similar to the one used by Lieutenant-Commander Byrd in his successful flight over the North Pole. This marks not only the latest feat of the Philadelphia Rapid Transit Company in exploiting every conceivable form of public transportation, but it is also the first pas-

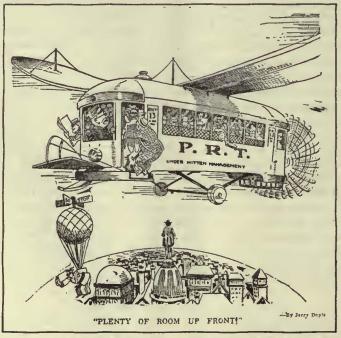
senger air line in America operating on daily schedules.

Several days prior to the inauguration of the regular passenger service a member of the editorial staff of ELECTRIC RAIL-WAY JOURNAL made the flight to Washington. In this way a first-hand insight into the undertaking was obtained. This venture appears to be based upon a foundation of reliable service far removed from the realm of hit-or-miss. Back of it is the bulwark of the air mail contract received from the government, which will assist materially in placing the service upon a sound economic basis. The passenger rates established by the operators are sufficiently low to place the service within the reach of the average citizen, a condition essential to the continued popularity of the venture.

A particularly noticeable feature of the service is the high degree of comfort, which is easily comparable with that of the modern Pullman car. To one who has been used to bouncing around in the air currents with a small plane, the Fokkers give much the same impression as a dirigible in so far as stability of riding is concerned. And in the matter of safety the three Wright

engines on the planes make the possibility of a forced landing almost unheard of. Any one of the engines could drive the plane for a time long enough to pick out an adequate landing place. Such factors as these, as they become generally known to the public, will remove much of the nervousness which many yet feel toward aërial transportation.

The Philadelphia Rapid Transit Air Service, Inc., a subsidiary of the Philadelphia Rapid Transit Company, has been formed to handle the operation of the air service. Three of the planes have been ordered, two having been already delivered. These have been



As the Artist of the Philadelphia "Record" Sees the Latest Venture of the Local Transit Company

christened "Kendrick" and "Vare" and the third plane will be known as the "Hoover." At least for the present two regular trips every day will be made in each direction, the fare being \$15 one way or \$25 for the round trip, with a fifteen-day stop-over privilege. The distance covered is 125 miles and the flying time is one hour and a half each way. Each plane carries eight passengers, and 30 lb. of baggage may be transported by each passenger free of charge. Excess baggage is charged for at the rate of 25 cents per pound.

The planes leave from the Navy Yard flying field in South Philadelphia and Hoover Field in Washington but passengers are actually transported from center to center of each metropolis. Two de luxe buses have been purchased and officially dedicated to the air service. These leave the P.R.T. terminals at 237 Broad Street in

between Philadelphia and Washington, as well as an excellent glimpse of the nation's Capitol upon the approach and departure from Washington. Practically the only sensation of speed which one receives comes at the moment that the planes leave the earth, for the closed-in cabin shuts out the rush of wind which normally adds thrills to the airplane jaunt. It is probable that passengers will soon come to look upon the air service in the same matter-of-fact light with which one now embarks upon a steamship or steps upon a trolley.

EFFECTIVE WORK IN TELLING THE PUBLIC

An intensive publicity campaign has been carried on by the Philadelphia Rapid Transit Company in connection with its venture. Bulkhead signs and dash posters were used in the street cars and thousands of copies of



On This Trip Thomas E. Mitten, Chalrman of the Raliway's Board, Entertained Several Guests. Mr. Mitten
1s Standing Fourth from the Right of the Group

Philadelphia and the Hotel Washington in Washington a short time in advance of the planes' departure and also meet the planes on arrival. The buses are small in size, being designed for the normal carrying capacity of the airplanes in passengers, baggage and mail. They are fitted up in much the same manner as the interiors of the planes. The latter are equipped with wicker chairs spaced for ample knee room, have inclosed cabins which make it possible for ordinary street clothing to be worn by the passengers, have also a lavatory and outside seats for the pilot and his mechanic.

Members of the air service personnel were carefully selected. Under the personal supervision of Anthony H. G. Fokker, designer and builder of the planes, will be the mechanical details of the service. He also is in charge of the flying and maintenance personnel and such men as Alton Parker, alternate pilot with Floyd Bennett on the recent Polar flight; Edwin Musick, former instructor in flying during the World War and formerly in the Havana-Key West service; and William DeWald, formerly a pilot in the U. S. air mail service and of long experience in European passenger service, have been selected as pilots. The operating manager is Victor Berteandias, one of the round-the-world fliers, chief inspector at McCook Field, and a member of Rickenbacker's famous war squadron.

The planes fly generally from 1,000 to 4,000 ft. above the ground, depending on the air conditions, and it is possible to get a very good view of the country-side Service Talks were distributed among the patrons, describing the air service in detail and urging the public to make early reservations for the trip. Reservation blanks were attached to Service Talks and it was stated that seats would be held until the morning preceding the date of flight for persons filling out these cards and handing them to conductors or cashiers of the company, or mailing them in directly to the air service headquarters. Thousands of postcards have also been printed and are distributed free of charge. These carry a picture of the "Kendrick," the first of the planes to be completed, and are designed especially for transportation by air mail, as a place for a 10-cent air mail stamp has been designated.

The air service is, of course, a particular feature of the Sesqui-Centennial, but if it continues to meet with the success that has been accorded it during the first week of operation it is probable that it will be continued indefinitely. Passengers have been very enthusiastic in their comments on the trip and a large number of reservations have been received for dates in the near future. It is possible for P.R.T. not only to advertise the air service widely on its cars and buses but the airplanes themselves are very effective heralds of the company and its varied activities. The legend "P.R.T. Air Service" appears on the undersides of the wings and on the bodies of the planes and is readily discernible from the ground. The buses also carry the insignia of the new service.

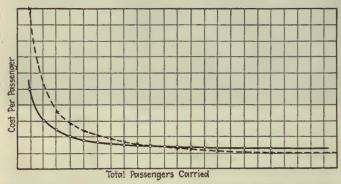
The Readers' Forum

Graphic Study of Bus and Trolley Economics NEW YORK, N. Y., June 10, 1926.

To the Editor:

Discussion as to the fields of the motor bus and the trolley includes psychological, social and economic matters. Some persons prefer to ride in a bus even if dilapidated and operated over poor pavements rather than to go the same distance in a new trolley car operated on new tracks. Most property owners prefer a bus line to a trolley in the street in front of their homes. On the other hand, trolleys have returned to the community more in taxes per passenger carried than have bus lines.

Each of these several factors in the long run is given an economic value. Any facility will eventually cease to exist unless it can operate without financial loss. The initial capital outlay per unit of transportation is higher for a trolley line than for a bus service. For each type the purely operating costs increase almost proportionately to vehicle mileage. In each case the total operating cost starts from a constant (larger for trolley than for bus) and increases roughly proportion-



This Diagram Is Entirely Hypothetical. It Assumes One Startlng at Twice the Initial Cost of the Other but Increasing at One-Half the Unit Rate per Unit of Passengers Carried

ately to the number of passengers carried, the rate of increase being greater for a bus line than for a trolley. The unit cost per passenger would then decrease from infinity with zero passengers in each case so as to approach some constant. The rate of decrease would be different for each type and the constants would differ. At first the bus service would be the most economical. Finally, the two lines would intersect and then the trolley would become the cheapest.

Typical curves are very close together throughout a long range and in two individual cases may be reversed in position at any given total of traffic because of slight differences in managerial efficiency or of advantageous initial capital outlay.

Just so long as a bus line can be started with an initial outlay less per unit of transportation capacity than a trolley, just that long will it be cheaper to start transit operation with buses. Just so long as the rate of increase of cost per passenger carried is less for trolley lines than for buses, there will be a theoretical point beyond which it will be cheaper to operate a trolley than a bus line. If it ever happens that the rates of increase per passenger become the same for the two

types of transit, then the bus will supersede the trolley because the bus will be the cheaper for all traffic quantities. Until that time is reached there will be an economic field for each type of vehicle.

As between subways and either buses or trolleys, the same economic conditions hold as between trolleys and buses. With large masses of passengers and high density a subway will always show lower costs than either buses or trolleys. In a special case it might chance that the line for a subway system in the diagram would cross both bus and trolley graphs before the trolley graph crossed the one for buses. In that rare case there would be no economic reason for a trolley system.

In some circles there is a feeling often expressed that buses will eventually supersede trolleys in all cases. This may actually happen under the economic conditions outlined above, but the idea is also unfortunately being pressed where those economic conditions do not hold. It is something like the pressure to substitute bridges and tunnels for ferries without giving the ferry a proper chance in the light of modern technical knowledge. Undoubtedly a good deal of scrapping of trolley lines needs to be done at the present time, but what is necessary is probably largely a scrapping of old-fashioned, inefficient management methods or systems rather than a substitution of a new type of vehicle for an old one. This is believed to be a matter of importance in these times when the inclination seems to be to embark on huge expenditures for changes of physical system rather than the improvement of existing operating ERNEST P. GOODRICH, methods.

Consulting Englneer Regional Plan of New York and Its Environs.

School for Bus Operators at Akron

RECENTLY the Northern Ohio Power Company, Akron, Ohio, instituted a school of instruction for bus operators, realizing the great need of instruction in that field. The bus end of the transportation department really has grown so swiftly that it has run away from much of the old-time régime and is about to stand alone as a unit on the merits of its popularity. School is held at Kenmore shops at the hours of 9 a.m. and 7 p.m. on Monday and Thursday of each week. Twenty-one lessons with three reviews constitute the full course of instructions. Illustrated lectures of 30 minutes each are given by representatives of the mechanical department, the transportation department and the safety department.

B. S. Paugh, J. K. Petty and G. H. Shaw represent the respective departments composing this school and act as instructors. Every phase of mechanical equipment, bus operation and safety is being taught in this school. It is planned to extend the instructions to all operators, old and new, and the co-operation of every man on the payroll is expected in order to make the venture a success.

Strict attendance is requested of operators when notified to attend the school, for it is purely a bus operator's school, intended for none other than the bus operator and designed to make his work more pleasant for himself in every way. One of the chief purposes of this school is to prepare the operator thoroughly for his daily work and to increase the feeling of good will between himself and the public which he serves for his company.

Maintenance Notes

Metal Signal Flags for Section Crews

By D. H. WALKER
Assistant Engineer T. H., I. & E.
Traction Company

OR some time past the section crews of the Terre Haute, Indianapolis & Eastern Traction Company have used cloth flags for posting along the track where work was being done. Each crew was equipped with two yellow flags for slow and two green flags for proceed signals. These flags required frequent replacement because of bleaching by the sun and natural exposure to weather conditions. Also in a strong wind they would often wrap themselves around the pole on which they were fastened and thus become practically useless as signals. This created a condition of danger for those working on the track, as the motormen were sometimes unable to distinguish the signal.

As an experiment we had made up in our shops a number of metal flags to replace those of cloth. These metal flags were 15 in. x 15 in. and made of sheet tin. A \(\frac{5}{2}\)-in. solid iron rod about 5 ft. long was flattened out at the top and the sheet tin riveted to the rod. The rod was left projecting about 3 in. above the top of the flag in order that green or yellow lanterns could be hung on this when necessary to maintain signals after dark. The cost of making one of these metal flags was approximately the same as the cost of the cloth flags.

As a result of our trial we equipped each section with metal flags. So far they have lasted several months and show no deterioration. We expect them to last for at least a year and probably longer. while the cloth flags on most sections had to be replaced about three times a year. In addition, when metal flags become too dim for use as the paint scrapes off they can be repainted at a negligible cost and would then be as good as new again. The iron rod can be firmly planted in the ground and will remain undisturbed as a warning signal. Both section crews and trainmen are better satisfied and safer with the new



Better Protection for Trackmen Has Been Secured on the Lines of the T. H., I. & E. Traction Company by the Use of Metal Markers Instead of Cloth Flags

flag and our cost of maintenance for this item has been cut to a fraction of the cost of the cloth flags.

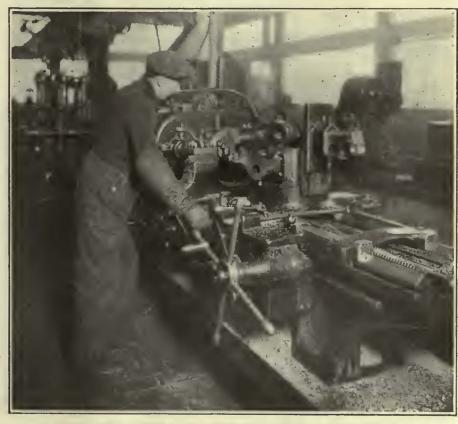
Trolley Wheel Mileage Increased by Better Contact

BY INCREASING the tension with which the trolley wheels press on the wire from 30 to 35 lb., the Department of Street Railways, Department

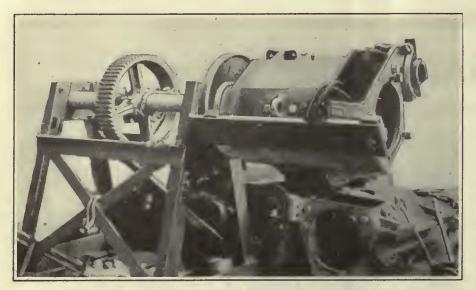
troit, Mich., has increased its average yearly mileage per wheel 20 per cent. The pressure is measured at a height of 18 ft.

Turret Lathe Saves Time in Finishing Bearings

INISHING of bronze armature Finishing of bronze Foster turret lathe busy in the shops of the Department of Street Railways, Detroit, Mich. The accompanying illustration shows the setup for doing this work. In the finishing of bearings the tools for the several machining operations are clamped to the turret head of the carriage. Axle bearings are finished in pairs. With the outside sections finished at the small end the remaining portion and the flange end can be finished and the bearings bored accurately without removing them from the lathe. The same method applies to the boring of armature bearings except, of course, that these are solid instead of being in two parts.



Finishing Bearings in a Turret Lathe in the Machine Shop of the Department of Street Railways, Detroit, Mich.



The Motor Frame Can Be Rotated to Most Convenient Position for Work

Handy Support for Motor Frames

FITTING pole pieces and mounting field coils in railway motors is often a back-breaking job. To overcome this the United Railways of St. Louis built the device shown in the accompanying illustration for holding the motor frame in any desired position while workmen do this. The standard is constructed of structural steel members and an old car axle is used to support the jig on which motor frames are bolted.

An old gear is fastened to the

or as a lock to hold it securely. This lock is a short section of angle steel that can be slipped along the frame and made to engage between the teeth of the gear, thus effectively locking the apparatus in place.

Added Efficiency for Overhead Crane

REATER usefulness has been Jobtained from an overhead crane in the shops of the Detroit United Railway, Detroit, Mich., by adding two air hoists. The crane, which is used in the truck overhauling shop, axle and used for a handle to turn is of 20-ton capacity. Originally it the apparatus to the desired position had a chain hoist. Besides this, two

air-operated hoists have now been installed, one on either side of the chain host, and carriages have been added for moving these crosswise of the bridge. In lifting out truck parts the air hoist can be used independently. Where heavy loads are to be lifted the two can be operated in unison. The chain hoist is also available where needed.

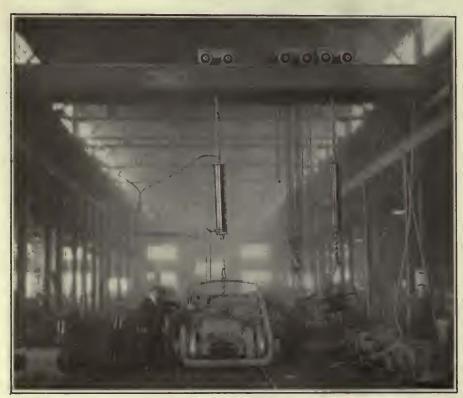
Aside from the two air-operated hoists, a 1½-hp. electric motor has been installed for operation back and forth over the overhauling bay. This motor is controlled from the floor.

Improved Babbitting Room in Los Angeles

REBABBITTING armature, axle and journal bearings in the shops of the Los Angeles Railway. Los Angeles, Cal., is being handled in a section just completed. The equipment now provided is fully modern. It consists of three electrically heated and automatically controlled unit melting pots and a preheating oven. In addition an electrically heated Oakite cleaning tank and various metal-lined bins and benches made in the railway shops have been installed.

The company's experience with babbitted bearings has shown that to obtain best results the lining metal must be heated to a definite temperature which must be kept uniform. The heating parts of the new equipment have thermostatic control which when set for the correct temperature is then automatically maintained at that point. The cleaning tank, heating parts and the preheating oven were installed in order to obtain the most efficient stepby-step process of production.

In rebabbitting bearings the old shells are first placed in the Oakite cleaning tank and boiled until clean. They are then placed in the melting pot and all of the old babbitt metal is melted off. If the bearings are allowed to cool they are placed in the preheating oven and heated to the proper temperature for tinning. The bearings while hot have a flux applied to the surface which is to be babbitted so as to make the tinning metal adhere properly. All other surfaces are swabbed with a clay wash to prevent the adherence of the tinning metal. Mandrels and forms are provided for the different types of bearings. The bearing shell is placed in the proper fixture and the babbitt is poured into it with selfskimming ladles to insure a clean and



Usefulness of This Crane in the Shops of the Detroit United Rallway Was Increased by Adding Air Hoists

uniform texture of the metal. The bearing is allowed to cool gradually and the shell is then removed and machined to proper size.

Winder for Heater Motor and Smaller Armatures

7 INDING armatures for heater motors and other smaller motors is accomplished with a considerable economy of effort in the shops of the International Railway, Buffalo, N. Y.

As compared with the old method of winding armatures by hand, which permitted of handling scarcely more than one armature a day per man, the new equipment developed in the I. R. C. shop for this purpose is now able to cope with eight or more units per day and but one man is required to handle it.

The winding machine was designed and constructed in the I. R. C. shops. It is equipped with a counter which counts the number of turns. The winder is turned by hand, the wire being féd from a spool and guided into the slots by means of a large shield as shown in the accompanying illustration. The shield is so curved that the wire is guided into the armature slots with practically no attention from the operator, thereby making for great speed in winding.

As each slot is completely wound the armature is given a fractional rotation and the winding continued in the next slot. Normally the machine is fastened to a wood block of considerable weight to give it stability.

Side and End Views of Armature Winder Designed by I. R. C. Maintenance Department

New Equipment Available

Portable Resistance Arc Welder

ONNECTIONS for 400 to 600 volts and current steps from 30 to 210 amp. are provided on a new design of portable resistance type

resistance element has been worked out, as illustrated. Two designs of insulators shown by letters A and B are used, so that when assembled they are easily held together by a support frame C. The resistance wire D is coiled and placed in the

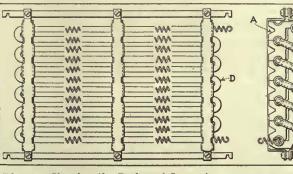
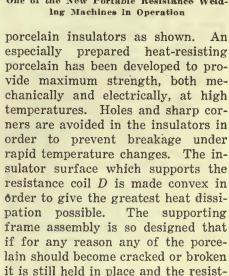


Diagram Showing the Design of Supports for the Resistance Element

arc-welding machine just placed on the market by the Ohio Brass Company, Mansfield, Ohio. Resistance elements are arranged on the unit plan, fourteen individual units being used. Any one unit may be removed without disturbing the other units. Instead of one complete element block for the full 600 volts two element blocks are used and these are insulated from each other electrically as well as from the main plane. Voltage stress on any one insulator is thereby cut in two and the possibility of shorts between resistance wires is greatly reduced.

A unique design of support for the



ance coils cannot short or ground. The coil support spacings are very short, being approximately 5½ in., which prevents any undue stretching or sagging of the resistance coil. The element illustrated is a 300-volt 30-amp. unit. Control of the machine is provided by a push button on the electrode holder and a contactor is supplied in the arc circuit. The main frame is grounded. These features afford the operator complete protection from shock. The machine is built wide and long.



One of the New Portable Resistance Weld-

Association News & Discussions

Fares and Fare Collection Methods Demand Careful Consideration*

Fares Must Be High Enough to Insure Fair Return on Investment— Various Combinations of Rates Being Tried—Theory Must Give Way to Practical Business Demands

> By BARNEY W. FRAUENTHAL General Traffic Agent United Rallways of St. Louis

THE ideal street car fare should accomplish two things, one possibly as important as the other. First it should produce sufficient revenue to pay all expenses, to provide for depreciation and to pay a return on capital invested in the property, sufficiently high to attract new capital. Secondly, it should be in convenient form and low enough to attract car riders.

A careful balancing of values is indeed necessary in devising a fare structure that will satisfy both of these conditions. Most electric railway operators know through experience that a fare can be so low that insufficient revenue comes in to pay operating expenses, much less a return on invested capital. There is no doubt that the "Dark Ages" through which the electric railway industry has just passed, were caused primarily by the fact that fares did not increase as fast as expenses. The franchises under which a majority of the companies operated called for a flat rate of fare, usually 5 cents, with no provision for adjustments to meet changing conditions. In other words, the ordinances governing fares were inflexible. With the formation of public service commissions the jurisdiction over fares was placed in their hands, with power to make such adjustments as were necessary to put the street railways back on their feet.

In St. Louis the adult fare was 5 cents up to June 1, 1918, at which time a 6-cent fare went into effect. On Sept. 20, 1919, the fare was changed to 8 cents cash, two tickets for 15 cents, seven tickets for 50 cents and 50 tickets for \$3.50. On April 10, 1920, the fare was reduced to 7 cents cash and 7-cent tickets. We are still operating under the latter fare, although application has been made by the receiver to the Missouri Public Service Commission for an increase to 8 cents cash and two tickets for 15 cents, the reason for applying for this increase being the fact that we are not earning a fair return under the 7-cent fare. actual return for the year 1925 was less than 5 per cent. Thus you will see that at present our fare in St. Louis does not satisfy the first requirement of an ideal fare, namely, furnishing

*Abstract of paper presented before annual meeting of Midwest Electric Railway Association, Denver, Coi., July 8-10, 1926.

sufficient revenue. Although our tokens sell for the same price as the cash fare, 7 cents, nevertheless for the year 1925 tokens sold amounted to 61.84 per cent of adult passengers. For the first four months of 1926 the percentage is 62.16.

Our tokens are sold at all car sheds, at the company's general offices, at various banks and stores and by the conductors. All parties other than the railways company sell these tokens merely as an accommodation to the public and receive no compensation. We have signs in practically all cars urging passengers to buy tokens in order to save time. A large portion of our tokens are sold by giving them as change to the passengers.

Some differentiation should be made between the frequent and the infrequent rider, since the former contributes a more dependable support to the railway. However, the patron whose riding consists in going down town in the morning and home at night, six days a week, with no additional riding, is not particularly profitable to the company, since he tends to make the load factor low. About the only reason for wanting his business is to keep his automobile off the streets in the rush hours. If this passenger, in addition to his travel to and from work, will make several additional round trips each week, he will become a valuable customer.

In order to encourage such frequent riding railway managers usually favor a considerable concession in the price of tickets when sold in quantities, pro-vided the cash fare is high enough to permit this, which it is not in St. Louis. Most railway men doubtless favor a 10-cent cash fare with tickets sold in half dollar or dollar lots. This would eliminate much change making, and because of the convenience of the dime would induce many to pay the cash fare who, if the cash fare were 8 cents, would buy tickets. Car riders may be divided into two classes. To one class the amount of the fare is of little or no importance. To the other it is of considerable importance. The convenient 10-cent cash fare would appeal to the former, and the low ticket fare to the latter.

From the passenger's standpoint, there is probably no great choice between paper and metal tickets, some doubtless preferring the former and others the latter. From the company's standpoint, metal tickets have the advantage of being repeatedly usable, and the disadvantage of higher first cost.

In a number of cities the weekly pass has been used with varying results. From the passenger's standpoint the pass has the following advantages: Many petty cash transactions are eliminated. There are no transfers to bother with, and the passenger can pick his own route. Stopovers may be made without extra cost. If the passenger rides frequently, money is saved. Since the use of the pass is voluntary, there are no disadvantages. From an operating standpoint the pass has the advantage of speeding up fare collection and thereby speeding up the cars, which of course reacts in the passenger's favor.

From a financial standpoint the effect of the pass may be either favorable or unfavorable. Many people spend more per week on carfare under the one-fare-per-ride system than they would under the pass system. With respect to these people, the introduction of the pass would mean a loss to the company. On the other hand, there are many people who ride exactly twelve times every week, always in the rush hour. If these people can be persuaded to buy passes at the price of, say, fif-

COMING MEETINGS

OF

Electric Railway and Allied Associations

July 28-30—Electric Railway Association of Equipment Men, Southern Properties, semi-annual meeting, Chattanooga, Tenn.

Aug. II — Metropolitan Section A.E.R.A., annual outing, Pelham Bay Park, New York.

Aug.12-13—Wisconsin Public Utility Association, Railway Section, La Crosse, Wis.

Sept. 17-18 — Mid-West Claim Agents Association, sixth annual convention, Elms Hotel, Excelsior Springs, Mo.

Oct. 4-8—American Electric Railway Association, annual convention and exhibits, Public Auditorium, Cleveland, Ohio.

Oct. 10-15—Congress International Tramway, Local Railway and Motorbus Association, Barcelona, Spain.

Oct. 25-29—Annual Congress and Exhibit, National Safety Council, Detroit, Mich.

Nov. 16-18—Society of Automotive Engineers, National Transportation and Service Meeting, Boston, Mass.

teen rides, and to double their riding, the company will gain, since the additional rides will be taken in the non-rush periods, when they can be handled at little or no additional expense. In some cases the pass may prove an effective weapon of competition, since the pass holder will not be prone to divide his patronage. The pass is sometimes criticised on the ground that it is a departure from the principle of measured service. The usual flat fare is open to the same criticism.

Methods of preventing transfer abuses usually include one or more of the following: Directional indication, indication of lines to be used, time limit

and date.

The round-trip abuse arises from the fact that in some cases three or more lines must be used in making a legitimate one-fare journey. Many people are not above taking advantage of this to go to their destination and return on a single fare. This abuse can be minimized by indicating upon the transfer the lines to be used, provided that the conductor knows where the passenger boarded the car. With the pay-as-you-pass and pay-as-you-leave system in vogue in many cities, the conductor does not know where the passenger boarded the car, and the line-tobe-used indication is not much protec-

The time limit is the most effective means of combating long stopovers. The worst form of this abuse is that in which the passenger rides to work in the morning and home in the evening for one fare, making both trips in the rush periods. In order to work this it is necessary either to use one of the round-trip schemes previously mentioned, or to exchange transfers with other persons working in the same place but living on different car lines. Enforcement of the time limit will, of course, eliminate this abuse, even though the issuing conductor is liberal

in his allowance.

Rapid fare collection is an important desideratum in street railway operation, and this cannot be secured if any large amount of information must be placed upon the transfer by the issuing conductor and read by the lifting conductor. Therefore, the transfer system should be as simple as possible. In view of the difficulty of preventing transfer abuses which involve routes and directions, it may be good policy to adopt a transfer system which will be very liberal in these respects, and to concentrate on the time limit. Practically all the round tripping done for one fare under such conditions will be in the non-rush hours, and it is possible that the increase in travel brought about will balance the losses due to such round tripping. The conductor, being able to watch the time limit more closely, will be in a better position to check the dangerous abuses mentioned above in connection with long stopovers and use of transfers by other than the issuee. Elimination of disputes over routing will promote good public relations and tend to increase travel. Fare collection will be speeded up with consequent improvement of service.

In many cities a charge of 1 or 2 cents is made for transfers. This is discriminatory, since the passenger who

uses a transfer does not necessarily travel a greater distance than another passenger who does not transfer. The fact that one trip requires a transfer while another does not is due to the arrangement of operated routes. The transferring passenger is not responsible for this arrangement and should not be penalized for it. However, a transfer charge may in some cases be a more painless way of getting revenue than a higher fare. Also, it permits a somewhat lower fare and thereby permits the company to get more short-haul, non-transfer business, especially where there is some other competitive public carrier.

In some cities, largely in order to meet competition, transfers have been abolished entirely and the fare reduced. It sometimes happens that exact justice must be abandoned in order to keep a business going on to please its customers.

New Englanders Visit Casco Bay

N THURSDAY of this week a delightful summer outing was enjoyed by 300 members and guests of the New England Street Railway Club at Portland, Me. Through the courtesy of the Cumberland County Power & Light Company the Steamer Aucocisco was placed at the service of the club for the day without charge, and free transportation from and to Boston by motor bus was supplied by the Mack Motor Truck Company. The party as-

sembled under the leadership of President Fred D. Gordon of Portland and members of his staff in the Cumberland County Company at 10 o'clock Thursday morning on the steamship pier serving the Casco Bay Boat Lines, and a most enjoyable trip down the harbor to Long Island followed. Amid the ocean breezes outdoor sports occupied the program for the rest of the forenoon, the events including contests for both men and women, a baseball game between the supply men and the railway men, which the latter won by a score of 10 to 7, and a tug of war in which the victory was reversed. After a shore dinner a steamer trip around some of the outer islands of Casco Bay was greatly enjoyed and the party disbanded at the close of an informal supper at the Falmouth Hotel. Many prizes for athletic events were awarded, among the doners being the following: Mack Motor Truck Company, White Motor Truck Company, John A. Roebling's Sons Company, American Steel & Wire Company, Westinghouse Traction Proke Company, Coppen Floatrice tion Brake Company, General Electric Company, Westinghouse Electric & Manufacturing Company, National Railway Appliance Company, Electric Service Supplies Company, Griffin Wheel Company, Albert & J. M. Anderson Manufacturing Company, Bemis Car Truck Company and Graybar Car Truck Company and Graybar Electric Company. Charles H. Wood was chairman and George E. Haggas vice-chairman of the entertainment committee.

American Association News

Entertainment

MEMBERS of the entertainment committee of the Amreican Association held a meeting in the office of President J. J. Stanley of the Cleveland Railway on July 9. Those present were S. J. Cotsworth, chairman; J. H. Alexander, chairman of the exhibit committee; C. H. Beck, H. L. Brown, J. A. Dewhurst representing Charles Gordon, H. B. Doyle, R. N. Graham representing C. S. McCalla, R. A. Hauer, H. J. Kenfield, George Stanton, J. B. Stewart, Jr., J. V. Sullivan, W. F. Weh representing C. M. McCreery, F. H. Wilson, Paul Wilson, by invitation of the chairman; J. W. Welsh, executive secretary, and F. C. J. Dell, director of exhibits. Mr. Dell was appointed secretary of the meeting.

A committee was appointed to investigate the possibilities for golf, consisting of F. H. Wilson, chairman; Paul Wilson and W. F. Weh.

On the subject of music several propositions were considered. Full plans have not been made, but it was decided to have organ music in the Auditorium four times daily.

Sub-committees have been appointed to take charge of the entertainment each evening, as follows:

Monday—S. J. Cotsworth, chairman;

Monday—S. J. Cotsworth, chairman; C. H. Beck, H. L. Brown, C. C. Castle, George Stanton, J. B. Stewart, Jr., J. V. Sullivan, Paul Wilson.

Tuesday—H. L. Brown, chairman in charge of all arrangements, to select his own committee.

man. All exhibits are to remain open

for the Cleveland public.
Thursday—E. P. Waller, chairman;
W. J. Stanton, F. V. Gantt, K. A. Simmon, L. J. DeLamarter, Charles Gordon,
H. B. Doyle.

In the absence of Chairman C. M. McCreery the report of the ladies' entertainment committee was read by Mr. Weh. It was decided to appoint a committee of Cleveland women to have complete charge. The following were appointed: Mrs. W. F. Weh in charge and Mesdames L. G. Sircoulomb, C. E. Ballou, J. H. Alexander, Morris Ireland, W. P. Hurst, Raymond Snell, H. K. Huack and G. M. Kryder.

Coffin Contest Closes Aug. 2

In THE rules for the Coffin Award contest, Aug. 1 has been set as the latest date upon which presentations will be received. Since this year the date falls on a Sunday it has been decided that it will be only fair to accept presentations which are received on Monday, Aug. 2.

All presentations should be addressed to J. W. Welsh, executive secretary American Electric Railway Association, 292 Madison Avenue, New

York City.

The News of the Industry

Strike on Interborough Subway Lines in New York Collapses

The strike of motormen and switchmen on the subway division of the Interborough Rapid Transit Company, New York, is over. The strikers, 300 of them, tacitly agreed on the night of July 22, without taking a vote, to go back to work at 10 o'clock on the morning of July 23. The action was taken at the Manhattan Casino, Eighth Avenue and 155th Street, after the leaders had announced the strike was lost and had cast blame on Mayor Walker, although the Mayor had come into the situation only at the eleventh hour.

During the evening the leaders of the strikers were in communication with Superintendent Abraham L. Merritt of the subway division of the Interborough. They planned to march in a body to the Interborough yards at Lenox Avenue and 147th Street on the morning of July 23 and ask to be taken back on the basis on which they were employed when they walked out.

No announcement was forthcoming from the company following the action at Manhattan Casino, but a statement made on behalf of Frank Hedley, president of the Interborough, during the afternoon, indicated that all the men would be taken back if they came as individuals. James L. Quackenbush, counsel for the company, has said frequently that the General Council of the Interborough Brotherhood will have to be consulted before the three men who led the strikers are put back to work.

On Thursday the Interborough again succeeded in increasing its service. While it will take some time to rearrange schedules, it was believed the subways would be back on normal operation either during the rush hour late Friday or within the ensuing twelve hours.

No Strike Likely in Chicago

William D. Mahon, international president of the Amalgamated Association, arrived in Chicago on July 15 from Detroit to assist in reconciling the demands of 14,000 surface lines employees, 5,000 rapid transit trainmen and 900 employees of the Chicago, North Shore & Milwaukee Railroad with the counter proposals of the several employer roads. He heard the grievances of the men at a joint conference on that day.

Conferring with Britton I. Budd, president of the Chicago Rapid Transit Company, on July 16, the union head was told that the company would stand firm on its demand for reduction of 5 cents an hour in pay instead of an increase of 5 cents asked by the men.

The elevated employees are seeking a wage increase of 5 cents an hour and insurance provisions, while the trainmen of the North Shore Line are asking an increase of 6 cents an hour. Similar demands are being made by trainmen of the Chicago Surface Lines, who now receive a maximum wage of 75 cents an hour. The demands of all but the Surface Lines employees have been rejected.

Bandits Get \$8,000 East St. Louis Pay Roll

Robbers held up a car of the East St. Louis & Suburban Railway at Nineteenth and State Streets, East St. Louis, Ill., at 1 p.m. on July 19 and escaped with about \$8,000 in cash which was being carried to a downtown bank. Five men who accompanied the money were lined up by the robbers.

A relay system of automobiles was used by the robbers in escaping. They drove from the scene in a green Lincoln and at Seventeenth and Broadway transferred the money to a Ford roadster. Two of the men went north to the Tri-Cities in the Ford, two drove away in the Lincoln, while the other two transferred to a large blue car, which went east on Broadway.

The money had been collected from the carhouses and was placed in two valises in the center of the trolley, which was being run as a special.

Substitutions Sought in Buffalo

The International Railway, Buffalo, N. Y., applied on July 16 to the Public Service Commission for approval of a declaration of abandonment, authorized by the stockholders of the company, covering that part of its line on Delaware Avenue in Kenmore from near Kenmore Avenue, and running along Delaware Avenue to the connection with the Buffalo-Tonawanda-Gratwick line near the Ellicott Creek Bridge in Tonawanda and that part of the line starting from Delaware Avenue and Schell Road in Tonawanda about 1,283 ft. in Schell Road to the end of the track.

The company says that this part of

The company says that this part of its line is no longer necessary for the successful operation of the road or convenience of the public. Receipts from transportation of passengers are considerably less than expenses and there is apparently no prospect of an increase in traffic sufficient to provide an adequate return on the basis of existing fares.

The International Bus Company also filed a petition for a certificate for the operation of a bus line in Tonawanda, Kenmore and the town of Tonawanda under local consents granted to it. It is planned under the application to extend the Delaware Avenue bus line now operated in Buffalo from the Buffalo city line and provide a substitute transportation service, if abandonment of the railway is permitted.

New Franchise Deal Wanted in Sacramento

The Pacific Gas & Electric Company has presented a proposal to the City Council of Sacramento, Cal., providing for six major bus line extensions and changes in its present system based on an anticipated 7-cent fare and conditioned on the understanding that the city authorities will acquiesce to an application to the Railroad Commission for an increase in fares.

The extensions and changes would serve growing districts and are based on a survey conducted by the company. The survey was the outcome of a conference held several weeks ago by city officials with Wiggington Creed, president; P. M. Downing, vice-president, and other officials of the company.

The proposal is signed by Mr. Downing, who says that if the fare is increased to 7 cents the system will earn 3.5 per cent on its present capital investment under existing conditions. He said:

Our proposal, as outlined in our conference on May 5, is that we provide the additional bus service as set forth with the understanding that the City Council acquiesce in our applying to the Railroad Commission for an increase in fares.

The proposal reiterates previous statements of the officials that they are unwilling to make any additions to their present street railway trackage.

The bus line program proposes the establishment of new lines to serve the junior college district, territory north and east of McKinley Park, territory in the vicinity of 57th and M Streets, and T Street from 28th Street to 57th Street. A "crosstown" line over 39th Street from D to Third Avenue and 35th Street would serve territory en route and provide interconnections.

No Dealings with Indianapolis. Strikers

Federal and state courts in Indianapolis, Ind., have taken the center of the stage in the strike of unionized trainmen of the Indianapolis Street Railway. Court action is being started as the result of vandalism that has marked the recent progress of the strike, including the dynamiting of cars and the injuring of passengers.

Hope of arbitration of the demands of the strikers is waning. It is understood Governor Jackson feels there is no occasion for him to act in the absence of an emergency and Mayor Duvall said he felt he had no power to take any action, regardless of the passage of a resolution by the City Council on July 19 calling on him to take steps looking toward a settlement.

Four men were arrested Tuesday by agents of the United States Department of Justice charged with vagrancy and

held for investigation in a probe of

dynamiting of cars.

No statements were made by officials of the company following their declaration Monday that they would decline to deal further with any of the strike committees looking to arbitration or any settlement other than that provided in the contract the company holds with its men.

In the meantime service seems to proceed as usual. The company now is turning down applications for employment and all cars are in operation, even the special one and two-trippers used in the morning and evening rush hours. Apprehension seems to be felt only late at night.

The Peoples Motor Coach Company, which formerly stopped its service at midnight, now operates during the en-

tire night.

At night police ride virtually every car, and in every case where dynamite has exploded beneath the cars a policeman was riding the car. Thus far none of the police officers has been injured, but the vandals in each case have succeeded in making their escape before the officers on the cars could obtain any information of value.

John M. Parker and Robert D. Armstrong, vice-presidents and organizers for the Amalgamated Association, appeared in federal court at Indianapolis on July 22 and pleaded not guilty to contempt. They were charged with violating the federal injunction prohibiting them taking part in the strike in Indianapolis. Both pleaded for time, through their attorney, and were given until Monday to answer the charges. They were released on \$10,000 bond each. The court informed the attorneys for the men that he wished all street car cases settled before the end of next week. He said he wanted attorneys to be ready, in case he over-ruled answers to the information, to try the case by next Wednesday.

By Thursday evening a total of eight, including the organizers, had been arrested on contempt charges, in connection with acts of vandalism. The other six pleaded guilty. being held without bond. They are

In talks to the other six men arraigned, Judge Baltzell informed them that they had a perfect right both to organize and to strike, if they so desired, but he intended to put a stop to acts which jeopardized property rights or endangered the lives of passengers.

All Chicago Riding Records Broken

Revenue rides on the Chicago Surface Lines during the month of June totaled 132,980,301, exceeding the corresponding month last year by 7,295,392. The average daily rides for the month, 4,432,677, reached the highest total in the company's history. During the three days of the International Eucharistic Congress, which was held in Chicago from June 20 to June 24, the surface lines carried 15,055,000 passengers, the largest total ever recorded by any single transportation agency in the city in a similar period.

This is the thirteenth consecutive month showing an increase in riding on the surface lines. During the first six months of the year there has been a gain of 29,313,867 over the corresponding six months of 1925. This increase, company officials declare, is greater than the increase for the entire twelve months of last year.

The income account for the month of June is as follows:

		1926	1925
Gro	ss earnings	\$5,135,965	\$4,829,004
	idue receipts	1,137,160	982,493
Div	isible receipts	446,005	301,169
	y's 55 per cent.	245,303	165,643
Con	npany's 45 per		
C	ent	200,702	135,526

Reappraisal of Rochester Properties to Be Argued

As a result of a decision by Supreme Court Justice Adolph J. Rodenbeck the city of Rochester has won its fight to bring to trial this fall its long-standing suit for a reappraisal of the Rochester lines of the New York State Railways under the service-at-cost contract between the railways and the municipality.

Justice Rodenbeck denied a motion of the railways to dismiss the city's petition for a revaluation. The corporation maintained, through its attorneys, Harris, Beach, Harris & Matson, that the city, by delaying to ask for a review of the appraisal in the first two years of the service-at-cost contract, had forfeited its right to ask for such a review. The court ruled:

There were issues raised in the motion that could not be determined save by a trial and the city is not barred by any delay or by its acts from raising questions in this suit.

The record now in court shows that there is a question of fact as to the proper rules used in appraising the property and to the fairness and reasonableness of the appraisal arrived at.

It is expected that the suit will come up at the equity term of the Supreme Court in October in Rochester.

James F. Hamilton, president of the railway, said he would not appeal Judge Rodenbeck's decision and that the railways would be ready for trial in October.

The question has been hanging fire for more than three years. Five years ago the properties of the New York State Railways in Rochester were appraised at \$19,216,000. The service-at-cost contract was put into operation then, with these valuation figures as a basis.

The Bureau of Municipal Research made a study which led to a recommendation that the appraisal be tested in court and a complaint against the five-year period of values which the appraisers used to determine reproduc-tion costs. The bureau claimed the appraisers based their findings on figures for pre-war and war-time years when peak prices were in order, both for labor and material.

Mr. Hamilton maintained that a reappraisal would show the figure to be nearer \$27,000,000 than \$19,216,000.

The point at issue in the motion before Justice Rodenbeck had no actual bearing on reappraisal values but simply concerned the issue whether the city by its delay had not forfeited its right to ask for a review.

Franchise Hearing Held in Kansas City

Mayor Albert I. Beach was the principal inquisitor at the first Council hearing on the proposed new franchise for the successor to the Kansas City Railways, Kansas City, Mo., under reorganization. The old franchise, now in operation, has eighteen years yet to run, but the new owners and at least a portion of the city fathers deem certain changes in the franchise pro-visions beneficial to the successful operation of the system in future.

In answer to other questions, W. G. Woolfolk, who will be president of the new company, said the entire property of the Kansas City Railways will be owned by the Kansas City Public Service Company, but that the property in Kansas City, Kan., would be op-erated by the Wyandotte Street Railway, the securities of which will be owned by the Missouri corporation.

Councilman Gossett, who introduced the new ordinance, appeared to think that the entire system should be owned and operated by a single company. He asked Mr. Woolfolk if there is anything to prevent that plan being used. The latter agreed that it might be arranged. Mr. Gossett declared that he wanted that phase of operation provided for, but he mentioned none of his reasons for such demand.

Mr. Woolfolk told the Councilmen that securities will be more readily salable under a new 30-year franchise than under operation in the remaining eighteen-year period of the old franchise, and that new money would be brought to the property, benefiting both the company and the city. He also pointed out that the company is asking that the bus franchise be made a part of the railway franchise and that any excess return from the bus system would tend to reduce the car fares.

Mr. Woolfolk further discussed the question of service at cost, the 8-cent maximum fare provision of the proposed grant and the possibility of the lower fares as provided therein, and pointed out that if a higher fare was ever needed, it would have to be obtained by application to the Public Service Commission.

He said that it is planned to spend \$2,000,000 during the next three years in rehabilitation of the system. Eventually all power will be purchased.

New Louisville Grant Introduced

Following discussion for several months of the terms of a new franchise ordinance for the Louisville Railway, a proposed new grant was recently introduced in the City Council and placed in the hands of the revision committee.

The new ordinance would require a 7-cent fare for two years, or the same rate as is now being paid, but without a sliding scale. It also provides for transfers from bus lines of the company to street cars. This would permit suburban service to be increased through using the buses as feeders.

The Board of Public Works would

supervise the management of the railways and the company would pay about \$10,000 a year to the board to defray administration expenses.

Chestnut Street Subway, Philadelphia. Nearer Reality

Virtually the last obstacle to the construction of the Chestnut Street subway has been removed with the con-summation of an agreement between the Philadelphia Rapid Transit Company, Philadelphia, Pa., and the fran-chise-holding underlying transit companies.

The covenant indicates an early start on the tube, which eventually will mean the removal of surface tracks from Chestnut and Walnut Streets between the Delaware River and 22d Street. Consent of the Public Service Commission, which is understood to be ready to approve the program, and passage of a track removal ordinance by City Council are all that remain for complete approval of the project.

City officials say there is to be no change in the original agreement between the city and the Philadelphia Rapid Transit Company under which the municipality would build the \$20,-000,000 tube and the transit company would undertake to cancel the debt by paying the interest and sinking fund charges. Under that agreement the subway would become the transit company's property when the indebtedness was fully paid.

Traffic Census Under Way in New York

A traffic census is being conducted in New York to find out from each one of the 1,500,000 workers in Manhattan by which of 36 different lines of transportation he or she goes to work in the morning and the time of arriving at work. With this information it will be possible to make better use of existing transit facilities. If the necessary readjustments in riding habits can be brought about it is believed the capacity of present facilities can be increased 25 per cent.

Railway Operation Suspended by Hartford-Springfield Line

The Hartford & Springfield Street Railway, Warehouse Point, Conn., has discontinued all railway operation and will substitute further bus service as rapidly as permission can be secured from the State Department of Public Utilities.

For some time railway service has been operated between Hartford and Springfield on Saturdays only. The Warehouse Point-Rockville branch op-The erated daily. Originally the Hartford & Springfield lines totaled 35 miles, the main line extending from the Massachusetts-Connecticut state line to East Windsor, Conn., where it connected with the Connecticut Company's lines. This line totaled 14 miles, and from the terminal points operated over the Springfield Street Railway lines and the Connecticut Company lines. The Warehouse Point-Rockville branch is 13 miles long and the Somersville-Thompsonville line 8 miles long.

The company has been authorized to operate buses between Phelps Corner and Rockville via East Windsor. It has been operating buses between Hartford

and Springfield for some time. new bus route will parallel the railway and the fare per zone will be 10 cents, with the exception of Rockville, where 15 cents will be charged to protect the Connecticut Company.

What to Do Before the **Doctor Comes**

Officers of the Detroit chapter, American Red Cross, recently presented certificates as first-aid instructors to ten employees of the Department of Street Railways, who formed the winning team in the recent state competition conducted by the Red Cross at Ore Lake, near Brighton. Of 35 teams entered the railway men captured first, second and third places and won a handsome

First-aid instruction has been emphasized by Col. H. U. Wallace since he became general manager of the department. This first team will now organize other teams throughout the entire system and a team will be entered in the national Red Cross competition in the fall.

Emil Helferich is captain of the firstaiders and his team follows: John McGinity, Paul Penn, Harry Van Scriber, Muriel Shunk, Al Wiler, Steve Jass, George Duff, H. O. Johnson and

G. Ruedesluix.

The Red Cross will have a national competition in Michigan this fall and the municipal railway hopes to bring home another cup.

Traffic Survey of Birmingham by Ross W. Harris

Ross W. Harris, traffic expert of Madison, Wis., has been selected to make a city-wide traffic survey of Birmingham, Ala., at a cost of \$30,000, the expense to be borne jointly by the city and by the Birmingham Electric Company. It is expected the study will take from four to six months to complete. The problems to be studied include a thorough investigation into the parking question, downtown traffic congestion, street car routing and turning places, street car delays and residential

Wage Contracts Renewed

The Auburn & Syracuse Electric Railroad, Syracuse, N. Y., has signed a contract with its employees for one year, running from May 1, 1926, to May 1, 1927, on the same basis as last year's contract. The employees had asked an increase of 8 cents an hour.

The agreement between the San Antonio Public Service, San Antonio, Tex., and its employees covering wages and working conditions was renewed on July 1 by the clause which provides that all conditions shall remain the same for another year without change.

The Butte Electric Railway, Butte, Mont., has entered into a new agreement with its employees effective for a period of two years from May 1, 1926. The old wage rates will be continued.

Negotiations for a new contract between the Chicago & Interurban Traction Company, Chicago, Ill., and its employees have been postponed, but will be reopened some time later this fall. The wage scale, which expired June 30, will be continued in effect.

The wage agreement between the Rochester & Syracuse Railroad, Syracuse, N. Y., and its employees has been renewed for one year from May 1, 1926, without change.

The Syracuse Northern Electric Railway, Syracuse, N. Y., has renewed the agreement with its employees for one year from May 1, 1926, without change.

The agreement between the Richmond Light & Railroad Company and Southfield Beach Railroad, Borough of Richmond, New York, N. Y., and their employees, which expired June 1, 1926, has been renewed under the same terms and conditions as in effect last year.

The agreement between the Empire State Railroad Corporation, Syracuse. N. Y., and its employees has been renewed for one year from May 1, 1926, without change.

Public Utility Speakers for Ohio Schools

Emphasizing the fact that school students, and the public generally, cannot be too well informed on public utility matters, Vernon M. Riegel, State Superintendent of Public Instruction for Ohio, has sent a letter to all school superintendents in the state suggesting that they arrange for utility speakers to address student bodies. This letter was sent as a result of a conference which Fred J. Bollmeyer, director of the Ohio Committee on Public Utility Information, had with State Superintendent Riegel. As a result school talks have already been arranged through the Ohio committee. A copy of the letter follows:

of the letter follows:

It is always helpful to be able to give students in the latter years of school authoritative information about forces and factors which condition our economic life. There is woeful ignorance as to the functioning structure of modern industrial society. In this industrial society our public utilities hold a somewhat unique position. The public cannot be too well informed on public utility matters and needs information on all phases of the problems involved. There has been organized an Ohio Committee on Public Utility Information for the purpose of disseminating information from the utilities' standpoint about four of these industries, electric light and power, gas, telephone and electric raliways.

light and power, gas, telephone and electric railways.

The Department of Education does not want to thrust speakers upon the public schools. It does, however, want the schools to know that this committee stands ready to send speakers—men and women experienced in public utility work—to schools upon request. There would, of course, be no expense attached to these addresses before student bodies.

Extension of Winnipeg Grant Likely

It now appears certain that the Winnipeg Electric Company, Winnipeg, Man., will receive an extension of its franchise. Under the charter the city must give the company six months' notice of its intention to purchase the street railway, and if it fails to give such notice the company receives, automatically, a five years' extension of its franchise. No action has as yet been taken by the city in connection with the purchase of the railway, and in view of the fact that the time limit for serving notice expires in August, it is regarded as certain that the company will

receive its extension.

Although the company has not yet served notice of its intention to do so, it is rumored that it will apply for a longer extension than five years, in order to permit it to carry out satisfactory financial arrangements to take care of extensions to the system.

About four years ago there was considerable agitation, particularly among the Labor Aldermen, in favor of the city purchasing the street railway, but this agitation has completely died down.

Railway Presented to City of St. Petersburg

The first extension of the municipal railway at St. Petersburg, Fla., in the last thirteen years was opened recently when a line to Shore Acres, subdivision, was placed in service. The line was constructed by a local realty concern at a cost of about \$90,000 and turned over to the city. It is 3 miles long.

N. J. Upham, president of Shore

N. J. Upham, president of Shore Acres properties, and past-president of the National Association of Real Estate Boards, made a brief speech and formally presented the system to the city of St. Petersburg, through Mayor Pearce, free and clear, the municipal railway to operate cars over the extension at any schedule deemed sufficient.

Mayor Pearce accepted the gift in behalf of the city and spoke of the appreciation and the benefit the city will derive from the extension.

Extension of One-Man Car Service in Milwaukee

The introduction of one-man car service on another line in Milwaukee, Wis., on Oct. 1 is contemplated by the Milwaukee Electric Railway & Light Company. In a communication sent to the Railroad Commission the company requests an immediate hearing on an order providing authority to install one-man cars on the Wells-Downer line, considered one of the most important transportation units in the city.

The company's proposal comes in compliance with recommendations made by the Railroad Commission recently in extensive railway service report, which pointed out the need of increased service on a number of lines. Only partial use, however, would be made of one-man cars on this line, these cars merely providing the extra service recommended in the commission's report. The company plans to use twenty cars of the one-man type on that portion of the line running to the extreme ends, while the regular city cars running between the west city limits and Edgewood Avenue would still be manned by a crew of two men.

In commenting on the latest one-man car application, S. B. Way, president of the company, explained that the move was made in the interest of economy and was designed to demonstrate to patrons that one-man cars are capable of maintaining schedules and giving better service.

Newton D. Baker to Aid Toledo

The aid of Newton D. Baker, former Mayor of Cleveland and Secretary of War in the Wilson World War cabinet, will be sought by the city of Toledo, Ohio, in its efforts to work out a new franchise ordinance based upon the present Milner service-at-cost plan and the reports of Prof. H. E. Riggs, who made a general transit survey last summer. Law Director Frank M. Dotson, who has the responsibility for framing the new plan from the legal side, has secured the consent of Mr. Baker to act. As City Solicitor and as Mayor of Cleveland Mr. Baker had a great deal to do with the solution of the traction problem in that city.

Henry L. Doherty recently asked the city to prepare an ordinance for submission to the company based on the

Riggs reports.

Most of the work of drafting the new document will probably be done in Cleveland, but Mr. Baker and Mr. Doherty may both be brought to Toledo for the final conferences on the measure. The hope is to place the plan before the voters at the November election. To do this the grant must be ready 30 days previous to the election date.

New Stone Mountain Cars Attract Riders

The new cars of the Georgia Railway & Power Company, Atlanta, Ga., have proved a real attraction for Sunday afternoon excursionists and for many recreation seekers on week-day evenings. The Stone Mountain line ends within 2 miles of the Stone Mountain memorial, and the Marietta line ends about the same distance from the Kennesaw Mountain battlefield, places of art and historic interest without superiors in the category of the world's places of interest. The rate of fare is moderate, and either trip can be completed in an afternoon.

New Loop Arrangement in Oakland

Franchises have been granted by the city of Oakland, Cal., to the Key System Transit Company in the name of F. W. Frost, secretary of the company, for the building of two loops to facilitate traffic in the downtown section of the city.

The first loop will be at Eighth and Franklin Streets, north to Ninth Street and thence west to Broadway. The second loop will be at Washington and Thirteenth Streets, west to Jefferson Street and south to Twelfth Street.

These loops are authorized as the result of the recent traffic survey made in Oakland by engineers of the railway, the city and the California Railroad Commission. Work on them will be started shortly. Upon completion of the loops, several lines of cars will be rerouted and the rush-hour congestion, which has long been a problem in downtown Oakland, will be greatly relieved, it is declared by officials.

Within two months work will be started on an extension to the Park Boulevard line. About 2,100 ft. of rail will be laid, the new terminus of the line to be the other side of Dimond Canyon. A bridge over this canyon was recently completed. A new section of East Oakland, now without transportation, will be served by the Park Boulevard line after the extension has been completed.

Birmingham Goes Back to Old Routes

Citizens of West End and East Lake, Birmingham, Ala., won their fight recently against the new downtown routing of the cars of the Birmingham Electric Company when J. M. Jones, president of the City Commission; Hugh White, attorney for the Alabama Public Service Commission, and I. F. McDonald, chief engineer for the Public Service Commission, assured a mass meeting of 500 that the cars would be turned back into the old routes. It was estimated that 100,000 persons in East Lake, Woodlawn, West End and Bessemer were affected by the change in the routing of the cars.

About two months ago the Birmingham Electric Company changed the downtown routes with the permission of the Alabama Public Service Commission, acting on the advice of the City Commission. That body believed at first that the change in the routes would be a safety measure, but Mr. Jones said the try-out had proved otherwise. The new routes, it was stated, worked a hardship on the users of the street cars in that virtually all were forced to walk longer distances to their destinations after leaving the cars.

Chicago Alderman Seeks to Force Commission's Hand

Failure of the Illinois Commerce Commission to pass on a petition filed in 1924 which would permit the Chicago Surface Lines to operate motor coaches as feeders to its railway lines and issue universal transfers was condemned during the week ended July 24 by members of the local transportation committee of the Chicago City Council. One Alderman proposed the circulation of petitions in every section of the city calling upon the commission for immediate action. Both the Chicago Surface Lines and the Chicago Motor Coach Company expressed willingness two years ago to place buses in operation on Diversey Boulevard and other sections of the city without adequate service. The City Council indorsed the surface lines' offer at that time, but the commission has continually deferred action.

New Franchise in Maywood.—By a vote of more than twelve to one citizens of Maywood, Ill., approved a twenty-year franchise to the Chicago & West Towns Railway, Oak Park, Ill., at a referendum held on July 10. The ordinance, previously adopted by the City Council and accepted by the company, provides for a general rehabilitation of the company's lines in Maywood. A new line of double track approximately 1 mile in length will be built on Madison Street. The railway recently installed two new buses, supplementing i's car service, with universal transfers.

Recent Bus Developments

Bus Subsidiary of Reading Company to Incorporate

The Public Service Commission has approved the application for a charter for the Reading Transportation Company, a subsidiary of the Reading Company. The charter must be approved by the Governor before it is effective. This permits incorporation to operate

This permits incorporation to operate bus lines in the state of Pennsylvania, but application must be made to the commission for each individual route. Application for approval of several of these routes has been made to the commission, but so far no action has been taken by the commission.

has been taken by the commission.

The Reading Transportation Company desires to operate buses in territory covered by the parent company's railroad charter, paralleling its lines and running auxiliary service, especially on branch lines where steam service is not paying dividends.

The commission has before it applications from the new company for the right to operate in Schuylkill, Northumberland, Dauphin, Cumberland and Adams Counties. The charter applied for gives the company right to operate in eleven counties, but if this is granted, the commission will act upon each specific route asked for after hearings.

There has been much opposition, particularly on the part of the electric railways, to some of these, especially routes in Schuylkill County and the route between Harrisburg and Gettysburg, which is now covered by the Gettysburg-Harrisburg Transportation Company.

Where there is adequate service, the commission has been loath to grant competitive certificates, and this policy may be followed in the Reading's application. The only other way to obtain the desired routes would then be by purchase.

Fixed Stops for Springfield Buses

Herbert M. Flanders, manager of the Springfield Street Railway, Springfield, Mass., and J. T. B. Woodruff, traffic expert for the city, have mapped out a system of stops for the passenger bus routes of the railway. Much attention has been given to the Orange Street bus route, where it was found too many stops interfered seriously with traffic.

Mr. Flanders wants the company's bus routes regulated as to stops much after the manner of the trolley system. Bus traffic has been growing each year and fewer stops are essential if service is to be expedited. The transportation board is also taking the matter in hand for the general relief of all traffic.

At present bus drivers take up passengers at any place they may be hailed. A system of specific stops, so announced to the public, is expected to correct some of the present evils. Operators will receive explicit instructions not to pick up passengers along railway lines and the rule will be enforced. The

company wants the public to ride in the vehicle of its own chosing, but it believes the public is interested sufficiently in the regulation of the city's traffic to board its chosen vehicle at a designated stopping point.

Purchase of Buses for Substitute Service Approved

Purchase of five safety buses by the Morris County Traction Company, Morristown, N. J., for use on the Elizabeth-Springfield line has been approved by the Public Utilities Commission. Some time ago the company was granted permission to suspend trolley service on this line and substitute buses.

The conditional bill of sale for the buses, sanctioned by the board, mentions a total cost of \$42,796, one-quarter to be paid out of funds in hand on delivery and the balance in 36 equal installments with interest on deferred payments at 6 per cent.

Commission Holds Tulsa-Capital Bus Unnecessary

Corporation Commission of The Oklahoma on July 9 consolidated hearings on the application of the Union Transportation Company for authority to operate through buses between Tulsa and Oklahoma City and of the Red Ball Bus Company to operate between Sapulpa and Tulsa, and after hearing in part the evidence of the former company dismissed both applications. Commissioner Hughes reaffirmed, Chairman Capshaw concurring, the policy of refusing to authorize motor service where adequate service by established lines exists.

The evidence showed that seven trains operated each way daily between Oklahoma City and Tulsa, with hourly interurban service, in addition to steam railway service, between Tulsa and Sapulpa. The application of the Union Transportation Company to operate buses between Sapulpa and Mounds was taken under advisement.

Civic Council Favors Grant to Brooklyn Railroad

The Civic Council of Brooklyn, N. Y., has written to the Mayor in support of the application of the Coney Island & Gravesend Bus Corporation for a bus franchise for Brooklyn. The bus company is affiliated with the Brooklyn-Manhattan Transit Corporation and the Brooklyn City Railroad. In their hands the franchise would be used for buses as feeders for rapid transit lines and for supplemental service for the new population which has settled beyond the reaches of the surface lines.

The Civic Council is opposed to the grant of a city-wide franchise. It fears that a new company would want to establish lines of a competitive nature rather than such as would be to the better advantage of the borough.

Municipal Bus Service in Buffalo Increased

Mayor Schwab has started two additional municipal bus line routes in Buffalo, N. Y. It appears now to be likely that the three lines will continue to operate indefinitely unless they are restrained by the courts. The lines operate over streets which have been designed as parkways. Route No. 2 is in direct competition with the Delaware Avenue-Kenmore line of the International Bus Corporation, a subsidiary of the International Railway. Policemen are acting as guards and conductors for the municipal buses. The City Council has voted an appropriation of \$10,000 to the Department of Public Safety for the initial operating expenses of the new lines. All the buses are single-deck machines equipped with pneumatic tires. They seat from 33 to 35 passengers.

Buses Replace Trolley at Key West

Another little electric railway has passed out of the picture. It is the road at Key West, Fla., 4.08 miles, run as part of the system of the Key West Electric Company. Buses have taken its place in furnishing transportation to the public, and the work of removing the rails is under way. The date on the rails is under way. The date on which the road suspended was July 10. The first railway in Key West went into service in 1881. Louis Miguel, who drove the first car in the horse-drawn service and was the first man at the controller when the electric cars were placed in operation, piloted the last car into the carhouse. Since then the nine old trolley cars have been run onto temporary tracks at La Brisa and will be sold for junk. B. L. Groome, manager, says they are not of standard gage, and that open cars are now almost obsolete. so there is no demand for them for use elsewhere.

Midland Utilities Acquires Independent Indiana Bus Line

Withdrawal of one more independent motor bus line from the rapidly-developing industrial district of northwestern Indiana was announced on July 19, when the Midland Utilities Company contracted to purchase the entire equipment and franchises of the Calumet Motor Coach Company, Hammond, Ind. If the affairs of the company are found to be as represented after an audit of its books, the sale will be consummated.

its books, the sale will be consummated. The Midland Utilities Company, through its subsidiary companies, the Chicago, South Shore & South Bend Railroad, Gary Railways and Shore Line Motor Coach Company, is already engaged in the transportation business in this territory on a large scale.

The purchase of the Calumet Company's properties will include 41 buses now furnishing service in Hammond and between Chicago and Hammond and

East Chicago and Hammond.

Co-ordination of schedules with those of the other Midland coach lines will result in large operating economies and improvement of service, according to C. W. Chase, president Gary Railways and Shore Line Motor Coach Company.

Bus Line for Hamden, Conn.—The Connecticut Company, New Haven, Conn., has been granted permission to operate a bus route over Dixwell Avenue, Hamden, Conn., with terminals at Whitney Avenue and Putnam Avenue. Some time ago the company was ordered to construct trolley tracks over this section. This order was automatically rescinded when the bus license was granted.

Buses Displace Entire Toledo Line.—Substitution of buses by the Community Traction Company, Toledo, Ohio, on the Front Street line operating a downtown loop will provide the first displacement of an entire trolley line with motor coaches in Toledo. The 24 new buses will start operating on Aug. 1 provided paving operations on Front Street are completed.

P. R. T. Starts Emergency Line.—
The Philadelphia Rapid Transit Company, Philadelphia, Pa., began operation recently of a motor bus line between towns in the northeastern section of the city and the Bridge Street terminal of the Frankford elevated on an emergency order from the Public Service Commission. The order was made after a two-day period of isolation of this section, caused when Wilbur F. Menke, who had been operating several bus lines, suspended service. He had been informed that his franchise, expiring on Aug. 31, would not be renewed, and his drivers were leaving him to obtain permanent employment elsewhere.

New Buses in Service.—The Washington Rapid Transit Company, affiliated with the Washington Railway & Electric Company, Washington, D. C., has retired its duplex buses and placed in service six double-deck Fageols of the type in use in Atlanta, Ga. These buses have a closed rear and a top with an awning. The color scheme has been changed and hereafter the vehicles will appear on the streets in a two-tone brown instead of gray and red.

Time for Bus Operation Extended.—An extension of time until Aug. 10, 1926, has been granted by the Railroad Commission to the Pacific Electric Railway, Los Angeles, Cal., for certain bus operation. Within this period the company will begin operation of an auto stage service between Lankershim Boulevard and San Fernando Road in the city of Los Angeles and the Pacific Electric Railway station in the city of Burbank.

Acquires New Line .- The Union Transportation Company, owned and operated in connection with the Oklahoma Union Railway, Tulsa, Okla., announces, through R. V. Miller, general manager, that it has acquired the Gordon-Smith bus line, route 77, between Henryetta and Okemah, and will consolidate this line with its service between Mounds and Henryetta. All service between Okmulgee and Okemah is by way of Henryetta except one round trip leaving Okemah at 9:45 a.m. and arriving at Okmulgee at 11:30 a.m. and leaving Okmulgee at 4 p.m. on the return trip, arriving at Okemah at 5:45 These buses connect with the interurban line of the Oklahoma Union Railway at its southern terminus at Mounds.

Financial and Corporate

Payments Announced Under Detroit United Bonds

The protective committee acting for the holders of the first mortgage and collateral trust sinking fund five-year 6 per cent bonds of the Detroit United Railway, Detroit, Mich., has issued notice that under a court order the Central Union Trust Company will pay as of Aug. 1 on and after Aug. 2 from funds held as trustee 18½ per cent of the principal amount of bonds presented. Holders of certificates of deposit issued under the bondholders' protective agreement dated No. 2, 1925, are entitled to receive this payment on and after the date specified.

The committee reports progress in negotiations with security holders of subsidiaries for a system reorganization, but say that it is evident no satisfactory reorganization can be effected this summer. They urge holders of undeposited bonds to deposit their securities with the Central Union Trust Company on or before Aug. 14, when the right to make these deposits expires.

Abandonment by Interurban Opposed

At a hearing conducted by the Illinois Commerce Commission at Blue Island, Ill., recently to consider the petition of the Chicago & Interurban Traction Company, Chicago, Ill., to cease operations between Chicago and Kankakee, four witnesses from as many towns along the route appeared in protest. E. E. Rollins, general manager of the Kankakee Electric Railroad, said abandonment would seriously interfere with the operation of the local lines in Kankakee. At the present time the Kankakee lines obtain all power from the Chicago & Interurban company. Severe automobile competition is said by officers of the Chicago & Interurban Traction to have made operation no longer profitable. Further evidence was heard by the commission at Springfield on July 19.

Claims Filed Against Holders of Bonus Stock

Two attempts to enforce liability against stockholders of the old Electric Short Line, Minneapolis, Minn., so that claims of \$100,000 can be paid, were made recently in Hennepin County District Court, in separate suits filed by creditors.

Both actions are based on the theory that holders of common stock in the old company, which for several years has been in the hands of a receiver, are liable even though they received the stock as a bonus. In both cases receivers are asked, although the old company already is in the hands of a receiver.

The suits in no way affect the Minnesota Western Railroad, formed under the reorganization plan, when physical

property of the company was sold to bondholders under foreclosure. Actions are against individual stockholders.

Attorneys seek to recover from all solvent stockholders who can be reached, planning by their actions to raise enough to pay off outstanding claims not disposed of in the federal court receivership.

Committee Contracts to Sell Rockford & Interurban Bonds

T. M. Ellis, Jr., Beloit, Wis., contracted on July 17 to purchase the first mortgage 5 per cent gold bonds of the Rockford & Interurban Railway, Rockford, Ill., on deposit with the committee of which Robert W. Baird is chairman. The consideration is to be paid in cash and is on the basis of 23½ per cent of the face value of the bonds. After the deduction of the expenses of the committee the amount remaining will be distributed among the holders of certificates of deposit. The right of the holder to withdraw his deposit is reserved to him if he acts within a stipulated period.

The announcement just made indicates the consummation of a deal reported before to be pending by which Mr. Ellis, who is president of the Beloit Traction Company, Beloit, Wis., will become actively affiliated with the affairs of the interurban in the effort being made to rehabilitate the road.

More Preferred Stock Offered to Brooklyn Employees

Employees of the Brooklyn-Manhattan Transit System are to have a second opportunity to purchase preferred stock of the B.-M. T. Corporation at a price considerably lower than the present market value and upon terms that will make the final net cost approximately \$55 per share.

This second offer of preferred stock to its employees is made by the B.-M. T. at the suggestion of various committees of employees elected to represent them in the settlement of problems of mutual interest to the employees and management.

The original offer of B.-M. T. preferred stock to employees was made in July, 1924. The stock was selling in the market at that time at approximately \$70 a share. Fifteen thousand shares were offered to employees at \$65 a share and payments were extended over a period of a year. By crediting employees with dividends paid at the rate of \$6 a share a year during the period of payment and charging interest on deferred payments at the rate of only 5 per cent a year, the net cost to employees was approximately \$60.50 a share under the original offer.

Under the 1926 offer, the stock may be purchased by employees for \$75 a share, although the market price at present is \$85 a share. By again crediting employees with dividends as paid during the period of payment and charging only 5 per cent interest a year on deferred payments as in the first offer, the final cost to employees under the terms of the new offer will be reduced to approximately \$55 a share. Subscriptions under the new offer are limited to twenty shares for each employee with the right reserved to the company to reduce subscriptions and allot shares so every employee may subscribe for and receive at least one share. When the first offer of 15,000 shares was made, subscriptions were received from 10,609 employees for a total of 20,235 shares.

Payments for the stock are to be extended over a period of five years so that employees may secure the stock by paying only \$1 a share a month.

Incidentally it might be mentioned that employees in the stock are to be extended to the stock are to be extended to the stock are the stock are to be extended to the stock

Incidentally it might be mentioned that employees in service on Aug. 1, 1926, who purchased preferred stock under the offer of 1924, will be entitled to a refund or bonus of \$1 a share for each share of stock purchased under the plan and for which they retain ownership of the original certificate of stock issued to them.

Abandonment of Lincoln Line Approved

The Nebraska State Railway Commission has approved the application of the Lincoln Traction Company to abandon service on a short line paralleling the business district and to remove nearly a mile of tracks. The line helped serve the downtown campus of the University of Nebraska. It is the intention of the company later, when it develops its intramural bus lines, to operate buses between the campus and that of the State College of Agriculture, 2½ miles northeast.

This bus line will pass through a wellsettled section of the city. It is expected to develop new business for the The commission says that company. the fact that the average number of passengers carried a day, including transfers, was only eight on the whole line indicates its almost complete abandonment by the public as a means of reaching the university and environs.

\$5,000,000 More Preferred Proposed for P.R.T.

The new financing program of the Philadelphia Rapid Transit Company, Philadelphia, Pa., contemplates the issue of \$5,000,000 of additional preferred stock, as revealed in a communication to City Council by President W. K. Myers.

Of this sum, \$3,272,000 is for normal capital and additional improvements, and the rest to finance new buses and bus lines and garages. The details were sent to Council in conformity with the agreement between the city and the P.R.T. entered into in 1907. The city must give its consent to the financing.

The previous capital of the P.R.T. was \$30,000,000 common stock, and \$3,000,000 preferred, issued recently for the purchase of buses, the purchase of taxicabs and franchises of the Yellow Taxicab Company. The new issue proposed will increase the stock issue of P.R.T.

The statement from the P.R.T. was referred to the committee on transportation and public utilities. An ordinance will be introduced after the recess of Council terminates in September to approve of the new issue.

The city-company 1907 agreement provides that when P.R.T. is desirous of making expenditures chargeable to capital account, it shall advise the city of these expenditures with the estimated cost of same. The additional money is to be spent in 1927 as follows:

Normal capital expenditures for track improvements and extensions, improve-	
ments, additions and betterments to car-	
houses, substations, transmission and distribution system, etc	\$1,700,000
Retirements of underlying securities, viz.	. 04 775
P.R.T. collateral bonds, due 1957	84,225
P.R.T. sinking fund bonds, due 1962	59,970
P.R.T. car terminal mortgage bonds, due	103,000
P.R.T. car trust certificates, D, E, F, G,	1,253,000
Hand J	1,233,000
Philadelphia & Willow Grove Railway	20.000
bonds, due 1934	20,000
Union Traction Company bonds, due 1952	27,600
People's Passenger Railway stock trust certificates, due 1943	25,000
Total	\$3,272,795
Down payment on 250 buses	800,000
	150,000
Motor bus service equipment	800,000
Motor bus garaging	000,000
Total	\$5 022 795

Suit for Receiver for Sharon-New Castle Road

The New York Trust Company, New York, has filed an equity suit in the United States District Court against the Sharon & New Castle Street Railway, New Castle, Pa., to recover interest on \$120,000 first mortgage 5 per cent bonds, issued by the railway in 1901.

The bill of the plaintiff company sets forth that the railway issued 120 first mortgage bonds for \$1,000 each in July, 1901, payable on July 1, 1931, and with interest payable semi-annually on the first days of January and July. It is averred the defendant has failed to pay the installments of interest.

The railway operates 17 miles of

The railway operates 17 miles of track. The securities of the property are all controlled by the Pennsylvania-Ohio Edison or its subsidiaries and the present proceeding is an internal action for readjusting the relations of the companies.

Net Up More than \$670,000 on Brooklyn Property

The statement of the Brooklyn-Manhattan Transit Corporation and affiliated companies, Borough of Brooklyn, New York, shows an increase of \$674,434 in the net income for the twelve months ended June 30 over the similar period last year. The statement follows:

	Year Ende	d June 30 1925
Total operating revenues Total operating expenses	\$44,840,967 29,220,839	\$43,312,417 28,426,390
Net revenue from opera-	\$15,620,127	\$14,886,026
Taxes on operating proper-	3,260,384	3,068,461
Operating income Net non-operating income		\$11,817,564 1,084,581
Gross income	\$13,540,235 7,777,877	\$12,902,146 7,814,221
Net income	\$5,762,358	\$5,087,925

Chester Valley Lines Makes Progress in Combined Service

The net income of the West Chester Street Railway and subsidiary corporations, West Chester, Pa., for the year ended Dec. 31, 1925, was \$58,887. This represented a balance applicable to reserves, dividends and surplus. In the annual statement of the Chester Valley Lines, comprising the electric railway and bus lines of the West Chester Street Railway, Charles B. Cooke, Jr., president, said it should be borne in mind that the results were obtained during a period of twelve months, in nine of which bus operation, which yielded more than half of the gross revenues, was burdened with extraordinary costs of operation, since eliminated as a result of consolidating the various bus lines into a unified system on Sept. 27, 1925.

The report goes into detail on the bus expansion. The company acquired control of bus routes in order to establish a unified and profitable service and to eliminate the possibilities of competition. Control of bus routes was completed on Jan. 1, 1925. The only additional route taken over in 1925 was that connecting Pottstown, Spring City and Royersford. With the acquisition of these routes and the Reading-Pottstown Bus Company, the Chester Valley Lines will have a continuous bus route between Norristown and Reading, a distance of 42 miles through a most active section of the Schuylkill Valley. It will also permit of "through" bus service between Reading, Pa., and Wilmington, Del., via Pottstown and West Chester.

As a result of methods used to increase traffic on the bus system substantial increases in revenue were obtained all through the year, these being equivalent to an increase in the business at a rate of about \$100,000 per annum obtained in the first twelve months. New equipment was purchased and new financing was undertaken, with the stockholders authorizing an increase in capitalization of \$250,000 in the form of 7 per cent participating cumulative preferred stock, of which a substantial part has already been sold. In line with modern utility practice, investors in the territory along the company's railway and bus lines are being permitted to purchase this stock.

The report states that while the three years ended Dec. 31, 1925, represented the most notable period in the company's history, considering the growth of assets and earning power, the company's funded debt remained almost

stationary.

In addition to its regular service the company has installed a package express service without additional capital outlay and with an almost negligible increase in operating expenses. This service parallels certain of the bus lines and provides store-door delivery to the various communities along those lines. The company is at present negotiating with several large wholesale houses for hauling their merchandise under exclusive contracts, and has completed arrangements for interchange of business with one of the leading express companies covering the Philadelphia and Camden district.

CONSOLIDATED INCOME ACCOUNT OF THE WEST CHESTER STREET RAILWAY AND SUBSIDIARIES, YEAR ENDED DEC. 31, 1925

(After Giving Effect to Present Financing) Operating revenues
Operating income. \$90,698 Other income. 28,869
Gross income available for bond interest
Net income

Note (A): Includes taxes other than federal income taxes.

Note (B): Includes interest on 6 per cent bonds in treasury, proceeds from sale of which are to be applied to liquidation of floating debt.

In view of the extraordinary growth of the company's interest in bus operation, the management deemed it advisable to call on independent consulting engineers to make a report of the company's condition. The purpose of the report was to obtain a reliable, unbiased opinion on the stability of the com-pany's bus development and the reciprocal advantages of increased traffic, as well as a forecast of the financial results that could reasonably be expected from the consolidated system. It was thought the report should give particular attention to its bus systems, since the operating results of the company's railway lines were already firmly established. The report was made by Ford, Bacon & Davis. Extracts were republished in the annual statement of the company.

President Cooke states that a summary of these engineers' estimates would show gross earnings for the year 1930 of the consolidated system amounting to about \$830,000 and net earnings, after deducting operating expenses, maintenance, depreciation and taxes, of about \$218,000. These figures do not give effect to the earnings of the Potts-

town-Spring City line, purchased in November, 1925, or of the Reading-November, 1925, or of the Reading-Pottstown line, purchased in January, 1926; or to any further extension of the company's operations. Neither do they give effect to any increase of earnings from the operation of the company's package express service, which

was only established in February, 1926. However, "the financial results of the company's operations are thus far considerably exceeding the forecast made.

by Ford, Bacon & Davis, Inc.'

More Madison Lines to Be Discontinued

An order has been issued by the Railroad Commission permitting the Madison Railways, Madison, Wis., to discontinue its railway line on Harrison Street, and handle traffic by bus, a service which has already been installed. Railway service on Regent Street has

also been discontinued temporarily until the Regent Street line is connected with the Breese Terrace line. The Harrison tracks will be removed and the street paved by the city. Tracks on Regent Street from Harrison Street to the cemeteries will be left untouched until the company is ready to establish a connecting link on Regent Street between Breese Terrace and Harrison. The commission found that the opera-tion of cars over the Illinois Central bridge on Harrison Street would be unsafe if the track of the railroad were lowered to the grade outlined and demanded by the city in its paving program. Patrons of the Harrison Street line are opposed to the removal of the tracks. They are expected to appeal to the courts for a continuance of railway service.

New Owners to Take Ohio Interurban

Another interurban in the Central West is about to change hands. The Toledo, Bowling Green & Southern Traction Company, Findlay, Ohio, will be sold to E. S. Little and associates by an agreement of present security holders, who have assured new owners of at least 75 per cent of the entire outstanding preferred and common

The agreement of purchase offers the same terms to minority holders as were granted to the large stockholders of the company in the sale. The purchasers have posted \$100,000 as a guarantee and have named the Fourth & Central Trust Company, Cincinnati, as depository for the stocks and bonds of the company.

Under the terms of sale the 7,500 shares of preferred stock are to be purchased at \$72 a share plus accrued dividend, and the 11,250 shares of common at \$52 a share, while the 6 per cent bonds, of which there are \$956,000 outstanding, are to bring 92 per cent of par value. An issue of \$480,000 of Toledo & Findlay Railway 5s will be purchased at 90 per cent of par.

The company operates an interurban line from Toledo to Findlay and does a lighting and heating business in the latter city.

The offer of the purchasers to take up the minority holdings expires on Sept. 1.

Road in Westchester Sold to New York City Line

At public auction on July 19 the Westchester Street Railroad, serving the central section of Westchester section of Westchester County, adjoining New York City on the north, was sold for \$70,000 to the Union Railroad, a subsidiary of the

Third Avenue Railway.

Leverett S. Miller, trolley receiver and president of the County Transportation Company as well as president of the New York, Westchester & Boston Railroad, was present at the sale. When the Union Railway's bid reached \$70 .-000, attorneys for the New Haven Railroad consulted with Mr. Miller and then ceased to bid.

The various lines had been sold separately earlier and they had been pur-chased by the Union Railway for

\$45,450. The New Haven did not bid at that time, but there were opposition bids from H. C. Salzberg Company, machinery and engineering contractors, of 50 Church Street, Manhattan.

Mr. Davidson's bids at that time for the various lines and property were: Tarrytown line, \$11,000; Silver Lake

line, \$1,750; Mamaroneck line, \$8,700; Scarsdale line, \$4,500; Harrison carhouse property, \$9,000, and cars and equipment, \$10,500.

He began to bid for the entire property at \$46,000 and it went rapidly up to the selling point \$1,000 at a time. It had been announced that the various parcels would be sold separately and then altogether, with the highest price

taking them.

Although no official announcement was made, representatives of the Westchester Street Railroad indicated that the trolleys would be kept in operation until the purchaser takes them over or some other form of transportation is substituted. The Union Railway is expected to take title in ten days.

The purchaser operates lines under its name in New Rochelle and Mount Vernon. The Third Avenue Railroad operates trolley and bus lines in Yonkers and also a bus line between

New York and Rye Beach.

The property that was sold comprises

20 miles of track.
Alfred T. Davidson, Third Avenue Railroad attorney, who conducted its bidding, declined to announce that company's plans, but he intimated that a statement might be forthcoming later.

Financing of Buses for Newark Approved

Execution of \$2,900,000 notes by the Public Service Transportation Company, Newark, N. J., to be used in paying for 333 gas-electric buses has been approved by the Public Utilities Commission.

The buses cost the Public Service Transportation Company \$3,281,202, less a deduction of \$343,300 for 404

second-hand buses turned in.

This developed at a hearing recently. before the commission of an application for approval of the issuance of the notes. The cash the transportation company obligated itself to pay after the allowance for the second-hand buses was made was \$2,937,800. Of this \$2,900,000 was advanced by the Public Service Corporation on the proposed note issue and the remaining \$37,800 was taken out of the subsidiaries' general fund.

Testifying for the transportation company, one of its general officers said the \$2,900,000 was to be divided into ten notes, each of \$290,000. one payable on April 1 of each year from 1927 to 1936. They will bear 6 per cent interest and be secured by a chattel mortgage with the 333 machines as security.

Since the two orders were placed, Public Service has placed an order for 21 buses of the gas-electric drive type which will be fitted with special bodies for the de luxe and semi-de luxe lines contemplated between Newark and Plainfield, Hackensack, South Orange and Maplewood and the Forest Hill service.

Personal Items

C. C. Fast Receives New Post at Harrisburg

C. C. Fast, general superintendent of transportation of the Indiana, Columbus & Eastern Traction Company, Springfield, Ohio, has been appointed general superintendent of the Valley Railways, Harrisburg, Pa., effective

July 1.

Mr. Fast has been connected with the Springfield company since Sept. 1, 1905, when he was employed as a conductor. In this capacity he worked for several months during the construction of the Fort Wayne, Van Wert & Lima Traction Company and until the officials of that company were ready for a dispatcher to handle their train operations. The opportunity came in November, 1905, and for two years he dispatched trains so efficiently that he was later made chief dispatcher. He fulfilled the duties of this job until Mr. Dicke's resignation as superintendent of transportation of the line in 1911, when he succeeded Mr. Dicke. Mr. Fast continued in this work until January, 1921. The Ohio Electric Railway then went into the hands of a receiver, and at that time Mr. McClure, the receiver, appointed Mr. Fast general superintendent of transportation. He moved from Lima to Springfield.

Mr. Fast was graduated from the High School in Delphos, Ohio, in 1897. He worked as a telegraph operator for the Pennsylvania Railroad until 1901 and later as a conductor on the lines of the Western Ohio Railway for one He was then promoted to the vear. dispatcher's office and worked as a dispatcher until Sept. 1, 1905. It was at that time that Mr. Dicke employed him as a conductor on the Fort Wayne, Van Wert & Lima Traction Company lines until such time as a dispatcher was

needed.

H. A. Schiebler with **New York Commission**

Howard A. Schiebler has been appointed assistant secretary of the New York State Transit Commission. He will fill the position as head of the information burean, recently-vacated by F. N. Robinson, who resigned to become publicity director of the Boy

Scouts of America.

Mr. Schiebler brings to his new work seven years experience in the newspaper field, during which he specialized in politics, transit and labor matters. Joining the staff of the Brooklyn Daily Eagle in 1919, he was assigned the task, two years later, of handling local politics for that paper. In 1922 he became Albany correspondent for the Eagle, covering the activities of the Legislature from that year until June, 1926, a period in which transit matters were much to the fore on Capital Hill.

Mr. Schiebler was born in Brooklyn in 1900 and was graduated from Erasmus Hall in 1918. His grandfather,

George W. Schiebler, a manufacturer of silverware, was a prominent figure in "old New York."

More Appointments Made on Syracuse Lines

Appointment of Floyd Sparrow, instructor, as superintendent of the Tallman division, Syracuse lines of the New York State Railways, and the transfer of J. J. Flood from head of the Tallman division to the superintendency of the Wolf division have been announced by Ernest K. Miles, superintendent of transportation for the Syracuse lines.

Clarence Wombles, inspector, was appointed instructor to succeed Mr. Sparrow and F. S. Curtis, motorman, was promoted to Mr. Wombles' position. These changes are part of a general reorganization of personnel of the lines, due to the death of J. E. Duffy, veteran transportation superintendent, and the advancement of Mr. Miles to that position.

Receivers Make Plans for Future

Francis M. Wilson, one of the receivers of the Kansas City Railways, Kansas City, Mo., returned to Kansas City recently after conferring with Judge Kimbrough Stone, referee, at St. Paul, Minn., and received a check for \$71,000, the final allowance made to each receiver for his services. Each receiver had previously received \$110,000.

Mr. Wilson has not announced his plans following the termination of his duties with the railway. Fred W. Fleming, co-receiver with Mr. Wilson, said he will sail soon for his sixth trip to Europe, where he expects to remain

six weeks.

An insurance company is being organized in Kansas City, with Mr. Fleming as president. The new concern will be ready to operate upon his return from Europe.

Mr. Wilson had been away from his desk a total of only 60 days during the 5½ years of the receivership.

New Officials of Texas Electric Railway

Statement of Recent Changes on 80-Mile Interurban with Biographies of Officials in Important **Executive Posts**

IN CONNECTION with the changes in the personnel of the Texas Electric Railway, Dallas, Tex., the organization of officials has been announced with the exception of the office of treasurer. This position will probably not be filled until next September. As noted previously in the ELECTRIC RAILWAY JOURNAL, Burr Martin retired as vice-president and general manager and J. P. Griffin was given the title of active vice-president in charge of all operations. The roster of officials as now announced follows:

C. F. McAuliff, M. J. Loftus, H. G. Floyd, John R. Self, Walter Silvus, G. H. Peters, Mike R. Fewell, D. W. Milam, Jr., and John A. Hiett. Three of the above-mentioned gentlemen, Messrs, Loftus, Floyd and Silvus, continue in Messrs, their present positions from the previous administrations. These appointees and their positions were mentioned briefly in the ELECTRIC RAILWAY JOUR-NAL, issue of June 5, page 996, at which time the career of Mr. Griffin was reviewed.

C. F. McAuliff, purchasing agent of the Texas Electric Railway for the past seven years, has been promoted to the postion of assistant to the vice-president in charge of operation. He has also been elected assistant secretary of both the executive committee and the board of directors. He will continue as purchasing agent of the company, consolidating the offices.

He was first employed by the New York Central Railroad in the maintenance of way department on the Hudson River division, with headquarters at Poughkeepsie, N. Y. In 1912 he was transferred to New York City, in the Madison Avenue office of the New York

Central Railroad, in connection with the construction of the Grand Central Terminal and the Biltmore Hotel. On the completion of this work Mr. McAuliff went to Dallas, where the interurban service from Dallas to Waco was being started. Joining the Texas Electric in February, 1913, he has been with it continuously for the past twelve years, with the exception of the year 1918, when he was in the 868th Aero Squadron of the U.S. Aviation Corps.

He was born in Peekskill, N. Y., in 1892. He was graduated from the public school and Morrall Hall Military

Academy in 1910.

M. J. Loftus has been retained as superintendent of the Dallas-Denison division of the Texas Electric Railway, in charge of transportation, overhead and roadway. He went to Dallas in 1908 to become superintendent of the Texas Traction Company, then under construction between Dallas and Sherman, starting operation of this line in July, 1908. He also started the operation for the Southern Traction Com-pany of the Dallas-Corsicana and Dallas-Waco divisions in 1913.

His first experience with electric lines was in Wheeling, W. Va., in 1889. Before going to Texas he had considerable experience in both construction and operation of city and interurban railways with the following properties:
Duquesne Traction Company, Pittsburg; Allegheny & Manchester Traction Company, Coney Island & Brooklyn Railroad, Wheeling & Elm Grove Railroad, Indianapolis & Martinsville Rapid Transit, the Appleyard Systems

of Ohio and the Ohio Electric Railway. Mr. Loftus was born in Wheeling, W.

Va., in 1874.

H. G. Floyd has been retained as superintendent of the transportation, roadway and line departments. He has been with the Texas Electric Railway since 1912, when the Dallas-Waco division was acquired by the late Col. J. F. Strickland. Mr. Floyd's divisions are from Dallas to Corsicana and Dallas to Waco, with city lines at Corsicana and Waxahachie.

In 1910 he began his electric railway career with the Louisville & Eastern Railway as trainman and train dispatcher, leaving in 1912 to join the Dallas Southern Traction Company. In 1915 Mr. Floyd was appointed superintendent of transportation on the Dallas-Waco division, and in 1916 accepted a similar position with the Dallas-Corsicana division, merging the two offices. Four years later he was placed in charge of three departments, trans-



Ohio Railroad in its shops at Zanesville, Ohio, in 1893. In 1903, when he left, he had advanced to the position of general car shop foreman at Garrett, Ind. In 1904 he was with the Elgin, Joliet & Eastern Railroad at Chicago as foreman of its car shops, leaving a year later to go with the Twin City lines at Minneapolis and St. Paul, where he stayed for five years as inspector and shop foreman. In 1909 he left the Twin City lines to accept a master mechanic's position with the Chicago, North Shore & Milwaukee Railroad at Highwood, Ill. In 1910 he was made superintendent of equipment of the Michigan United Traction Company at Albion, Mich., where he stayed until 1912, when he again joined the Twin City lines.

Mr. Silvus was born in Washington County Ohio

County, Ohio. He completed a short

college course.



portation, roadway and line, on these divisions.

Born in Oakland, Ky., in 1888, Mr. Floyd, after leaving the public schools and Vanderbilt Training School, started with the Southern & Adams Express Company at Louisville, Ky., in 1908, leaving there a year later to go with the Southern Railway at Princeton, Ind.

John R. Self, assistant superintendent of the Denison division of the Texas Electric Railway, has been appointed superintendent of the company's Waco city lines, with headquarters at Waco, Tex. Mr. Self is a veteran of nineteen years service with Texas Electric Railway. He jointed the company in 1907, during the time the interurban was being built from Dallas to Sherman by the late Colonel Strickland. Starting in the maintenance of way department of the Texas Electric Railway in 1907, Mr. Self was transferred to the mechanical department, the line department and the transportation department, at threeyear intervals, and in 1923 he was appointed assistant superintendent of the Denison division.

New Officers Texas Electric Railway

1. James P. Griffin, Vice-president
2. John R. Self, Superintendent Waco
City Lines
3. C. F. McAuliff, Assistant to VicePresident in Charge of Operation and aiso
Purchasing Agent
4. H. G. Floyd, Superintendent Waco &
Corsicana Divisions
5. Walking Street Superintendent Taxion

WALTER SILVUS, Superintendent Equip-

nent
6. M. J. Loftus, Superintendent
7. John A. Hiett, General Claim Agent
8. George H. Peters, Superintendent of

9. D. W. MILAM, JR., Auditor 10. M. R. FEWELL, General Passenger Agent

Born in Calb County, Tennessee, in 1884, he moved to Texas in 1892, residing with his parents on a Collin County farm.

Walter Silvus has been retained as superintendent of equipment. This position he has held since March 1, 1913, when he resigned his position with the Twin City lines at St. Paul to join the new interurban system in North Texas, now known as the Texas Electric Rail-

He began work with the Baltimore &

G. H. Peters, for the past five years assistant to the electrical engineer, has been promoted to superintendent of power, in charge of the power and substation departments.

Mr. Peters began his railway career with the Mobile Light & Railway in 1906, with headquarters at Mobile, Ala. In 1909 he returned to Waco, entering the service of the Waco city street railway lines, then known as the Citizens' When the Texas Power & Light Company took over the Waco city power franchise Mr. Peters joined the Texas Power & Light Company, remaining with it in the transmission and power departments, being located at Waco, Hillsboro and Dallas, until 1920. In that year he was secured by the Texas Electric Railway. was born in Waco, Tex. Mr. Peters

Mike R. Fewell has been promoted to general passenger agent. He was appointed assistant general passenger agent of the Texas Traction Company, with headquarters at Denison, June 28, 1909. On Aug. 1, 1913, he was made assistant general passenger agent of

Texas Traction Company and the Southern Traction Company, with head-quarters in Dallas. In 1917 the Texas Traction Company and Southern Traction Company were consolidated and Mr. Fewell retained the title of assistant general passenger agent with the Texas Electric Railway. Ten years prior to his connection with the Interurban he was in the drug business at Denison, Bonham and Paris, Tex.

Mr. Fewell was born Jan. 24, 1882, at

Bonham, Tex. W. D. Milam, Jr., has been promoted to the position of auditor, and has also been elected assistant treasurer of the

company.

He took his first position with the Arkansas Trust Company at Hot Springs, being employed in the accounting department. In 1913 he joined the Texas Electric Railway at Dallas as bookkeeper, and has advanced through different positions in the accounting department, serving as assistant auditor for the last seven years.

In 1917 Mr. Milam obtained a leave of absence and entered the United States officers' training camp at Leon Springs, Tex., and served as lieutenant with Motor Transport Company 365 of the Seventh Division in overseas service with the American Expeditionary

forces for two years.

Mr. Milam was born in Dallas, Tex. He attended the University of Arkansas, at Fayetteville.

John A. Hiett, senior claim agent for the past nine years, has been appointed general claim agent for the Texas Electric Railway.

In 1914 Mr. Hiett entered the employ of the Northern Texas Traction Company as claim agent on its interurban line between Dallas and Fort Worth, leaving this position to join the Texas

Electric Railway.

Born in 1873 in Wood County, Texas, Mr. Hiett spent his boyhood and early manhood on his father's Texas farm. Having moved to Tarrant County, Texas, in 1906, he was elected County Commissioner, holding this public office for four consecutive years, all of which time he was chairman of the court. From 1910 to 1912 he was general supervisor of road building in Tarrant County, leaving this office to enter the real estate business in Dallas, Tex.

DeBerard Joins Chicago Regional Planning Association

W. W. DeBerard, Western editor Engineering News-Record, a McGraw-Hill publication, has been granted a leave of absence to become chief engineer of the Chicago Regional Plan-

ning Association.

The association is a corporation not for profit, the principal purpose of which is to co-ordinate the construction activities of the many authorities now planning and carrying out public and private works projects, so that orderly and connected systems of highways, sewers, parks and other public and private works may be developed. This is being accomplished through joint agreement of these authorities in committees on each of the twelve major subjects being studied. Progress and special reports are issued as needed for public education. Ultimately these reports may be assembled into a master volume covering the entire regional project.

Mr. DeBerard has been connected with Engineering News-Record, and its predecessor, Engineering Record, since 1910, all of that time in charge of the Chicago editorial office. He was graduated from Massachusetts Institute of Technology in 1901 and from that time until 1910 was engaged in engineering work, mainly on water and sewer projects.

A. E. Reynolds Heads **Midwest Body**

Executive of Springfield Utility and Former Eastener in Important Association Post

Once more in his long and successful career in electric railway and public service management Albert E. nolds, vice-president and general manager of the Springfield Traction Com-



A. E. Reynolds

pany and Springfield Gas & Electric Company, Springfield, Mo., is honoredthis time by election to the presidency of the Midwest Electric Railway Association. For the past year Mr. Reynolds has been vice-president of that organization and in his activities in the public utility field has served also as third vice-president and chairman of the executive committee of the Missouri Association of Public Utilities, member of the executive committee of the Midwest Division of the National Electric Light Association, committee member of the American Gas Association and of the American Electric Railway Associa-

Although an Easterner who has lived in Springfield only about three years, Mr. Reynolds has already become a big factor in all the plans for betterment of the city. In each of the localities where he has worked he has identified himself with activities intended to promote the public good. He has the gift of promoting good feeling toward and interest

in the projects under his management. Mr. Reynolds went to Springfield in 1923 as vice-president and general manager of both the Springfield Traction Company and the Springfield Gas & Electric Company, under Sanderson

& Porter, New York, a firm of engineers which operates public utilities in various cities of the United States.

For about seven years previous to his appointment to the Missouri property Mr. Reynolds had been general manager of the United Traction Company and the Hudson Valley Railway, having offices in Albany, N. Y., and had under his direction on the operating side all the electric railway lines in and about Albany.

As a young man, Mr. Reynolds assisted in the construction and operation of the Plattsburg Traction Company, Plattsburg, N. Y., then owned and operated by Sanderson & Porter, the firm to which he returned after eleven years. He remained with the traction company as manager, after its pur-chase by the Delaware & Hudson Company, until 1909, when he was transferred to Glens Falls, N. Y., as general manager of the Hudson Valley Railway. That company had unwittingly incurred the enmity of some of the people along the line and the system was in poor physical condition, but Mr. Reynolds was able in a short time to correct that unfortunate state of affairs.

A short time ago Mr. figured as the subject of one of a series of sketches by Wallace McDougal, in a Springfield paper, of public-spirited men of that city. Mr. Reynolds was shown in characteristic activities-controlling the light and power of the municipality, swinging a golf club, and symbolically indicating his interest in the local fraternal, civic and com-mercial life and in the Boy Scouts. This sketch showed unerring appreciation of the man as a man and as an

executive.

Changes on Fox River Property

John W. Gunderson, for many years divison superintendent of the Aurora, Elgin & Fox River Electric Company in Elgin, Ill., has been appointed general manager of the company, succeeding J. F. Egolf, Aurora, whose appointment as assistant to the vice-president of the Chicago Rapid Transit Company was referred to recently in the ELECTRIC RAILWAY JOURNAL.

At the same time announcement was made of the appointment of J. C. Johnson, Aurora, as general superintendent of the Aurora, Elgin & Fox River concern. Mr. Johnson for several years has been division superintendent in Aurora and under the new plan will be superintendent of both branches.

Walter S. Van Sickle has been appointed assistant general manager of the Fort Smith Light & Traction Company, Fort Smith, Ark., in charge of operations in 22 municipalities as supervisor of the plants of the Mississippi Valley Power Company.

Charles T. Rowland, who has been in the employ of the Arkansas Central Power Company, Little Rock, Ark., has resigned as claim agent to become secretary-treasurer and manager of the Commonwealth Finance Company and Industrial Loan Bank, both of Little Rock. Mr. Rowland has been claim agent for the Little Rock property since June, 1919.

Manufactures and the Markets

News of and for Manufacturers—Market and Trade Conditions A Department Open to Railways and Manufacturers for Discussion of Manufacturing and Sales Matters

Bids Wanted on 150 Cars

City of Philadelphia Is Now Ready to Order Cars for the Broad Street Subway — Thorough Study of Equipment Has Been Made

Director of City Transit Henry E. Ehlers advertised on July 16 for bids to be received Aug. 27 for furnishing and delivering 150 steel passenger cars for the Broad Street subway in Philadelphia. These cars will be considerably wider and of greater carrying capacity than the units now in use on the Market Street subway and Frankford elevated. The new equipment will have a seating capacity of 75 passengers and a total capacity of 212, these figures being compared with 51 and 152 respectively, the capacities of the rapid transit equipment now used by the Philadelphia Rapid Transit Company. The specifications, as advertised by Mr. Ehlers in behalf of the city, call for deliveries to begin not later than May 1, 1927, these to continue at the rate of not less than 25 a month, so that all deliveries will be completed not later than Oct. 31, 1927.

In passenger-carrying capacity and in general dimensions the prospective cars will be somewhat similar to those now in operation on the lines of the Brooklyn-Manhattan Transit Company, in New York, and on the Cambridge division of the Boston Elevated Company. They will of course be of allsteel construction, 67½ ft. long, 10 ft. wide and 12 ft. 3 in. high from rail to top of roof. As a preliminary to the development of the design the city transit authorities made a thorough canvass of the types and general arrangements and details of cars in use on other subway and elevated systems, railroads and street railways, with a view to incorporating, so far as possible, the best features of all cars studied and the latest developments in the art.

The maximum convenience of the car rider in the matter of seat comfort, the arrangement and freedom of entrance and exit, the safety of the passenger and operating crew, the utilization of the total carrying capacity of the subway tube, together with the effects of these various elements upon the costs of investment and operation, were stressed by the Department of City Transit.

Three sets of double-leaf doors are to be provided on each side of the car, the door openings being located so that each opening is conveniently accessible to one-third of the passengers. Doors are to be provided at each end of the car to enable movement from one car to the other.

Side doors will be opened and closed by pneumatic equipment electrically controlled from one of the cars. Automatic signal lights are provided for on the side of each car, in the roof and also in each motorman's cab to indicate whether the doors are in the opened or closed position.

There are 75 seats shown on the car plan, of which number 25 are longitudinal seats on either side of the main doors. The seats will be of the stationary spring cushion type, covered with rattan. Hand grabs on the end of the cross seats, hand straps suspended from the car roof in front of the longitudinal seats, and pipe stanchions located in front of the door openings will be provided

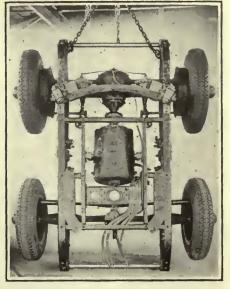
ings will be provided.

In addition to the regular system of overhead lights, emergency lights will be placed in the ceiling of the car at all of the doors, which will receive their current from a storage battery and will be automatically lighted whenever the power is cut off.

· Flexible Eight-Wheel Coach Now on the Market

Railway men who attended the Atlantic City convention last October will remember the exhibit made there by the Versare Coach Company of Albany, N. Y., showing the first eight-wheel bus ever to be developed in this country. But, as is always the case with pioneer developments, the first bus of this type was rough in appearance and lacked many of the refinements necessary to esthetic design and efficient operation. Since that time the Versare company has made many improvements in the design, the general specifications of which are shown in an accompanying table.

The flexibility with which this 35-ft. 6-in. coach may be handled in crowded traffic lanes is said to be remarkable. Because it turns upon two swiveled bogie trucks, in much the same fashion

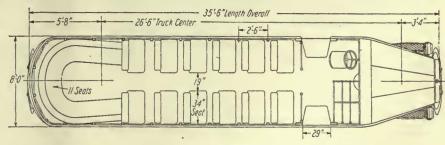


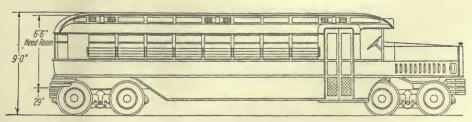
One of the Versare Bogle Trucks, Showing Motor Suspension and Air Brakes

as a railway car, it can be turned in a space of 40 ft. Steering the coach is simple as the steering apparatus has been delicately balanced and the rear truck automatically follows the front truck in making turns.

The light weight of the large body is due to the use of various aluminum alloys in the construction of the frame and of pure aluminum in the sheathing. The highly stressed castings of the body truss are of special aluminum alloy No. 195, heat treated. The non-stressed castings are of No. 43 silicon alloy. The more important structural members are of duralumin alloy No. 17S,

Passenger capacity... 35 seated, 37 standing
Total approximate weight... 18,000 ib.
Total wheelbase... 26 ft. 6 in.
Bogie wheelbase... 4 ft. 6 in.
Length over aii... 35 ft. 6 in.
Width over aii... 8 ft.
Height over ali... 9 ft.
Track... 69 in.
Interior height... 6 ft. 6 in.
Hight of steps... 13½ in. and 14½ in.
Width of doors... 29 in.
Normal speed... 30 m.p.h.
Engine rating... 120 hp. at 2,000 r.p.m.
Generator rating, continuous... 40 kw.
Motor rating, nominal... 28 hp. each
Number of motors... 2
Diameter of turning circie... 40 ft.
Tire size... 35x7 N.S. cord
Gear ratio... 15





Seating Arrangement and Side Elevation of Versare Couch Bought by Chicago & Alton Rallroad

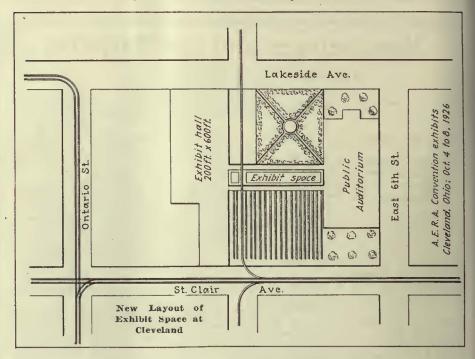
an alloy which is both wrought and heat-treated.

A 120-hp., six-cylinder engine recently developed by the Waukesha Engine Company has been provided as standard equipment on the new units. The engine is connected to a 40-kw. Westinghouse generator by means of a disk-type coupling and the two are mounted as a unit on a sub-frame. The generator, with a continuous rating of 40 kw. at 1,200 r.p.m., is a specially designed machine provided with a field winding arranged for separate excitation, which assures a positive pick-up and stable operation under all load conditions.

The generator is capable of utilizing the full output of the engine and is able, without overheating, to supply full power to two Westinghouse traction motors which are mounted on the bogies. The motors are of the vehicle type and have a nominal rating of 28 hp. at 175 volts. They are so constructed as to protect the commutator against dirt and water, two conditions always encountered under a road vehicle.

Control of the coach is effected through the main controller and the braking controller. The main controller has three operating positions, series and parallel, forward, and parallel reverse. The parallel position forward is the first operating position from the "off," as it is used more frequently than the series. In operating the coach the driver first starts the engine and then throws the controller into one of the operating positions. The engine throttle is practically the only control regularly used, the variations in engine speeds being sufficient to produce the desired voltages. A field resistor unit which is provided is used only in climbing very steep hills or under abnormal load conditions.

An advantage of the Versare coach is that the trucks are removable. Thus any electrical or braking troubles may be corrected without putting the entire unit into the shop. All that is necessary is to run a spare truck under the body and repair the one taken out of service at leisure. The Versare company is also building a six-wheel unit, which is similar in its major points to the larger coach, although of necessity the arrangement of trucks and motors has been altered somewhat.



Space Assigned for Exhibits

One Hundred and Seven Thousand, Six Hundred and Thirty Square Feet Has Been Allotted Exclusive of Track Space for the Cleveland Convention Oct. 4-8—All Arrangements Well in Hand

PLANS for the Cleveland convention of the American Electric Railway Association are progressing with dispatch. The various committees in charge of convention arrangements have details will in hand. The demand for exhibit space has exceeded all expectations, as may be gathered from the fact that when the exhibit committee met to make the official space assignments, it had in hand applications from 195 members. When the assignments were completed, a total of 107,630 sq.ft. had been allotted exclusive of track space.

When the 1925 convention opened last October there were 204 exhibitors who occupied 100,030 sq.ft. of space with a display of equipment that totaled in value approximately \$1,750,000. Almost three months still remain before the 1926 convention opens. Past experience has shown that space applications keep coming in to associa-

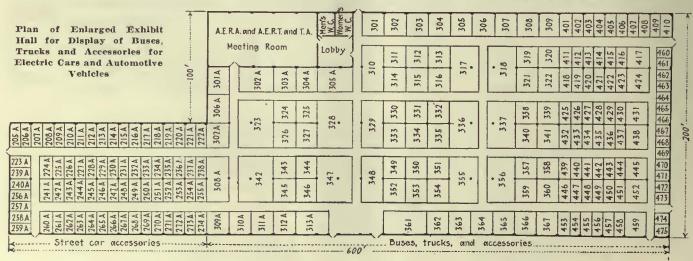
tion headquarters all through the summer, and there are even some concerns which postpone the filing of applications until a day or so prior to the opening of the convention. Needless to say, these, if they can be cared for at all, are necessarily placed in odd corners, or wherever it may be possible to put them, without interfering with fire department rules and regulations.

There are, of course, instances where sales managers have questioned the value of exhibits. The following tabulation will be of interest in this connection as will also the list of exhibitors to whom space has been assigned for this year, many of whom have exhibited consistently at A.E.R.A. conventions for years back.

The following members have applied for track space upon which to show

ars:

The J. G. Brill Company. Cleveland Railway Company. Cummings Car & Coach Company.



List of Exhibitors and Space Assigned, A.E.R.A. Convention, Cleveland, October 4-8

Name Booth Number Adams & Westlake Company, The	Name Booth Number Johnston, R. F., Paint Company
Alumino-Thermic Corporation	Karpen, S., & Brothers
American Brass Company, The	Lang Body Company, The
American Car & Foundry Company	d Leece-Neville Company, The
American Car & Foundry Motors Company	
American Steel & Wire Company 253, 254 Anaconda Copper Mining Company 250 Anderson, Albert & J. M., Manufacturing Company 232 Associated Spicer Companies 437, 438 Association of Manufacturers of Chilled Car Wheels 298	MacDonald Manufacturing Company
Associated Spicer Companies	Mack Motor Truck Company 330, ½ of 331, 333, ½ of 334 Mack Trucks, Inc. 336 Manganese Steel Forge Company 124 Manley Manufacturing Company, The 441, 448
Bacon Safety Fender Company. 411, 418 Baker-Raulang Company, The 304-A, 305-A	Martindale Electric Company 223-A
Baldwin Locomotive Works	Mardidate Electric Company 223-4
Black & Decker	Motor Froducts Corporation 439 Motor Coach Transportation 466
Bragg-Kliesrath Corporation 322 Brill, J. G., Compeny 120, 307, 308 Brown Body Corporation 304, 305, 306 Brown-Lipe Gear Company 472, 473 Brown-Lipe	Nachman Springfield Company
Buda Company, The	National Brake Company, Inc
Budd Wheel Company 427, 434 Bus Transportation 102	National Molorbus & Taxicob Journal
C. G. Spring & Bumper Company	National Railway Appliance Company. 116 National Tube Company. 240, 241 Nichols-Lintern Company, The 125
254-A, 255-A	Norma-Hoffman Bearings Corporation 273-A. 274-A
Carr Fastener Company. 428 Chase, L. C., & Company. 453, 454 Cheatham Electric Switching Device Company. 273 Chillingworth Manufacturing Company. 265-A	North East Electric Company
Chillingworth Manufacturing Company	Ohio Brass Company
Chilton Class Journal Company 401 Christensen Air Brake Company 401 Christensen Air Brake Company, The 442, 449 Clark Equipment Company 100 Clark-Williams Engineering Company, Inc. 262, 282 Cleveland Fare Box Company 207 Cleveland Frog & Crossing Company 266 Cleveland Pneumatic Tool Company, The 417, 424 Clipper Belt Lacer Company 140 Collier, Barron G. Inc. 104	Ohio Brass Company 115 Ohmer Fare Register Company 244, 245, 258 Okonite Company, The ½ of 208 Okonite-Callender Cable Company, Inc., The ½ of 208
Cleveland Fare Box Company	Pantasote Company, Inc
Clipper Belt Lacer Company 140 Collier, Barron G. Inc. 104	Perey Manufacturing Company, Inc
Collier, Barron G., Inc. 104 Columbia Machine Works & M. I. Company 465 Consolidated Car Heating Company 221, 222, 223, 234, 235, 236	Pierce-Arrow Motor Car Company, The 308-A Pittsburgh Testing Laboratory 210-A Pyrene Manufacturing Company 413
231	Radel Leether Manufacturing Company 474 475
Continental Motors Corporation 430, 431 Copperweld Steel Company 239-A Cyclops Steel Company 219	Rail Joint Company, The
D'Arcy Spring Company Dayton Mechanical Tie Company, The 243-A, 244-A Dayton Steel Foundry Company, The	Railway Utility Company. 203-A Reo Motor Car Company. 365, 366, 367
Dayton Steel Foundry Company, The	Railway Utility Company. 203-A Reo Motor Car Company. 365, 366, 367 Robertson, H. H., Company. 269-A Rooke Automatic Register Company. 123
Dixon, Joseph, Crucible Company	Root Spring Scraper Company. 251-A Rosa Gear & Tool Company. 433 Ruggles Motor Truck Company. 301-A, 306-A, 307-A Russell Manufacturing Company. 249
Drew Electric & Manufacturing Company, The 202-A Duff Manufacturing Company	
Eagle-Ottawa Leather Company	SKF Industries, Inc. 280. 281 Safety Car Devices Company. ½ of 112 Sattley Company. ½ of 293
Eberhard Manufacturing Company, The	St. Louis Car Company
Edwards, O. M., Company, The	Sherwin Williams Company, The
Egyptian Lacquer Manufacturing Company, Inc., The	Six Wheel Company, The
Electric Railway Improvement Company, The 221-A, 222-A	Standard Johnson Company, Inc. 119
Electric Service Supplies Company. 216, 217, 218, 230, 231 Electric Storage Battery Company, The 426 Electric Traction 103	Standard Steel Works 215-A Standard Underground Cable Company 259, 260 Stengle & Rothschild, Inc. 436 Studebaker Corporation of America, The. 318, 319, 321
Electric Troction	
Forbes, B. C., Publishing Company, Inc	Templeton, Kenly & Company, Ltd. 272-A Texas Company, The. 132, 134, 136 Thompson, E. J., Company. 339, 341 Timken-Detroit Axle Company, The. 361
Galena Signal Oil Company 127, 129, 141, 143, 145 Garford Motor Truck Company 302-A, 303-A	Timken-Pottroit Axle Company, The
General Hilastria Company	Transit Equipment Company
Gilbert, A., & Sons Brass Foundry Company. 247 Glidden Company, The 338 Globe Ticket Company. 213, 226 Godwin, W. S., Company, Ioc 266-A Gold Car Heating & Lighting Company. 297 Grabers Brastberg. 211	Una Welding & Bonding Company
Gold Car Heating & Lighting Company. 297 Graham Brothers. 311-A, 312-A, 313-A Graybar Electric Company. 212-A, 213-A, 214-A	Universal Lubricating Company
Griffin Wheel Company	Van Dorn Coupler Company
Hale-Kilburn Company	W-A Manufacturing & Sales Company
Heywood-Wakefield Company	Wellman Bronze Company. 435 Westinghouse Air Spring Company. 402 Westinghouse Companies. 114
Illinois Steel Company	Westinghouse Electric & Manufacturing Company., 110 Westinghouse Traction Brake Company., 4 of 112
	The state of the s
International Harvester Company of America 356, 357, 359 International Motor Company	Wharton, Wm., Jr., & Company, Inc
International Motor Company	Wharton, Wm., Jr., & Company, Inc. 229 Wheel Truing Brake Shoe Company. 286 White Company, The 310, 311, 312, 313, 314, 315, 316, 317 316, 317 Willard Storage Battery Company. 235-A. 252-A.
International Motor Company	Wharton, Wm., Jr., & Company, Inc. 229 Wheel Truing Brake Shoe Company 286 White Company, The 310, 311, 312, 313, 314, 315, 316, 317 Willard Storage Battery Company 235-A, 252-A Yellow Truck & Coach Manufacturing Company 348, 349, 350, 351, 352, 353, 354, 355

FIGURES ON REGISTRATION AND EXHIBIT SPACE SOLD 1916-1926

4	-	Total	Number of	Total Space Sold,
Year	City	Registration	Exhibitors	Square Feet
Year 1916	Atlantic City New York City New York City Atlantic City Atlantic City Atlantic City Chicago Atlantic City Atlantic City Atlantic City Atlantic City Atlantic City Atlantic City	3,271 Conference only Conference only 3,166 3,300 1,189 4,200 4,404 5,804 7,147	125 No exhibit No exhibit 157 136 No exhibit 141 163 192 204	57,329 No exhibit No exhibit 62,219 59,529 No exhibit 61,895 75,681 86,349 100,030
1926	Cleveland	*********	195-7/8/26	107,630 (assigned July 8, 1926)

The Differential Steel Car Company. Northern Ohlo Power and Light Company. The Phoenix Ice Machine Company. St. Louis Car Company.

The companies shown below have also made application for track space upon which to show actual working displays of their several products:

Electric Railway Improvement Company, Ingersoll-Rand Company. Metal & Thermit Corporation. Railway Track-Work Company.

Paving Brick Shipments Increase

Increases in production, shipments and unfilled orders, with a corresponding decline in stock on hand, are reported by the paying brick industry to the United States Department of Commerce for June as compared with May.

Production went from 21,103,000 in

Production went from 21,103,000 in May to 26,342,000 in June. Shipments went from 22,645,000 in May to 30,312,000 in June. Stock fell from 123,808,000 in May to 115,971,000 in June. Unfilled orders climbed from 71,430,000 the first day of May to 75,283,000 the first day of June.

These figures are compiled from the reports of 26 companies, representing 76 per cent of the normal tonnage of the industry. Ohio leads the list in consumption for June with 8,685,000. Kansas was next with 3,700,000, Texas third with 3,198,000 and Illinois fourth with 2,446,000.

Railroads Order More Gas-Electric Cars

Additional railroad companies, including one in Canada, have placed orders for Brill-Westinghouse gas-electric cars, according to an announcement made recently. One of the railroads, the Reading Company, is placing its second order for this type of car, having already placed in operation the first Brill-Westinghouse car ever built. It was delivered and put in operation in August of last year. The other orders received were from the Wheeling & Lake Erie Railroad and the Temiskaming & Northern Ontario Railroad.

The Reading Company's order calls for three standard designed 60-ft. passenger and baggage cars with the standard 250-hp. gas-electric generator units and all the other construction features embodied in previously delivered cars. When completed and delivered to the railroad these cars will be operated in the service between Trenton and Bound Brook, N. J., it was announced. The order received from the Canadian railroad calls for one 73-ft. passenger and baggage car which is to be delivered at the road's headquarters at North Bay, Ont. The contract placed by the Wheeling & Lake

Erie Railroad calls for two 60-ft. passenger and mail cars and one 60-ft. passenger and baggage gas-electric car.

As in the past all the cars will be assembled at the Brill Works, while the motive equipment will be furnished by the South Philadelphia and East Pittsburgh Works of the Westinghouse Electric & Manufacturing Company.

Yellow Will Build Twin City Buses

Seven gas-electric buses have been ordered by the Minneapolis Street Railway for operation of its first auxiliary service southward from the city center to the outskirts. The service will begin early in September. The buses will be built by the Yellow Truck & Coach Manufacturing Company, Chicago and the bodies by Eckland Brothers Company, Minneapolis, and will cost \$12,500 each. The route is a zigzag course to 24th Street, to Hennepin Avenue, thence to 36th Street and will accommodate passengers who want faster and more direct service and to points not reached directly by trolley lines.

Track and Line

Chicago Surface Lines, Chicago, Ill., has constructed nearly a mile of track on Ashland Avenue between 89th and 95th Streets, Chicago. The work was begun early last spring and service was started over the extension on July 6. The Ashland Avenue line formerly ended at 87th Street. Last year it was extended to 88th Street.

Scranton Railway, Scranton, Pa., will spend approximately \$225,000 in rebuilding tracks and in general improvement to roadways during the current year. Just recently the work of relaying 2,000 ft. of new track on the Bellevue line was completed at a cost of \$20,000. The company is placing 3,600

Metal, Coal and Material Prices

Metals—New York July	20, 1926
Copper, electrolytic, cents per lb	14.25 16.00 8.50 7.475 63.375
Bituminous Coalf.o.b. Mines	
Smokeless mine run, f.o.b. vessel, Hampton	
Roads, gross tons	\$4.35
Somerset mine run, Boston, net tons	1.875
Pittsburgh mine run, Pittsburgh, net tons Franklin, Ill., screenings, Chicago, net tons	1.75
Central, Ill., screenings, Chicago, net tons.	1.50
Kansas screenings, Kansas City, net tons	2.475
Materials	
Rubber-covered wire, N. Y., No. 14, per	
1,000 ft	\$6.25
Weatherproof wire base, N. Y., cents per lb Cement, Chicago net prices, without bags	18.00 2.10
Linseed oil (5-bbl, lets), N. Y., cents per lb.	12.4
White lead in oil (100-lb, keg), N. Y., cents	
11	17 50

ft. of double track starting at the city line and running 3,600 ft. south into Taylor Borough. The estimated cost of this work is \$88,000. The company has arranged for the rebuilding of ½ mile of single track in Blakely Borough at a cost of \$35,000. Work is being rushed on the placing of 2,500 ft. of single track on Cedar Avenue. This work will entail an expenditure of \$28,000. New track will also be placed on Hemlock Street costing \$700. The building program also calls for the construction of new double track on Pittston Avenue, at a cost of \$55,000. Another improvement to the Pittston Avenue route will be the laying of 2,000 ft. of new track, at a cost of \$20,000. In addition to these jobs the company will spend considerable money for maintenance work.

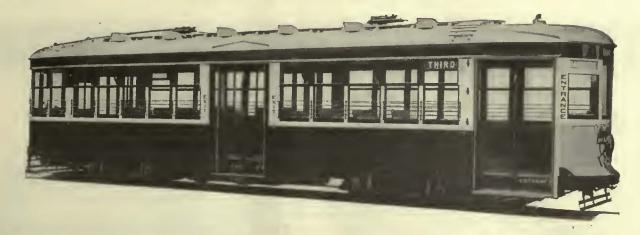
Wisconsin Gas & Electric Company, Kenosha, Wis., has been asked by the Common Council to improve its system. The recommendations include the extension of one line, the building of two single-track lines and the double tracking of three lines.

New Advertising Literature

Laclede-Christy Clay Products Company, St. Louis, Mo., in a combination letter and catalog folder, says there are at least 3,000 users, "large and small, in every part of the world," of the Laclede fire brick. The names of about half a dozen each of automobile, glass and iron and steel manufacturers, railroads and oil producers and refiners are given as examples of the varied lines of businesses that use the fire brick. In addition two or three laudatory letters are quoted. Five different bricks are specified, manufactured by two different methods, and designed to withstand different conditions of service.

Cutler-Hammer Manufacturing Company, Milwaukee, Wis., has just published a very interesting little book entitled "Industry's Electrical Progress." The author undertakes to prove that the competitive advantages which electric power brings to industry lie in the effectiveness with which electricity is utilized. From this it is a natural sequence to discuss progress which has been made in electric control equipment, and many examples are given of the manner in which proper control equipment has been applied to devious fields of operation. Many photographs of actual installations are shown. The Cutler-Hammer company will be glad to send free a copy to any one requesting it.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has recently announced the release of publication M.A.C. 7379, which treats clearly the subject of the application of motors and their control for heating and ventilating of modern buildings. This 25-page publication contains nine full pictorial pages showing office buildings, hotels, clubs, lodges, schools, theaters, railway terminals and tunnels. A complete discussion of the types of fans and the type of motors available for fan drive, types of control and distinctive characteristics of motors and control, with illustrations of equipment, and two pages of engineering data complete this circular.



Make light-weight cars safe with modern hand brakes!



To provide greater safety for equipment and for passengers is a vital part of modern car design. For this reason specifications of most of the prominent and progressive railways contain Peacock Staffless Brakes.

A typical modern, light-weight safety car equipped with a Peacock Staffless Brake is that of the Brooklyn City Railroad shown above.

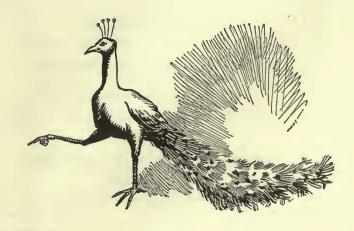
Minimum platform space, simplicity of operation, low installation and maintenance costs, and tremendous braking power—even though chains are slack and brake shoes worn—are only a few reasons for using Peacock Staffless Brakes.

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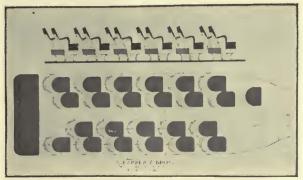
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a distinctly new type of seat.

of experience in building parlor, dining and club car seats for the finest railroad service and a careful study of the bus operator's problems came the Karpen "Staggard" double chair. The overlap of the passengers' shoulders gives perfect freedom from crowding, the chief cause of discomfort in ordinary double seats. Notice

the floor plan, which explains how the Karpen "Staggard" seating; -- you can to sacrificing seats space. In fact, thirty seven inch Karpen "Staggard" double chairs leave 5½ inches more aisle space than thirty odd years



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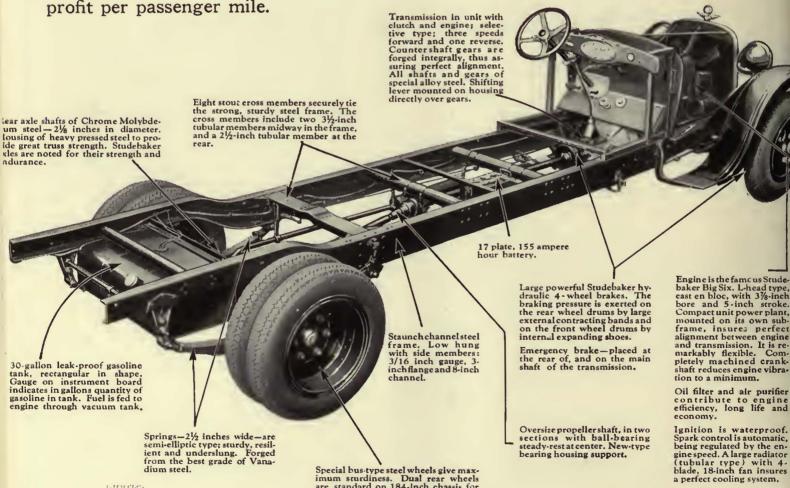
This aggregate mileage of over 2000 Studebaker Buss proves the Dependability and Economy of Studebaker equipment

TN the total of 100 million miles that 2000 Studebaker Busses have been driven, there is convincing proof of Studebaker stamina and dependability.

Over this tremendous distance—equal to 4000 times around the earth - Studebaker Busses have encountered every type of road condition—in every state in the Union. And in every case, operating, maintenance and depreciation costs point to the same result: that low-priced, medium-size Studebaker Busses yield more profit per passenger mile.

Springs-2½ inches wide-are semi-elliptic type; sturdy, resil-ient and underslung. Forged from the best grade of Vana-

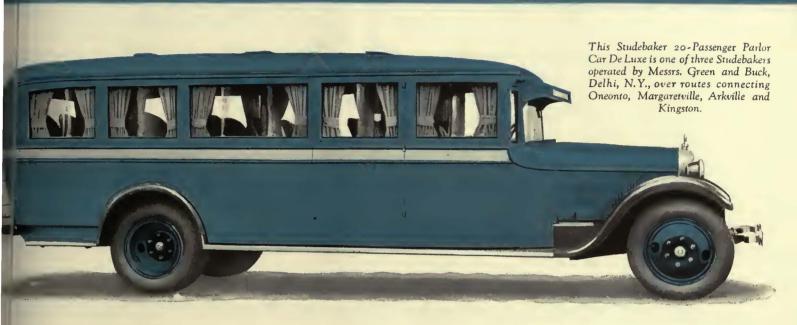
According to the rating of the Society of Automotive Engineers, the specially designed Studebaker Bus chassis is the most powerful bus chassis of its size and weight in the world. Costly alloy steels are used throughout to give greater strength with less weight—and the weight is scien tifically balanced in proportion to the stress and strain of road service. As the illustration below shows, the Studebaker Bus chassis embodies many advanced fea tures of design plus extra safety factors



STUDEBAKER BUS

Special bus-type steel wheels give maximum sturdiness. Dual rear wheels are standard on 184-Inch chassis for 20 and 21 passenger capacity.

Miles of Service



Only the highest-priced busses compare with the Studebaker 20-Passenger Parlor Car De Luxe—yet its price is remarkably low - . . \$6150 f. o. b. factory

N appearance and luxury of riding comfort, this new Parlor Car De Luxe can be compared only with the large parlor car busses selling at from \$10,000 to \$12,000, yet it sells for the remarkably low price, \$6150.

Note the low-hung body with its graceful tapering roof. Length over all, 2833/4 inches. Framework is of selected hardwood. Finish is rich, durable lacquer.

Entrance door (32 inches wide) is on the forward right-hand side. Controlled by hidden mechanism, which is operated by a small hand lever at the left of the driver's seat. Separate door for driver. Emergency door at left rear.

Every interior feature is painstakingly planned to give utmost physical and mental relaxation to passengers. Individual armchairs, upholstered in genuine leather, with cane sides. Liberal leg room (30 inches) and head room (61 inches). Broad center aisle. Accommodation for 20 passengers, including driver.

Luxurious interior

Comfort is enhanced by such details as wide, easily adjustable windows with boquet draperies; mohair head lining and side lining; dome lights; window-post mirrors; an exhaust heating system. Six ventilators are provided—one in the cowl, two over the windshield, and three in the roof—insuring continuous circulation of air without draught. There is a railed-in baggage compartment at the driver's right, and additional accommodation for luggage on the

Complete equipment

Equipment is complete, including stopsignal system; illuminated destination sign box (above windshield); automatic windshield cleaner; rear-view mirror; front and rear bumpers; motometer; extra wheel with tire, tube and carrier, mounted on left front fender; 8-day clock and gasoline gauge, plus the usual instruments, mounted in an oval group under glass; inspection lamp with 10-foot cord. Lights are controlled by a steering-wheel switch.

Due to standardized design and largescale production, the new Studebaker Parlor Car De Luxe is offered at a remarkably low price. Operators find that its smart appearance and luxurious riding comfort attract continuous patronage, while its very low initial and operating costs insure much higher return upon the operator's investment.

Six Body Designs, 12 to 21 Passengers, \$3935 to \$6150

Prices f. a. b. factory, covering bady and chassis, camplete. Purchase can be arranged on a liberal

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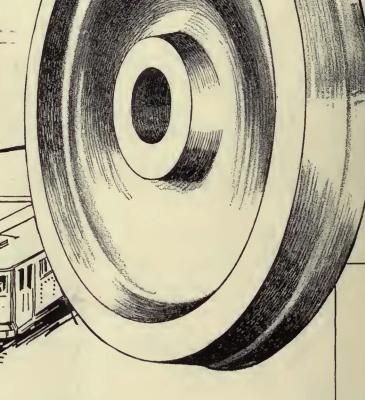
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Capacity: Passengers.

Important Questions

that govern the value of wheels in Electric Railway

Service



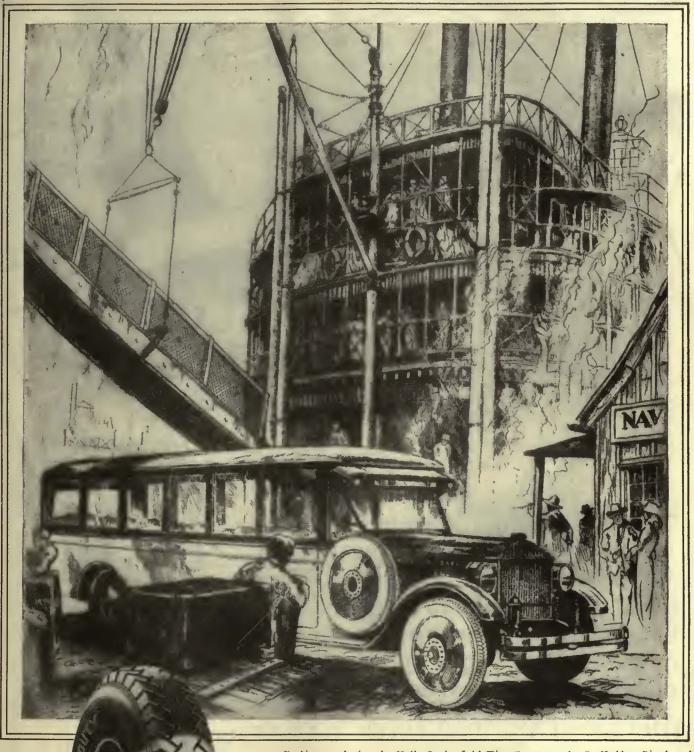
Volumes might be written on the design, construction and other features of wheels, but their true value will always be governed by the manner in which they answer three important questions:

- 1. Are they safe?
- 2. Are they dependable?
- 3. Are they economical in mileage cost?

Gary wheels offer the utmost in safety because of their one-piece wrought steel construction; they offer as evidence of their dependability the fact that they operate for years without repairs or replacements of any kind... and as for economical mileage cost, they refer you to the proper department of any of the many railroads that have kept records concerning them. Our wheel specialists are at your command.

Illinois Steel Company

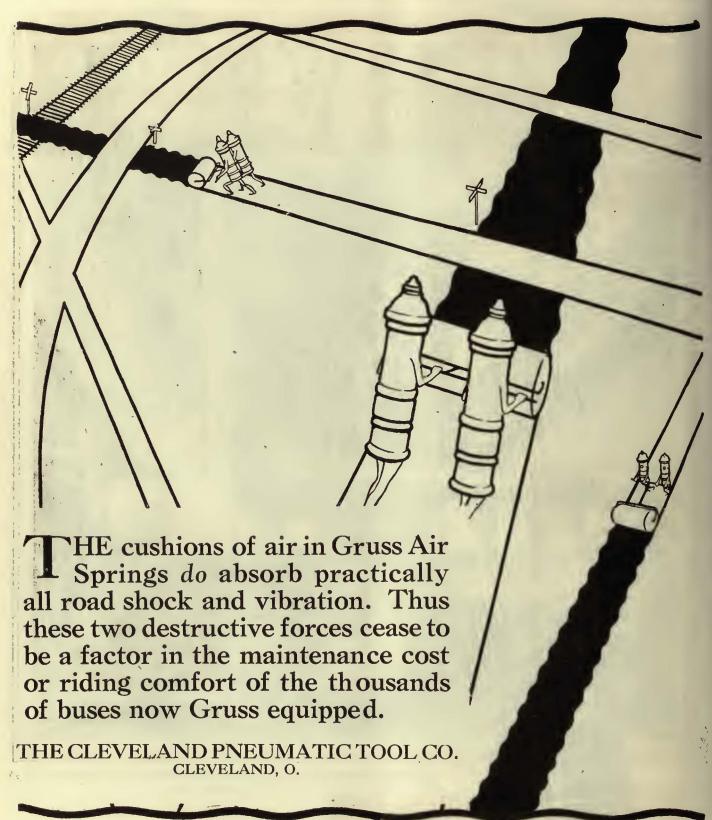
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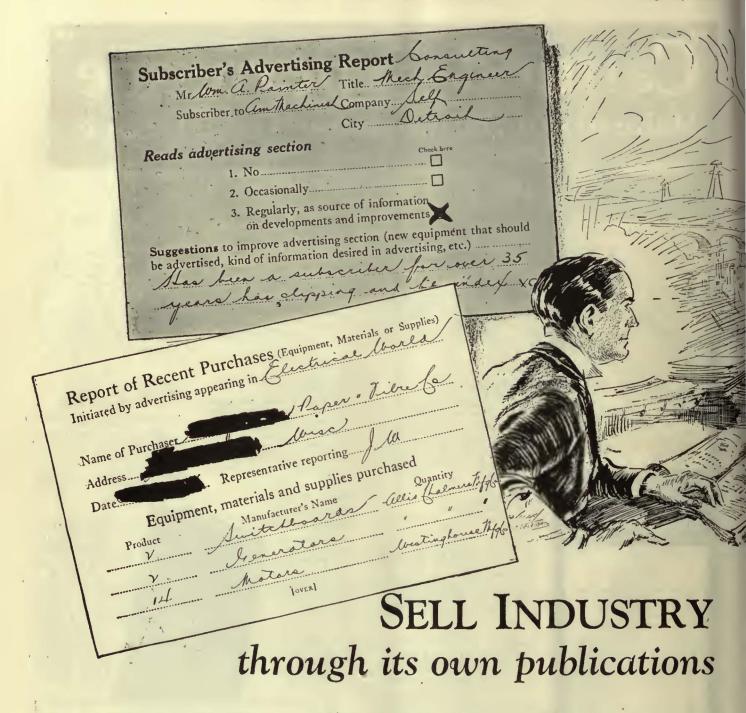
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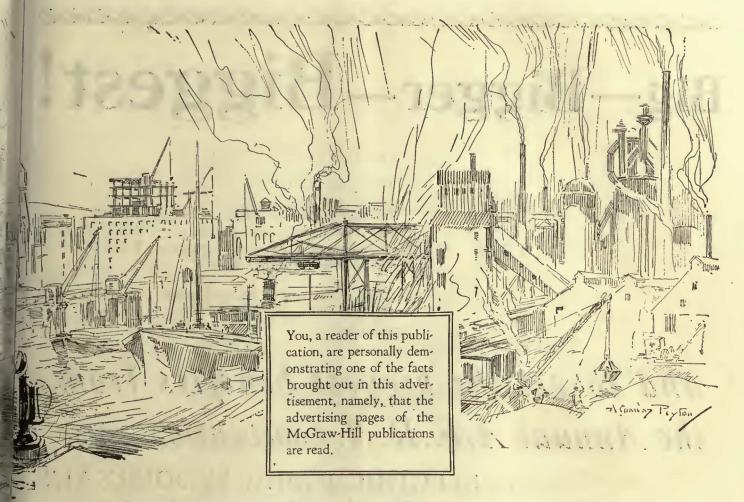
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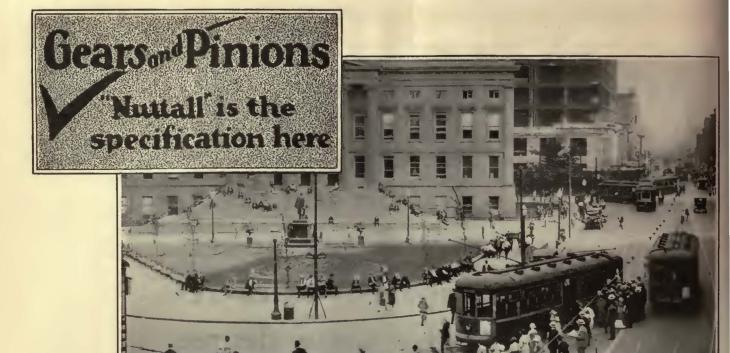
Annual Convention Report Number dated October 9

The first and only complete report of papers, proceedings and discussion—mailed 24 hours after the close of the convention.

Electric Railway Journal, 10 Ave. at 36th St., New York City

The creation and maintenance of car advertising space values requires the same degree of highly specialized knowledge as the construction and maintenance of railroads. Such tasks should be delegated only to those of widest experience and longest record of success.





R.D.NUTTALL COMPANY PITTSBURGH PENNSYLVANIA

All Westinghouse Electric & Mfg. Co. District Offices are Sales Representatives in the United States for the Nuttail Electric Rallway and Mine Haulage Products. In Canada: Lyman Tube & Supply Co., Ltd., Montreal and Toronto.



Your having brush trouble

CORRECT IT
USE LE CARBONE CARBON BRUSHES

They talk for themselves

COST MORE PER BRUSH COST LESS PER CAR MILE

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Hoboken Factory Terminal,
Building F, Fifteenth Street, Hoboken, N. J.
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San Francisco Office: 525 Market Street
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Trade Mark

Seat and Curtain Materials

There is no substitute for Pantasote

AGASOTE

Trade Mark

Roofing—Headlining—Wainscoting
The only homogeneous panel board

for electric railway cars and motor buses

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A146th 250 Park Avenue Astreet
NEW YORK



Pantasote Products

For Both

ELECTRIC RAILWAYS

BUISES



Is Your Company On This Roster



N THIS PAGE and the next we present a complete roster of the street railway companies using Dayton Mechanical Ties.

We are proud of this impressive roster, for we know that these companies' names are there because of the superior merits of Dayton Ties.

Dayton Mechanical Ties, developed by street railway men for street railways, supply the long desired permanently smooth street railway

track. They cut rolling stock repairs in half, practically extinguish track maintenance, reduce noise, and add to passenger comfort. They are cheaper in first cost than wood ties, cheaper to lay, and far more lasting.

So, if your company name is not on this roster, we feel sure you will at least want to make a thorough investigation of Dayton Mechanical Ties. May we send you complete data? A note will bring it.

Complete Roster of Users of Dayton Mechanical Ties

Dubuque, Jowa,
People's Ry. Co.,
Dayton, Ohlo,
Texas Electric Co.,
Waco, Texas,
Toledo Ry. & Lt. Co.,
Toledo, Ohlo,
City Ry. Co.,
Dayton, Ohlo,
D. S. & X. S. Ry. Co.,
Dayton, Ohlo,
No. Branch Tr. Co.,
Bloomsburg, Pa.
Harrisburg, Pa.

Vincennes Tr. Co.,
Vincennes, Ind.
No. Ohlo Tr. & Lt. Co.,
Akron, Ohlo.
Boston Elevated,
Boston, Muss.
Pittsburgh, Pn.
Dayton & Troy Elec.,
Plqua, Ohlo.
Ohlo Valley Elec. Ry.,
Huntington, W. Va.
J. G. White Eng. Corp.,
Manila, P. I.

Cincl. & Dayton Tr. Co.,
Hamilton, Ohlo.
Poughkeepsie & W. F.
West Penn. Lt. & Pwr.
Stark Elec. Ry.,
Alliance, Ohlo.
Illinols Pwr. & Lt.
Peoria, Ill.
Bloomington, Ill.
Champaign, Ill.
Danville, Ill.
Galesburg, Ili.
T. Il. 1. & E.,
Terre Haute, Ind.

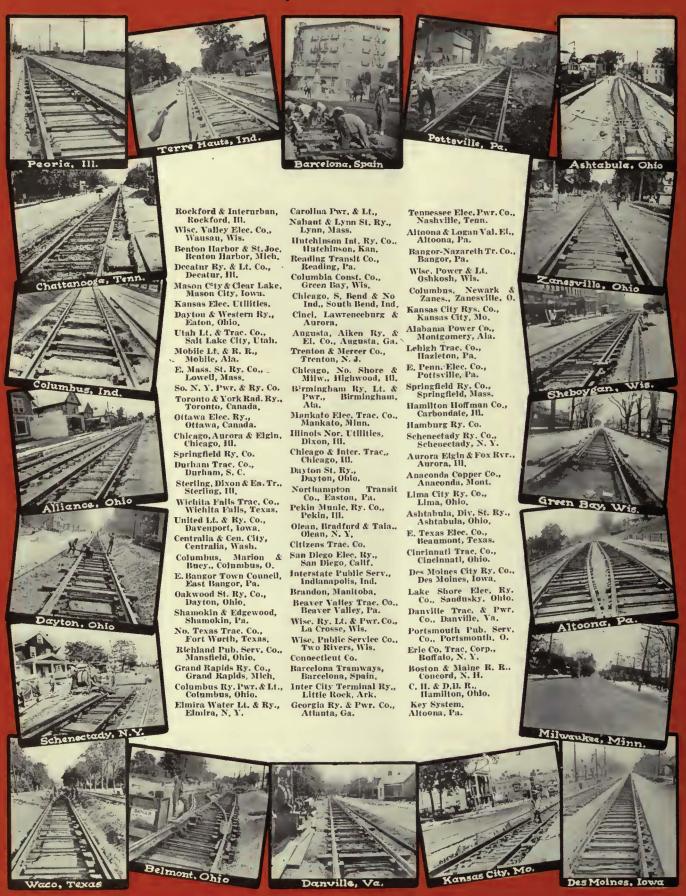
Uniou Trac. Co.,
Muncie, Ind.
Newport N. & H. Ry. G. El.
Hampton, Va.
E. Wisconsin Elec.,
Sheboygan, Wis.
Milwaukee El. Ry. & Lt.,
Milwaukee, Wls.
Louisville Ry. Co.,
Louisville Ry. Co.,
Youngstown Munic.,
Youngstown, Ohio,
So. Canada Power Co.,
Sherbrook, Que,

Rhode Island Co,
Gary St. Ry.,
Gary, Ind.
Uolou Trac. Co. of Ind.,
Muncle, Ind.
St. Jos. Ry. Lt. Ht. & Pwr.
Lehigh Valley Trac. Co.
Schuylkili Ry. Co.,
Girardsvilie, Pa.
D. C. & P., Dayton, Ohio,
Beloit Trac. Co.,
Wisconsin.
Homestead & Miffiln Ry.,
Homestead, Pa.

Continued on next page

The Dayton Mechanical Tie Co.

Roster of Dayton Tie Users (continued)



The Dayton Mechanical Tie Co.

AMERICAN BRIDGE COMPANY

EMPIRE BUILDING-71 BROADWAY NEW YORK, N.Y.

Manufacturers of Steel Structures of all classes particularly BRIDGES AND BUILDINGS

ALSO STEEL BARGES FOR HARBORS AND RIVERS, STEEL TOWERS FOR ELECTRIC TRANSMISSION, HEROULT ELECTRIC FURNACES, ETC.

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Duluth, Minn.
Duluth, Minn.
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The DIFFERENTIAL CAR



Standard on 60 Railways for

Track Maintenance Track Construction Track Construction
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Coal Hauling
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Waste Handling
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Wharton trackwork, in which the famous Tisco Manganese Steel has been used, will be found on the leading railways of the country.

Plant: Easton, Pa.





Lorain Special Trackwork Girder Rails

Electrically Welded Joints

THE LORAIN STEEL COMPANY

Johnstown, Pa.

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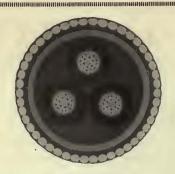
Chicago Cieveland
Philadelphia Pittshurgh

New York

Pacific Coast Representative:
United States Steel Products Company
Portland San Francisco

TERRORIO CARACTORIO DE CONTREO POR COMO DE COSTO DE CONTREO POR COMO CONTREO CONTREO CONTREO CONTREO CONTREO C

Export Representation:
United States Steel Products Company, New York, N. Y.



STANDARD Wires and Cables

include a complete line of products for aerial, underground and submarine service. They can be supplied bare or insulated and of copper, brass, bronze or copper clad steel.

The conductors are rolled drawn and insulated in our own mills and are under our careful supervision and inspection from wirebar to finished product.

The STANDARD guarantee consists of over 44 years of specialized experience in the manufacture and installation of electric wires and cables. This experience is at your service.

Standard Underground Cable Co.

BOSTON PHILADELPHIA PITTSBUROH CHICAGO DETROIT NEW YORK WASHINOTON ST. LOUIS SAN FRANCISCO FOR CANADA: STANDARD UNDERGROUND CABLE CO. OF CANADA, LIMITED, HAMILTON, ONT.

"The Standard for Rubber Insulation"

INSULATED WIRES and CABLES

"Okonite," "Manson," and Dundee "A" "B" Tapes

Send for Handbook

The Okonite Company

The Okonite-Callender Cable Company, Inc.

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Birmingham San Francisco Los Angeles Seattle
Pettingell-Audrews Co., Boston, Mass.

Fettingsil-Addrew Co., Boston, Mass.

F. D. Lawrence Electric Co., Cincinnati, O.,
Novelty Electric Ca., Phila., Pa.

Con. Rep.: Engineering Materials Limited, Montreal.

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Lowest Cost Least Maintenance

Lightest Weight Greatest Adaptability

Catalog complete with engineering data sent on request.

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Reg. U. S. Pat. Office

Incandescent Lamp Cord

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BARE COPPER WIRE AND CABLE TROLLEY WIRE

WEATHERPROOF WIRE AND CABLE

PAPER INSULATED UNDERGROUND CABLE MAGNET WIRE

AMERICAN ELECTRICAL WORKS PHILLIPSDALE, R. I.

Boston, 176 Federal: Chicago, 20-32 West Randolph Street: Cincinnati, Traction Bidg.: New York, 100 E, 42nd St.

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"IRVINGTON"

Varnished Silk, Varnished Cambric, Varnished Paper

Irr-O-Slot Insulation Flexible Varnished Tubing Insulating Varnishes and Compounds

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FOR SALE

Machine

No. 13535. Maximum swing of this machine 49-in., maximum length of axle 9-ft., made by the Niles-Bement-Pond Co., Niles Tool Works, Canton,

C. W. LEPPER

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POSITIONS WANTED

SCHEDULE maker with six years' experience in both street rallway and motor coach schedules, would like position in this line of work. References furnished as to ability. PW-918, Electric Rallway Journal, Guardian Bldg., Cleveland, Ohio.

SUPERINTENDENT—Now employed but looking for better opportunities, desires change, experienced in high-speed interurban, city and bus operation. Can handle men and produce results, recognized as a careful, progressive and competent official; references from present and past employers. PW-919, Electric Rallway Journal, Tenth Ave. at 36th St., New York.

SUPERINTENDENT with twenty years' experience in operation and maintenance of railway rolling stock and track; an outstanding success as a railway operator and as operator of co-ordinated railway and bus services desires for personal reason to make change. Fully capable of taking complete charge as manager or superintendent. PW-917, Electric Railway Journal, 7 South Dearborn St., Chicago, Ill.

TO HELP YOU

LOCATE COMPETENT MEN

"Searchlight" Advertising

OFFICIAL PROPOSALS

Bids: Aug. 27. Steel Passenger Cars and Car Trucks

BROAD STREET SUBWAY
Contract No. 135
Philadelphia, Pa.
DEPARTMENT OF CITY TRANSIT,
CITY OF PHILADELPHIA, 11th Floor,
1211 Chestnut Street, Philadelphia, July 17,
1926.
Seeled processes

Sealed proposals, addressed to the undersigned at the office above mentioned, will be received until 11 o'clock a.m. (Eastern Standard Time), on Friday August 27, 1926, and publicly opened immediately thereafter, for constructing and delivering to the City 150 Steel Passenger Cars and 10 extra car trucks.

150 Steel Passenger Cars and 10 extra car trucks.

Plans and specifications may be seen at the office of the Department, on the twelfth floor, 1211 Chestnut Street, and copies of same, with blank forms for proposals, will be supplied to intending bidders upon application. A deposit of fifty (50) dollars will be required for the plans and specifications. This deposit will be refunded upon return of the plans and specifications. In good condition.

Bidders must be skilled and regularly engaged in the class of work for which they are competing.

No bld will be considered unless accompanied by a certified check on a responsible bank or trust company in favor of the City of Philadelphia to the amount of five (5) per centum of the sum of such bld, in accordance with the provisions of an ordinance approved March 7, 1924, as amended by ordinance approved July 2, 1924, and reprinted in full in the specifications.

The Director reserves the right to reject any or all bids, as he may deem best for the interest of the City of Philadelphia.

H. E. EHLERS, Director,

General Purchasing Agent 435 Slxth Ave., Pittsburgh, Pa. Attention Mr. Jostah Poole

FOR SALE 14 BIRNEY SAFETY CARS

Brill Built

West. 508 or G.E. 264 Motors
Cars Complete—Low Price—Fine Condition
ELECTRIC EQUIPMENT CO.
Commonwealth Bldg., Philadelphia, Pa.

TO HELP YOU

LOCATE SELLING OPPORTUNITIES

"Searchlight" Advertising

LECTRIC RAILWAY EQUIPMENT

Car Hoist

-Universal. Columbia Mch. Co. make. Motor and control equipment included

Birney Cars

32 seating capacity Westing-house 508A motors. Fully equipped. Splendid condition.

Tower Truck 1-2½-3 ton White, Three section. Fully equipped. New

Concrete Mixer

Jaeger Portable Concrete Mixer. 1/2-yd. capacity

Welding Machine
Railway Welding and Bonding
Co. New 1923. Fully equipped.

Sweeper

Double truck Snow Sweeper. Fully equipped

Southern Cars

Double truck. 42 One man operation. 42 passenger.

Track Grinder

-Atlas Rail Grinder new 1923. Excellent condition

Railway Motors -Westinghouse 307's G.E. 80's.

Track Drill

When operations of the

New York & Long Island Traction Co.

ceased,—all equipment was purchased by us for resale. This unusual opportunity was then created for railway companies to secure at unbelievable savings the little-used equipment shown here.

All is in excellent condition-and the low prices will surprise you. Write for complete information and prices on what you can use.

H. E. Salzberg Co.,

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Elec. Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Armature Shop Tools Elec. Service Supplies Co. Automatic Return Switch Stands
Ramapo Alax Corp.

Automatic Safety Switch Stands Ramapo Ajax Corp.

Axles
Bethlehem Sieel Co.
Brill Co., The J. G.
Carnegie Steel Co.
Hilnois Steel Co.
Johnson & Co., J. R.
National Ry. Appliance Co.
Westinghouse E. & M. Co.

Axles, Carbon Vanadlum Johnson & Co., J. R. Axles, Front Shuler Axle Co.

Axlea, Steel
Bethlehem Steel Co.
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Elec. Service Supplies Co.
International Register Co.

Barges, Steel American Bridge Co. Batteries, Dry Nichols Lintern Co.

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Brill Co., The J. G.
General Electric Co.
Westinghouse E. & M. Co.
Bearings, Center and Roller
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Bells & Buzzers Consolidated Car Heating Co. Bells and Gnugs
Brill Co.. The J. G.
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Benders, Rall Railway Trackwork Co.

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Bolts and Nuts, Track Illinois Steel Co. fond Testers

American Steel & Wire Co.

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Electric Service Supplies Co.

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American Sieel & Wire Co.
Electric Rallway Improvement Co.
Elec. Service Supplies Co.
Ohio Brass Co.
Railway Trackwork Co.
Una Welding & Bouding Co.
Randa, Rail

Una Welding & Bonding Co.

Bonds, Rull
Amer. Steel & Wire Co.

Electric Railway Improvement Co.
Elec. Service Supplies Co.
General Electric Co.
Ohio Brasa Co.
Railway Trackwork Co.
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Westinshouse E. & M. Co.

Rook Publishers

Weatinghouse E. & M. Co.
Book Publishers
McGraw-Hill. Book Co.
Grackets and Cross Arms
(See siso Poles, Ties.
Posts, Etc.)
American Bridge Co.
Elec. Rv. Equipment Co.
Elec. Rv. Equipment Co.
Elec. Service Supplies Co.
Hubbard & Co.
Ohio Brass Co.

Onto Brass Co.

Brake Adjusters
Brill Co., The J. G.
National Ry. Appliance Co.
Westinghouse Tr. Br. Co.

Brake Shoe & American Brake Shoe & Foundry Co.
Brill Co.. The J. G.

Brakes. Rrake Systems and Brake Parts
Brill Co. The J. G.
General Electric Co.
National Brake Co.
Westinghouse Tr. Br. Co. Bridges, Steel American Bridge Co.

WHAT AND WHERE TO BUY

Equipment, Apparatus and Supplies Used by the Electric Railway Industry with Names of Manufacturers and Distributors Advertising in this Issue

Brushes, Carbon General Electric Co. Jeandrou, W. J. Le Carbone Co. Westinghouse E. & M. Co.

Bulldings, Steel American Bridge Co. Bulkheads Haskelite Mfg. Corp. Bunkers, Coal American Bridge Co.

Bus Seats Hale-Kilburn Co. Karpen Bros., S.

Karpen Bros., S.
Buses, Motor
Brill Co., The J. G.
Cummings Car & Coach Co.
International Motor Co.
Mack Trucka, Inc.
Studebaker Corp. of Amer.
Yellow Truck & Coach Co.

Bushings, Case Hardened and Manganese Brill Co., The J. G.

Cables, (See Wires and

Cambrie Tapes, Yellow and Black Varnish Irvington Varnish & Inc. Co.

Carbon Brushes (See Brushes, Carbon) Car Lighting Fixtures Elec. Service Supplies Co. Car Panel Safety Switches Consolidated Car Heat. Co. Weatinghouse E. &. M. Co.

Car Wheels, Bolled Steel Bethlehem Steel Co.

Cars, Dump Brill Co., The, J. G. Differential Steel Car Co.

Differential Steel Car Co.
Cars. Gas. Rail
Brill Co., The. J. G.
Cars. Passenger, Freight,
Express, etc.
American Car Co.
Brill Co., The J. G.
Cummings Car & Coach Co.
Kuhlman Car Co., G. C.
National Ry. Appliance Co.
Wason Mfg. Co.
Cars. Second Hand
Electric Equipment Co.
Cars. Self-Propelled

Cars. Self-Propelled Brill Co., The, J. G. General Electric Co. and

General Electric Co.
Castings, Gray Iron and
Stee!
American Brake Shoe &
Foundry Co.
American Bridge Co.
American Steel Foundrice
Wm. Wharton, Jr. & Co.

Castings, Malicable and Brass American Brake Shoe & Foundry Co.

Catchers and Retrievers,
Trolley
Elec. Service Supplies Co.
Ohio Braas Co.
Wood Co., Chas. N. Catrnary Construction Archbold-Brady Co.

Catrnary Construction
Archboid-Brady Co.
Ceiling Car
Haskelite Mfg. Corp.
Pantaaote Co., Ioc.
Ceilings, Plywood, Panels
Haskelite Mfg. Corp.
Chauge Carriers
Cieveland Fare Box Co.
Electric Service Supplies Co.
Circuit-Itrakers
General Electric Co.
Weatinghouse E. & M. Co.
Clamps and Connectors for
Wires and Cables
Elec. Ry. Equipment Co.
Elec. Ry. Equipment Co.
Elec. Ry. Improvement Co.
General Electric Co.
Hubbard & Co.
Ohio Brass Co.
Westinghouse E. & M. Co.
Cleaners and Scrapers Track
(See also Snow-Plows,
Sweepers and Brooms)
Brill Co.. The J. G.
Ohio Brass Co.
Cinsters and Sceketa
General Electric Co.
Coll Banding and Winding
Machines
Elec Service Supplies Co.

Coll Banding and Machines Machines Guestinghouse E. & M. Co. Colls. Armature and Fleid General Electric Co. Westinghouse E. & M. Co. Westinghouse E. & M. Co.

Coils, Choks and Kicking Elec. Service Supplies Co. General Electric Co. Westinghouse E. & M. Co.

Coin Counting Machines Cleveland Fare Box Co International Register Co.

Coln Sorting Machines Cleveland Fare Box Co.

Coin Wrappers Cleveland Fare Box Co

Commutator Slotters
Elec. Service Supplies Co.
General Electric Co.
Westinghouse E. & M. Co.
Wood Co., Chas. N.

Commutator Truing Devices General Electric Co.

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General Electric Co.
Westinghouse E. & M. Co.

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Westinghouse E. & M. Co.

Condensor Papers
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Co.

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Connretors, Solderless Westinghouse E. & M. Co.

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Elec. Service Supplies Co.

Controlling Systems General Electric Co. Westinghouse E. & M. Co.

Converters, Rotary General Electric Co. Westinghouse E. & M. Co. Conveying & Hoisting Ma-

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American Brase Co.
Amer. Steel & Wire Co.
Anaconda Copper Mining
Co.

Copper Wire Instruments,
Measuring, Testing and
Recording
American Brass Co.
American Steel & Wire Co.
Anaconda Copper Mining C Anaconda Copper Mining Co.
Cord. Hell, Trolley, Register
Amer. Steel & Wire Co.
Brill Co., The J. G.
Elec. Service Supplies Co.
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Rocelling's Sons Co.,
John A.
Samson Cordage Works

Cord Connectors and

Cord Connectors and
Couplers
Elec. Service Supplies Co.
Samson Cordage Worke
Wood Co., Chae. N.
Couplers, Car
American Steel Foundries
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Ohio Brase Co.
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Crossings
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Wm. Wharton, Jr. & Co.

Crossings, Frogs & Switches Ramapo Ajax Corp. Wm. Wharton, Jr. & Co.

Crossings, Manganese Bethlehem Steel Co. Ramapo Ajax Corp. Wm. Wharton, Jr. & Co. Crossings, Track (See Track Special Work)

Crossings, Trolley Ohio Brass Co. Westinghouse E. & M. Co. Curtains & Curtain Fixtures
Brill Co.. The J. G.
Morton Mfg. Co.
Pantasote Co., Inc. Dealer's Machinery & Second Hand Equipment Elec. Equipment Co. Lepper, C. W. Salzberg Co., Inc., H. E.

Dealer Second Hand Rails Electric Equipment Co.

Derailing Devices (See also Track Work)

Derailing Switches Ramapo Ajax Corp.

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Detective Service Wish-Service, P. Edward Door Operating Devices
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Consolidated Car Heating Co.
Nat'l Pneumatic Co., Inc.

Doors & Door Fixtures
Brill Co., The J. G.
General Electric Co.
Hale-Kilburn Co.
Morton Mfg. Co.
Doors, Folding Vestibule
Nat'l Pneumatic Co., Inc.

Drills, Track
Amer. Steel & Wire Co.
Electric Service Supplies Co.
Ohio Brass Co.

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Ears

Electric Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Electric Grinders Railway Trackwork Co.
Electric Transmission Towers
American Bridge Co.
Electrical Wires and Cables
Amer. Electrical Works
Amer. Steel & Wire Co.
John A, Roebling's Sons Co.
Electrodes. Carbon

Electrodes, Carbon Railway Trackwork Co. Una Welding & Bonding Co.

Electrodes, Steel
Railway Trackwork Co.
Una Welding & Bonding Co.

Railway Trackwork Co.
Una Welding & Bonding Co.
Engloers, Consulting, Contracting and Operating
Archbold-Brady Co.
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Hemphili & Wells
Holst, Engelhardt W.
Jackson, Walter
Kelker & DeLeuw
McClellan & Junkersfeld
Richey, Albert S.
Sanderson & Forter
Stevens & Wood
Stone & Webster
White Eng. Corp., The
J. G.
Englines, Oas, Oll of Steam

Engines, Gas. Oll or Steam Westinghouse E. & M. Co. Exterior, Side Panels Haskelite Mig. Corp.

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Nai'l Ry. Appliance Co.
Perey Mig. Co.

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Consolidated Car Fender Co.
St. Louis Car Co.
Star Brass Works
Wood Co., Chas. N.
Fibre and Fibre Tubing
Westinghouse E. & M. Co.

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Flaxlinum Insulators National Railway Appliance Co.

Floodlights
Electric Service Supplies Co. Floor, Sub Haskelite Mfg. Corp. Floors Haskelite Mfg. Corp.

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Brill Co., The J. G.
Carnegie Steel Co.

Frogs & Crossings, Tee Rail Bethlehem Steel Co. Ramapo Ajax Corp. Wm. Wharton. Jr. & Co.

Frogs, Track (See Track

Frogs, Trolley
Electric Service Supplies Co
Ohio Brass Co.
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Funnell Castings
Wm. Wharton, Jr. & Co..
Fuses and Fuse Boxes
Consolidated Car Heating Co.
General Electric Co.
Westinghouse E. & M. Co.

Fuses, Refiliable General Electric Co.

Gaskets Westinghouse Tr. Br. Co. Gas-Electric Cars
General Electric Co.
Westinghouse E. & M. Co.

Gas Producers Westinghouse E. & M. Co. Gates, Car Brill Co., The J. G Gauges, Oll and Water Ohio Brasa Co.

Gear Blanks
Bethlehem Steel Co.
Brill Co., The, J. G.
Carnegie Steel Co.

Gear Cases
Chillingworth Mfg. Co
Electric Service Supplies Co.
Westinghouse E. & M Co

Gears and Pinions
Bethlehem Steel Co.
Electric Service Supplies Co.
General Electric Co
Nat'l Ry. Appliance Co.
Nuttail Co., R. D.

Generating Sets, Gas-Electric General Electric Co.

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(Continued on page 46)

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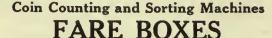
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Consolidated Car Heating
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Railway Utility Co.
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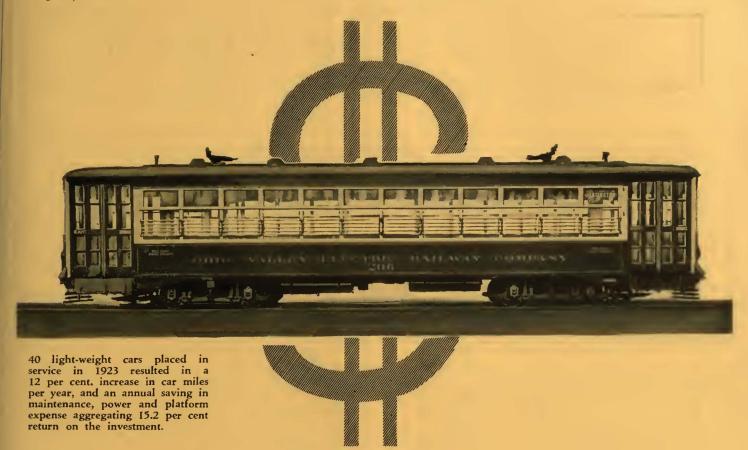
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Substantial returns on investments result from economies realized with modern cars

The recently published report of the American Electric Railway Association's Committee on Essential Features of Modern Cars includes many excellent illustrations in which substantial returns have been obtained on investments in modern cars. While these vary from a few as low as 12.8 per cent up to 65 per cent, it is apparent that the economies resulting from the substitution of light-weight modern cars for heavy and obsolete equipment are worthwhile.

These worthwhile economies are within your reach. The opportunity is offered you through a financing plan which will permit you to place up-to-date cars on your lines.



Detroit chooses Gas-Electric Buses

DETROIT, through its Department of Street Railways, really did more than choose gas-electric buses—it insisted on having them.

Having decided that the merits of gas-electric drive offered advantages to the operator not approached by the ordinary form of bus motive power, the Department drew its specifications accordingly. Its initial order for 50 gas-electric buses, with G-E Equipment, marks another important forward step

in the adoption of gas-electric drive.

That Gas-Electric Drive is the ultimate choice for heavy vehicles becomes increasingly evident. Its extra high acceleration, its remarkably smooth, vibration-free operation, its superior safety characteristics, and its demonstrated freedom from maintenance troubles have established a place for the Gas-Electric Bus in the forefront of the automotive transportation field.



One factor which has contributed largely to the successful application of Gas-Electric Drive for Buses is the ability of G-E engineers, based on long transportation experience, to select the proper equipment—this followed up by painstaking, attentive and competent servicing wherever these modern bus installations have been made.



GENERAL ELECTRIC