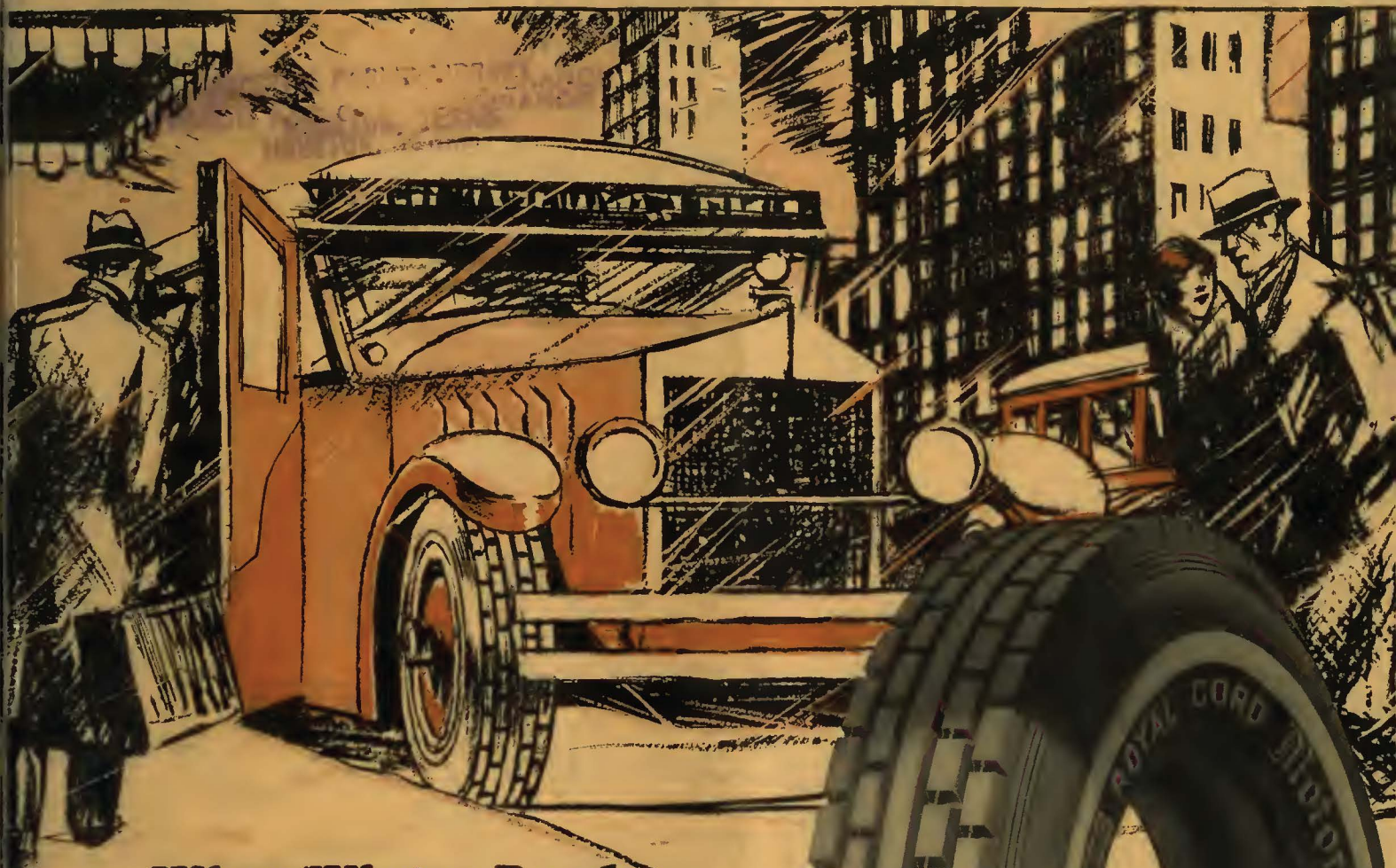


ELECTRIC RAILWAY JOURNAL



When Winter Roads Put Your Tires to the Test

THE United States Royal Cord Motorcoach Tire is built to give the "lowest possible cost per tire mile."

Not merely in fair weather, but on the worst winter roads.

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hours became less pronounced; patronage became a steady, all-day affair.

And net revenue! Yes, it rose in proportion—but not until the Pittsburgh Railways introduced compensating factors. Somewhere, somehow, operating costs had to be cut. And if you were to visit the shops of this railway system you would see, in operation, methods which have become routine in manufacturing establishments and which are rapidly being adopted wherever street railways are giving attractive transportation to the public and attractive earnings to their stockholders.

And you would see, in these progressive properties, another indication of sound judgment in the selection of car equipment—and in which Westinghouse is ever at your service.

All of the cars of the Pittsburgh Railways System are equipped with Westinghouse motors and control.



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the United States and Foreign Countries



1927

Westinghouse

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Those Who Read and Think and Plan

IN-EVERY industry there is a group who think ahead; who plan for the future; who keep in touch with current developments about them so that they can foresee trends and tendencies. There are likewise the plodders—those who wait until they are literally carried along by the crowd.

The thinkers and planners become an industry's leaders. In their minds grow the ideas that overcome obstacles and difficulties. Courage to go ahead when others falter is born of confidence and vision. A strong heart depends for its support and guidance upon a clear mind. When all of these qualities are combined with a willingness to pay the price in hard work and in devotion to an objective a leader arises.

Look about you in any industry for its leaders. They are those who have paid the price; who have dreamed dreams and then found ways to execute them. But as there is a difference in men, so there is a difference in leaders. Their objectives may be broad or they may be narrow; they may be selfish or they may be idealistic; they may seek only immediate material gain or they may be the standard bearers of new ideals.

It is because of this that the industrial press is a powerful influence for progress in American industry. Its purpose is to champion the cause of far-sighted idealism in opposition to short-sighted expediency. Its readers are those who do an industry's thinking and planning—in whose hands an industry's destiny lies.

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The residential limited

Back from the tracks lies virgin territory as far as trolley invasion is concerned—and consciously so. The inhabitants of these semi-rural sections seek not the inconvenience, but the quietude, although inconvenience is theirs. The ordinary public conveyance is, through its disturbing element, most unwelcome.

Many traction companies are today following the modern trend by moving inoffensively into the suburbs, meeting their patrons and selling their service with luxuriously appointed coaches.

These gasoline parlor cars, bulky as they are, equipped with motors capable of developing speed to compete with electric road schedules, are giving traditional electric road safety through the security of Westinghouse Automotive Air Brakes.



The recognized leaders among builders of highway transportation have accepted Westinghouse Air Brakes as the method of retardation in keeping with modern speed, bulk, and perplexing traffic conditions that are detrimental to security and a sane service with physically actuated brakes.

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Automotive Division, Wilmerding, Pa.

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—dented in service

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just straighten it out!

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The halves of any given type of Keystone Cases are interchangeable. This insures perfect fit before they leave our shop and also enables you to replace either half if it becomes irreparably damaged.

Ask for more complete particulars.

Essco Catalog No. 7 lists the entire line of Keystone Car Equipment. Send for your copy.



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of
Keystone Gear Cases



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*steel enclosed—
no glass parts*



1927

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- Mercury-Arc Power Rectifiers (steel enclosed)*
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- Complete equipment for railway electrification*
- Rotary Converters*
- Motor Generators*
- Diesel-Electric Locomotives*
- Mining Locomotives*
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Mercury-Arc Power Rectifiers

Under a dead-end street

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- Operation with minimum attention.
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Interlocking the power and brakes by means of special controller handle provides safeguard against operator's inattention or disability.

a book



of
vital
importance
to ~

Electric Railway Executives

TURN THE PAGE 

THERE were four Electric Railway executives and they, in common with many others in this industry, had found that the modern car pays its own way and a profit.

They then considered the fact that *new* equipment pays better and runs better on new track, and that *new* track *pays its own way and a profit*, because it is inseparable from the car.

But when they considered Steel Twin Tie Track —

“ — who uses steel ties ? ”



MR. WHITE wanted some real facts on who uses *what* tie and *how many*.

ON PAGES 48 to 54 of the “Paved Track Notebook” he found all the latest data on this subject. He also found an analysis of the trend of larger city properties toward Twin Ties and that the largest rehabilitation program of the year involving some 30 miles of track was put on a Twin Tie renewable foundation.

“ — are steel ties noisy ? ”

MR. BLACK wanted to know if steel ties were noisy. He had heard many conflicting reports on this.

ON PAGES 55 to 60 of the “Paved Track Notebook”, Mr. Black found a complete report, by a well known consulting engineer, based on excellent data and tests indicating that type of tie used has no effect on the noise incident to car operation.



BY THIS TIME Mr. White and Mr. Black were thoroughly interested in the "Paved Track Notebook" and were getting a lot of *real, practical, usable* information out of it. The ring binder permitted them to put their *own data sheets* right in the book, and to use it as a personally compiled reference book on Paved Track Construction and design. For it is a *treatise on track*.

"—what about flexibility?"

MR. GREEN wanted to know all about flexibility, rigidity—what the difference was and why.

HE FOUND that flexibility and rigidity were comparative terms and that with the scale of rigidity which he found on Page 27, he could measure his thinking on this confusing subject and make his decisions unclouded by a smoke screen of controversy.



"—are they expensive?"



MR. BROWN was quite sure that Twin Tie Track cost entirely too much for his property.

ON PAGE 13 he found a comparison of actual costs with wood ties and steel twin ties and a distribution of labor costs on steel tie construction. And on page 14, unit costs expressed in man-hours per foot of double track which could be multiplied by his local labor rate to give him close estimates on the initial cost of Twin tie track under his own conditions.

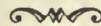
— and so —

“ — a real treatise — — — ”


— these four gentlemen found out all they wanted to know about paved track construction with steel ties. They found that the Paved Track Notebook was really a reliable treatise on the subject. They found decisions, made by experts, on all the various controversies that had clouded their minds. The way was open for *clear thinking* on their 1927 paved track program.



THIS BOOK will answer for *you*, Mr. Electric Railway Executive, all the questions you have wanted answered about steel ties and answer them in a straightforward, clear and authentic manner.



THE EDITION of the “Paved Track Notebook” is limited and copies have been mailed to a selected list of electric railway executives and operating officials. Obviously, it is impossible to know the name and address of every one who may be interested. Therefore, if you will write us on your company letterhead we will be glad to send you a copy for your personal use with your name stamped in gold on the cover.

20% more bearing surface
 steel ^c  ³ track

THE INTERNATIONAL STEEL TIE CO.
 CLEVELAND, OHIO

Electric Railway Journal

Consolidation of Street Railway Journal and Electric Railway Review

Published by McGraw-Hill Publishing Company, Inc.

CHARLES GORDON, Editor

Volume 69

New York, Saturday, January 29, 1927

Number 5

Not Unfriendly, Merely Indifferent

WHETHER or not service is restored on the Grand Rapids, Holland & Chicago Railroad between Grand Rapids and Jenison, a distance of 8 miles, the 30,000 people along the route now know the value of reliable interurban service. Long since they had come to take the operation of the road as a fact. They were warned that their indifference and the indifference of others along the rest of the route of the road was driving the property into a position where eventually operation must be abandoned, but the supplications of the management meant little to them. The matter was not one for them to worry about; no, indeed.

The inevitable happened. Now these people are engaged in a belated effort to save at least a part of the road. Meetings have been called and there has been much weeping and wailing and gnashing of teeth. Buses have been installed in a partial effort to supply the present need, but so far they do not seem to fill the gap which withdrawal of the railway service has left.

This case is very much like that of the Dayton, Covington & Piqua Traction Company in Ohio. Lament there came too late, also. In fact, it was a pitiful picture of loss that one of the patrons of this line painted in a letter to one of the local papers. In the cases of both of these roads people set their clocks by the cars. They started work and quit work at their going and coming. They lay in bed on the stormy and sleety mornings while the freight crews of the interurbans stopped and picked up the milk in the early hours where not so many years before they had to hitch up Dobbin and drive into town. They got their morning and evening papers by interurban. If they wanted an article in an emergency they called by telephone and the interurban did the rest.

In recent years some of the needs of the patrons and former patrons of these lines have been supplied by their own private cars. But not all families have cars. Moreover, not all private cars are available at all times. These and a lot of other things the residents overlooked. They were not particularly unfriendly to the interurban. They were merely indifferent. Now that their indifference has resulted in the withdrawal of service they had come to accept as a fact, without any thought of responsibility on their part, they have grown alarmed.

It is getting to be an old story, this. In fact, these cases would not be worth dilating upon were it not for the warning which they carry to communities elsewhere of the fate that impends for some of them if they do not come quickly to realize that there are some things which are well nigh indispensable. This is meant particularly for the responsible business men, to whom the account elsewhere in this issue of the stagnation in building operations and the loss in real estate values that has followed the Grand Rapids suspension should

serve as a warning. It does not mean that the territory served by these lines in the past and the residents of that territory have suffered irreparable injury. That would, perhaps, be saying too much. But it does mean that they have suffered needlessly because they had come to accept as a fact a service which was valuable to them, and had remained deaf to all efforts to enlist their interest and co-operation in meeting the impossible operating situation encountered by the railway. It is high time that business men of the country awaken to a full realization of how much their own interests are dependent on the survival and development of organized and permanent transportation service.

Newspaper Publicity Getting Demands the Right Methods

IF THE Pittsburgh Railways' "Ride the Trolley Week" did nothing else but prove that good publicity copy is news, then all the labor connected with its campaign was not in vain. That this utility secured newspaper co-operation to the extent of ten pages of front-page text, which at inside display rates would have cost \$6,000, is indisputable proof that its campaign was for the good of the community.

Those who doubt this statement are invited to try their luck with that greatest of all cynics the news editor of a daily paper. That this gentleman is a cynic and not a lunatic is due to marvelous self-control, for no one from Dan to Beersheba is called upon to consume as much blah in the guise of philanthropic and altruistic gestures as he who presides over the "city desk."

If, for example, the Prince of Wales expresses a strong preference for button shoes, this gentle cynic is supposed to believe that the publicity agent of the Amalgamated Button-Hook Corporation is his star reporter. So on *ad libitum*, *ad infinitum*.

Taking into account this preamble, an examination of the Pittsburgh Railways' publicity approach is of value to the entire electric railway field. Apparently it was based on that fundamental factor of all amicable relations—in short, reciprocity. For example, in connection with a double issue of the company's house organ, *Transit Guest*, distributed in the cars, each newspaper was permitted to circulate a fac simile edition in which its style, feature departments and make-up were made known to thousands of citizens without the paper going to the expense of distributing sample copies. In addition to this, during "Ride the Trolley Week," as recorded elsewhere in the JOURNAL, cars were placed at the disposal of the newspapers in order that they might feature contests of interest to the community.

Small reason, then, that such reciprocal action, backed as it was by the company's record of service to Pittsburgh, should have won such unqualified support from

the press. In other words, the Pittsburgh Railways had something to say that was of civic value, and in attempting to put across the message it did not fail to consider that there were others who could derive benefit from its efforts. All of which leads the JOURNAL to make the query: "Is newspaper publicity so hard to secure after all?"

El Paso Performing Creditable Merchandising Work

EVER since awakening to the realization that electric railways are in competition with private automobiles the efforts along merchandising lines have been in the process of development. Good work has been done in recent years, but naturally many mediocre efforts have also been made. However, all such efforts are moves in the right direction, and if hammered at long enough will result in ultimate good.

Occasionally efforts at merchandising are developed that are exceptional. The story of El Paso told in the JOURNAL of Jan. 22, 1927, is one of those accomplishments that indicate a flash of genius that is refreshing. Street car service that once stood in the background as "a basic necessity" is personalized by these efforts to a high degree. The stranger, for instance, arriving in El Paso for the first time immediately is informed that "this car takes you to your hotel." He does not have to look for inconspicuous signs or ask questions—the whole side of the car is used as a billboard to tell him the answer to the first question every stranger asks when he leaves his train.

Then for the home folks as well as the stranger the advertising cards have been re-created so that the reader is made to think of Heinz soup and street car service as somehow linked together. Not only Heinz is called to mind in a new connection, but the car service is forcibly advertised at the same time.

Such skillful linking together of disassociated ideas is a mark of cleverness that, taken alone, stamps the El Paso work as a real achievement in advancing the art of merchandising service.

The Intangible Factor in the Commercial Department

IN STRESSING the need for developing commercial sense in street railway operation, R. N. Graham in the JOURNAL for Jan. 15 contributed a vital thought to the industry. Mr. Graham, writing from the standpoint of a practical operating man, goes beyond the accepted practices of selling service to focus attention upon the business that may be derived as a result of impressions as intangible as they are vital. In so doing a goal had been set up to which the present railway practices are but quarter posts on the racetrack of business.

To illustrate: It is quite possible by means of a well-organized publicity campaign, a splendid roadbed, attractive cars and well-balanced schedules to have the town talking, so to speak. But these in reality never impress the public that the operating company has plumbed the sentiment of the community or that it is not trying to mend an old garment with new cloth. In other words, all of these modern phases of transportation may be present, yet selling service to the saturation point is impossible because no study has been made of individual or conglomerate phases. Here is where we find the intangible factor.

To determine what will appeal to the greatest number of citizens and what will create it by means of balancing all the factors that enter into railway management is clearly the function of a specialized department. Unquestionably such a department in a reasonable length of time will deduce the intangible factor that finally solves the equation of 100 per cent business.

There is nothing highbrow in considering this intangible factor. Hundreds of manufacturers and merchants have already appreciated its value. The electric railway industry is a manufacturer that so far has, like other manufacturers in the old days, relied upon the product to sell itself, particularly as the product was a necessity. That day is past. With the advent of the automobile, the necessity for transportation became the necessity to sell transportation, hence inventive genius must be called upon to meet the situation. Now the industry is called upon to fight an ever-increasing tide of private transportation, the cost of which seems to be no deterrent. To win back this lost business is a task for specialists, who besides possessing technical knowledge should have vision, taste and that rare gift the ability to judge human nature.

To bring about this desired result has been the prime reason for establishing commercial departments in the various industries. As far as the commercial department in the street railway industry is concerned, it will be considered efficient and to have reached the goal set by Mr. Graham when it can get the average citizen to say he prefers to ride on a street car but cannot give the reasons for such preference.

Some Things Detroit Is Thinking About

IMPORTANT as were the questions raised by one of the Detroit aldermen calculated to fix the relative earning power of railway and bus lines of the Detroit municipal railway, they are as nothing compared with some of the other transit issues that have raised their heads in that city. As indicated in the ELECTRIC RAILWAY JOURNAL for Jan. 22, the Mayor thinks that the burden is unbearable to which the city committed itself under the terms of the contract by which it agreed to take over the lines of the Detroit United Railway. He may or may not be right, but the fact that the question has been raised just at this time is causing no little concern, particularly as it would appear that a fare increase is necessary unless the contract is modified.

In all the bickering at Detroit, just what is one to believe when certified accountants of national reputation and the system's own auditors present reports that are about \$1,000,000 apart? That is quite a discrepancy, so much so that another audit has been suggested. It may seem queer to men accustomed to dealing with facts and figures that two reports covering the same period on the same property could differ so widely. Those who pretend to know say that the explanation is to be found in the accounts for "depreciation charges." It is explained that the system's own accountant has failed to charge off \$1,096,000 for depreciation. This is a sum, so city officials say, a private company would charge off. A sum similar in amount is applied by the city to the purchase of the lines from the private company. In this connection the ELECTRIC RAILWAY JOURNAL finds itself largely in agreement with the Detroit *Free Press* on some of the conclusions drawn by that paper from

events at Detroit, notably the expressed sentiment that the conflicting audits raise the question whether, if the Detroit municipal railway continues to travel the financial road it has been going, the city of Detroit will have any property of real value to show for its money and pains when it gets through paying the Detroit United Railway for the property it forced that concern to sell and has also met other cost obligations.

Apparently the effort at Detroit is to maintain the *status quo*. In this respect it has been charged that for the past eighteen months the physical property of the system has been allowed to deteriorate, presumably in order to make a fictitious showing of earnings. This statement will probably be resented, but the feeling is difficult to overcome that politics is seeping in at Detroit, ever so gradually, perhaps, but seeping nevertheless. It was inevitable, and the present city administration need not be too resentful of criticism to this effect.

Criticism, merely as such, defeats its own ends. Capable operators still remain with the Detroit municipal railway, but the conclusion is inescapable that it can hardly be expected they will be able to keep the property up to its former level of efficiency unless the degree of initiative in their moves is permitted to be enjoyed that existed at the inception of the municipalization of the system. It might have been possible for the city to assume a rocking-chair attitude of repose under a proper grant to a private company, but it certainly cannot do so under municipal ownership. All of which goes to prove that a municipal railway is subject to all the hazards that attach to private operation and a few—a very important few—that seldom, if ever, cause concern to the private utility handled with any degree of perspicacity. Certainly recent events at Detroit do not appear to be reassuring.

London Woman's Sudden Wealth Shows Community Value of Transportation Service

SINCE the opening of the London Underground Railway extension to Edgware a land boom has spread over that entire district. Values began to increase even before construction work commenced, and with the completion of every new half mile of track they grew by leaps and bounds. Fifteen years ago a woman had come to Edgware with the idea of spending the rest of her life in the seclusion of the country and had purchased a house on five acres of ground for \$25,000. When the Underground began to look for a site for its terminal, the engineers decided that the logical spot for it was exactly opposite the center of this woman's property. One morning a real estate agent called on her and offered her \$150,000 for her land. This she accepted without further ado, and the five acres now constitutes the finest business site in Edgware. Many stores have been erected where formerly there were only open fields and the section adjacent to the terminal has become an active center for local merchants.

Thus another striking illustration is afforded of the well-known fact that land is valuable only to the extent to which it is accessible. All other factors remaining the same, the coming of electric railway transportation increased the value of this property to six times what it was before. After all, there seems to be some good in the railway, despite the horrible pictures of their wickedness which the demagogues love to paint.

Grand Rapids Makes Its Report

ELSEWHERE in this issue is abstracted the annual report of the Grand Rapids Railway, whose achievements have occupied many columns of space in the JOURNAL during the past two years. In fact, some have wondered why all this attention was being paid to Grand Rapids; why this comparatively small property in a Michigan city of some 150,000 population was the cause of so much discussion in the industry.

Part of the answer is given in the annual report mentioned. The proof of the pudding is in the eating, and the final test of a railway management is its balance sheet. In the Grand Rapids report there are some mighty significant things. They are not spectacular, but they are significant, nevertheless. They do not indicate that the railway property there has suddenly become a gold mine to its owners. But the results accomplished by the serious attempt which was made on this property to see what could be done toward making a community proud of its railway seem to indicate not only that the policy adopted was sound, but that it was good business as well.

During the period from July 1, 1926, after the new cars were put in service on three lines in the city, to Nov. 30, 1926, passenger revenue on these lines increased 2.51 per cent over the corresponding period of the previous year. During the same months revenue on the remainder of the system not equipped with the new cars fell off 0.99 per cent. In weighing these figures it must be borne in mind that business conditions in the city were practically constant during the year and that the period of comparison is during the summer and early fall months when railway revenues suffer most from the use of private automobiles. Here in a city of 150,000 population is a different story on passenger revenue from that told in most cities of this size throughout the country. It must also be remembered that there are only 27 of these new rail coaches, as they are called, out of a total of approximately 100 cars operated in the city.

On the cost side of the ledger a similarly convincing story is told. Through general operating economies effected on the property during the year operating expenses were \$8,465 lower during the first five months of 1926 than for the corresponding period of 1925. But after the new cars were obtained the decrease for the remaining seven months of the year in comparison with the corresponding period of 1925 was \$45,170.

To measure the value of the good will created for the railway by the favorable effect of its new equipment is obviously impossible. But when the Mayor of the city is led to say in the public press that the city has such cause to be proud of its railway as to be well justified in subsidizing its operation, if that ever becomes necessary, and when a state senator from the Grand Rapids district openly advocates a change in the city charter so that the railway may be relieved from street paving, some measure of the value of the public good will being created may be obtained.

Grand Rapids has made its first annual report since its practical application of modern business psychology to railway management, and that report almost speaks for itself. It should prove of more than passing interest to railway managers in many medium-sized cities that have so far failed to find an answer for a constantly drooping curve of passenger earnings.



A Bevy of Chorus Beauties from the "Yours Truly" Company That Assisted in the Publicity Campaign of "Ride the Trolley Week"

Making Pittsburgh Trolley-Conscious

Host of Ingenious Publicity Stunts, Indorsement of Newspapers and Official Approval by Mayor of Pittsburgh Marked the Introduction of "Ride the Trolley Week"

A WEEK for this and a week for that" has become of such recognized value to American advertising practice that the Pittsburgh Railways recently determined to employ this high-powered method in selling transportation to citizens of the Iron City.

Once the period of Jan. 10 to Jan. 16, inclusive, had been fixed as the "Ride the Trolley Week" the commercial department, under the direction of W. H. Boyce, commercial manager, began to lay out a comprehensive program that would make Greater Pittsburgh trolley-conscious.

MAYOR KLINE GIVES OFFICIAL SANCTION

Official recognition from the municipality was thought to be the first step, and this was accomplished when Mayor Charles H. Kline issued a proclamation on Jan. 3 urging all loyal Pittsburghers to support in every way the effort of the railway company to render more efficient public service. Mayor Kline recommended that citizens avail themselves of this service, stressing the common interest now existing between the city and the railway company because of the recent traction agreement. Enlarged fac similes of this proclamation—perhaps the first of its kind—were displayed on all bulletin boards in the carhouses and shops; also in all offices of the company and in those of affiliated gas and electric interests.

About 1,500 paper burgees which carried pink letters on a black background, were hung from the spanwire intersections at important streets and were used as decorations in stores and offices. This publicity was put up some time in advance of the opening day and

was followed on Jan. 5 by about 1,500 paper pennants bearing the slogan of the week which was printed in white on blue and red backgrounds. Through the courtesy of Barron G. Collier, Inc., front dasher space, usually sold for mercantile and outside advertising, was placed at the disposal of the company. This dasher placard bore the slogan "Ride the Trolley Week—Jan. 10-16," and was printed in yellow letters on black background. Inside the cars there were posters illustrating a two-car train being boarded by eager patrons; each poster carried the invitation "Join the Big Parade—Ride the Trolley Week."

Another feature of the campaign was the use of 9x22-in. placards or snipes, each carrying a different message or slogan. Some of these printed eye-attractors were:

Flapper Flo Says:

"We go to the movies oftener when sweetie has a pass."
(A reciprocal boost for the films)

Your January

Weekly Pass Coupons
Are Good Toward the Purchase
Of a Telechron Electric Clock.
Gas and Electric Shops
(A reciprocal boost for the gas-electric companies)

To Noah, said a latecomer,
"Let's go, step on the gas."
"Keep off this ark," said Noah,
"You have no weekly pass."

Tired? Nervous?
Go Home by
Trolley Tonight

Where is my wandering boy tonight?
He's gone to see some lass;
Never fear, mother dear,
He's got a weekly pass.

The Board of Directors
Has Just Declared the Regular
Unlimited-Ride Dividend on
The Weekly Pass.

In addition to these special side-window signs, *Transit Guest*, the house organ of the company, carried items of particular interest in connection with the campaign. The Jan. 3 issue was a double number presenting Pittsburgh's transit progress from the first horse car of Aug. 6, 1859, and the issue of Jan. 10 told patrons that "Ride Your Trolleys" was the order of the week. Bygone days were recalled in an interesting way by a series of placards which read: "Closed for the Day

weeks of the month, and the holder of the coupon issued during a given month has three months in which to take advantage of reductions.

MERCHANTS CO-OPERATE

Through the courtesy of the Merchants' Association, 100,000 stuffers or circulars were printed to be placed in packages sent out by the big stores. The text of the message contained paragraphs of this nature:

When people realize the value of visiting friends, the theaters, schools, churches, etc., at will, then the value of the trolley as a means to accomplish this end of a broader and more active life becomes apparent.

Trolley week has been inaugurated to bring to the attention of the Pittsburgh district the values which lie in the things that can be accomplished through the use of the street cars.

In view of the splendid co-operation from different sources,



Various Epochs in Transportation as Supplied Through the Ingenuity of the Liberty Vaudeville Company

These Relics of '49 and the Gay '90s Set Pittsburghers Gaping, and at the Same Time Made Them Thankful for the Modern Street Car

—Gone for a Trolley Ride." These cards were placed on awning hooks in the business districts of Pittsburgh on Saturday night preceding "Ride the Trolley Week," and they were considered especially appropriate in the light of the severe Sunday closing laws which are common throughout the state of Pennsylvania.

The associated Equitable Gas & Duquesne Light companies not only displayed this placard and others in their stores and offices, but also followed the Pittsburgh Railways' example of using the service vehicles for the display of linen banners. In their public salesrooms, the "Gas & Electric Shops," they also featured placards which read:

Ride the Trolley Week

Buy your weekly pass Jan. 7-8-9 and secure a free coupon to apply on the purchase of an electric clock.

This was in accordance with the practice begun in June, 1926, of giving appliance discount coupons to those who buy weekly passes in advance. Under the plan, a different article is featured each month with possible discounts of \$2 and \$2.50 according to the pass



including the newspapers, the amount of display advertising purchased was remarkably small. The first advertisement, which appeared on Jan. 6, showed the outline of a footprint which recounted its sad lot and suggested the weekly pass as a way of avoiding aches, pains and cold feet. On the same day announcement was made that five prizes of \$5 to \$20 would be given to the oldest customers who submitted the most interesting pictures of "ye olden tyme" in transportation. Among other advertisements was a letter from Dr. Thomas S. Baker, president Carnegie Institute of Technology, which expressed the belief that the weekly pass had helped to increase night school attendance from 1,000 pupils three years ago to nearly 3,500 at the present time.

PRESS AIDS CAMPAIGN

In line with the spirit shown by the entire community, the *Gazette-Times* and the *Chronicle-Telegraph* gave splendid support to the campaign by direct editorials. The *Gazette-Times* expressed the opinion that the week would be a good time to see whether prejudice against the service of other days was justified now. On the



The log cabin shown above was the method adopted by the Pittsburgh "Press" of assisting the campaign, while in the upper right hand picture one glimpses the "Sun's" car, in which the workings of a modern newspaper were revealed in miniature. Lower right, city and county officials being given a practical demonstration of service in the future.

RIDE THE TROLLEY WEEK
JAN 10-16

WE ARE TROLLEY BOOSTERS
THEY ARE SAFE AND SURE
RIDE THE TROLLEY WEEK
JANUARY 10 TO 16

Join "the Big Parade"
"RIDE THE TROLLEY WEEK"



CLOSED FOR THE DAY.
GONE FOR A TROLLEY RIDE.

RIDE THE TROLLEY WEEK
JANUARY 10 TO 16
PUT YOUR WEEKLY PASS AND SECURE A FREE COPY ON A PURCHASE OF AN ELECTRIC CLOCK
JANUARY 10 TO 16

RIDE THE TROLLEY WEEK
JAN. 10 TO 16

I am a very small looking, just one of the thousands of wasted footprints you see some place or over the street. You will find some of us on the street from anywhere and you can tell who we are by looking for the man and woman whose faces are tinged and swollen. In a case more often and pain than all the rest about ever seen, you some people keep waiting on day after day. Why? A few one of those who daily struggle along hard, crowded sidewalks, always with cold on the forehead of water still on your hand in feet. Here's a tip: Next week go to "Ride the Trolley Week" in the Pittsburgh district, and have your chance to find out the reason over 10,000 people ride the Trolley each week.

THE TROLLEY WEEK
 THE TROLLEY WEEK
 THE TROLLEY WEEK
 THE TROLLEY WEEK
 THE TROLLEY WEEK

Ride the Trolley Week—Jan. 10-16
How Long Have You Ridden the Trolleys?
 We Are Looking for Our Oldest Customers!
 Prizes will be offered for the most novel pictures of the oldest car riders (men or women) on the Pittsburgh Railways System.
 These Prizes Will Be:
 First Prize \$20
 Second Prize \$10
 Third Prize \$10
 Fourth Prize \$ 5
 Fifth Prize \$ 5

Send your photographs, and return address, to Contest Editor, Commercial Department, Pittsburgh Railways Co., 435 Sixth Ave., Pittsburgh, Pa. Contest ends Saturday, January 18, 1927.
PITTSBURGH RAILWAYS COMPANY
 Your Weekly Pass will be good in all zones except interurban on Sunday, January 16th.

other hand, the *Chronicle-Telegraph* pointed out that improvement in equipment had been backed by lower fares through more transfers and both weekly and one-day passes.

Additional publicity was secured through the courtesy of the Kaufmann & Baer department store, operators of station WCAE. Service of the station was placed at the disposal of Thomas Fitzgerald, vice-president of the Pittsburgh Railways, who addressed the radio public on Thursday night, Jan. 6. Mr. Fitzgerald first dis-

Several speakers assisted these gentlemen by making fifteen-minute addresses before different civic clubs during the week preceding the campaign, and to broaden the scope of the publicity 700 ministers were advised of the purpose of the drive with the respectful suggestion that a topical sermon might be deduced by comparing the transportation facilities in Biblical days with those available today. In addition hundreds of restaurants and theaters were asked to mention the campaign on their menus and programs, respectively. In the case

Sun Show Car Starts Week Cruise Monday

Here if you haven't begun this new pastime, start now. Each day five street cars pass, good given away to the five persons writing the best last line to the rhyme. You may compete every day and send in a many last lines as you care to. But they must be in the mail by midnight following the day of publication of each line.

The passes are being given in connection with the cruise of the Pittsburgh Sun Show Special trolley. This cruise will be made to acquaint Pittsburgh's Clean Area with the array of exhibits also on hand in connection with "Ride-the-Trolley Week" which will begin Monday the first day you with Pittsburgh's Clean Area trolley starts to begin "Ride-the-Trolley Week" in connection with it. The cruise will start on Monday, January 10 to 16, inclusive, and in the evening.

Plan Washington Exhibit



Bird House Contest Plans to Be Announced Tomorrow

Tele Bird House Club Car Tour With Exhibition an Innovation of This Year's Contest for Boys and Girls Between Age of 10 and 16.

Details of the eleventh annual Pittsburgh Chronicle-Telegraph Bird House Contest for boys and girls from 10 to 16 years of age will be announced tomorrow. Thousands of boys and girls throughout the district who have been anxiously awaiting this big event will rejoice in the fact that plans for the 1927 contest are far more practical than those of the past.

New prizes are to be offered this year and the awards will be made in the form of a special trolley car tour. A special trolley car will be put in the contest and will be under way to make and plan the tour.

OFFICE OF THE MAYOR
CITY OF PITTSBURGH

PROCLAMATION

WHEREAS there exists an agreement between the City of Pittsburgh and the Pittsburgh Railways Company, which brings about a mutuality of interest; and

WHEREAS the Pittsburgh Railways Company is engaged in furnishing transportation to the City of Pittsburgh, and its surrounding municipalities, which service is of great benefit to all those interested in this community; and

WHEREAS the Pittsburgh Railways Company has been attempting to make such changes and improvements in its service as will meet with the approval of the citizens and business interests of the community; and

WHEREAS the week of January 10 to 16, inclusive, has been designated by the Railways Company as "Ride the Trolley Week", with a view to acquainting, and increasing the use by, the public of the Railways Company's service and facilities.

NOW, THEREFORE, I, Charles B. Kline, Mayor of the City of Pittsburgh, do issue this proclamation to all loyal Pittsburghers, urging them to support in every way possible the efforts of the Pittsburgh Railways Company to render more efficient and satisfactory public service, and do hereby recommend that all loyal Pittsburghers take special advantage of the opportunity to avail themselves of this service during "Ride the Trolley Week", January 10 to January 16, 1927.

Given under my hand and seal this 3rd day of January, 1927.


Charles B. Kline
MAYOR.

This picture is one of the most famous of George Washington, our country's first president. A log cabin filled with souvenirs of Washington and his time and mounted upon a street car will be driven about the city as a feature of the "Ride the Trolley Week" to be held next week by the Pittsburgh Railways Co. The Washington exhibit will mark the opening of the annual PRESS, Washington essay contest for school children.

Sun Show Special Nearly Completed

Carpenters Finishing Job on Car and Exhibits Placed for Tour Next Week; Third Jingle Jest Today

The weird moon of a new perpetrator, the wood The thump of hammers A head being driven home, Quaver but, Vice being hurried aboard



A chap in a new limousine Was watching a passing young queen When the clang of a bell Made him look up and yell,

3.

NAME

STREET

CITY

Some of the Various Printed Appeals That Concentrated the Attention of Greater Pittsburgh Upon the Vital Question of "More and Better Trolley Rides"

cussed the amicable situation now existing in the city with respect to the transit problem, and then proceeded to these interesting comparisons between 1923 (Pittsburgh's biggest revenue year) and 1926:

1. Fare reduced from 6 1/2 cents gross to less than 5 1/2 cents gross per ride.
2. Service increased by 1,700,000 car-miles.
3. Usefulness increased by 60,000,000 to 70,000,000 car rides.
4. One hundred miles of track completely rebuilt.
5. Nine new administration buildings erected for the transportation department.
6. Gross earnings \$880,000 less.

Mr. Fitzgerald was followed by Frank R. Phillips, former general manager of the Pittsburgh Railways, and now vice-president of the Duquesne Light Company, and Fred R. Cogswell, director of traffic promotion.

TROLLEY WEEK SPEAKERS BUSY

Talks Given at Civic Club Luncheons; Mayor Issues Proclamation.

"Ride the Trolley Week" speakers held forth yesterday at Civic Club luncheons and will continue today and tomorrow.

F. R. Cogswell, director of traffic promotion of the Pittsburgh Railways Co.

Mayor Kline's Proclamation, Shown on the Left, Set in Motion "Ride the Trolley Week" and the Two-Column Appeals Revened the Interest Shown by the Press

of moving picture houses, many of them featured the "Ride the Trolley Week, Jan. 10 to 16, inclusive," slogan. They also flashed on the screen a yellow street car with the following legend:

We have pledged ourselves to ride the street cars this week. So long—here comes the trolley now.

The theaters also were called on to supply further assistance in the person of vaudeville and musical comedy artists. Among these were Leon Errol, Ethel Bowen, and Gene Buck, producer of "Yours Truly." Miss Bowen, dressed as Sis Hopkins and traveling a-foot and a-car, attracted much attention with her antiquated satchel, which from time to time popped open to reveal the week's slogan. Leon Errol, famous for his comical falls, did ground and lofty tumbling from a trolley car, having as his motorman Gene Buck and as a background a group of chorus beauties. The Liberty Vaude-

ville Company, through which Miss Bowen was engaged, offered a clever variation of the evolution of travel by sending through the city a battered Frisco stagecoach, miner's pack mule, hansom cab and a two-passenger tricycle.

In spite of this, however, perhaps the outstanding features of the "Ride the Trolley Week" were the dressed up street cars. In this connection it is of interest to note that four of these cars advertised Greater Pittsburgh's leading schools. The cars were run in regular passenger service on the crosstown routes, to give the greatest publicity per mile run. They were in keen competition for public interest with those sponsored by the evening papers. The *Chronicle-Telegraph*, which has given prizes to boy builders of bird houses for the past ten years, ran a "Tele Club" car. The car, painted light yellow, contained live and stuffed birds in both cages and houses and was specially designed in connection with the paper's eleventh contest for trips to Washington. It was accompanied on its trips through the town by a lecturer, reporter and photographer.

The *Sun* car was painted lavender with the text matter done in purple and cartoons of *Sun* comics appeared around the top on the outside of the car. Inside was an exhibition showing how a newspaper receives news and how its various features are made up. As a means of reciprocity, the *Sun* featured a missing line limerick contest for which the Pittsburgh Railways was to give as prizes for the most amusing endings five weekly passes during six days. The *Sun* had expected from 200 to 300 jingles a day, but the average exceeded 1,000, which necessitated increase in the number of prizes.

A log cabin built on a flat car was the unique contribution of the *Press*. Inside was a collection of articles associated with George Washington, and an impersonator of the Father of His Country met the boys and girls to give them a button and register them for the 100-word prize essay contest which was sponsored by the paper. As an added feature, the *Press* announced that the Pittsburgh Railways had donated 30, and then increased it to 60, passes as a prize for the best letter on results from want ads.

Realizing that a campaign of this nature would not be productive of major results unless service was maintained at the highest efficiency, Mr. Cogswell, director of traffic promotion, made a careful survey of every situation where an increase in service appeared desirable to meet any likely contingencies. There were no special fare reductions offered in connection with the campaign, except that the weekly pass, usually confined to the area one fare each side from Pittsburgh center, was made good for all city car zones on Sunday, Jan. 16. This meant that the holder of a weekly pass would have the same Sunday privileges as are granted under the 40-cent-all-zone Sunday-holiday pass. This extension of the weekly pass privilege was tried for the first time on Sunday, Nov. 14, 1926. In this connection it is significant that during the campaign \$58,937 was realized from the \$1.50 weekly pass sale, which was an increase of \$2,700 compared with the same week in 1926.

A number of President Robertson's staff members wrote letters to their personal friends. A good example of the replies follows:

I do not know whether you are particularly interested or not, but we have been advocating in our office to our salesmen the use of the street cars rather than the automobile as an aid to efficiency. Some of our best salesmen have

followed our advice and have tried out the suggestion with good results.

They have found that where heretofore they have used automobiles daily, and therefore habitually, by using the street cars four days out of a week they have increased their efficiency and considerably reduced the wear and tear on their nervous system, to say nothing of the decrease in their personal overhead.

I am starting this year with a discussion of efficiency methods, and I am going to bring out the value of the use of the weekly pass, not only from an economic point of view but as a time saver. I shall advocate cutting out the personal automobile entirely for business purposes, and the use of the street car where they can, and the taxi where the street car will not suit.

I thought you might be interested in these plans of one of the most efficient sales organizations in the country.

LEE D. HEMINGWAY,

General Agent Connecticut Mutual Life Insurance Company.

Left Rule of Road on Rochester Rapid Transit Line

A DEPARTURE in railway methods will be introduced in Rochester, N. Y., when service is started on Rochester's rapid transit railway in the bed of the abandoned Erie Canal. Instead of operating cars on the right hand track in the direction of travel, it is planned to use the left track.

This radical change from right to left hand service is due to the installation of island platforms at the fourteen stations within the city limits, it was explained. These platforms are built between the eastbound and westbound tracks. Access to the midway platform is provided by stairways from the street level.

In order to relieve the operating company of the cost of rebuilding its equipment to meet the American or right hand travel system, the city engineers in charge of the railways decided on use of the English or left hand system. Otherwise passengers entering the subway would have no way of boarding or leaving the cars by way of the island platforms, which have no connection with the sides of the railway.

It is expected that the road will be in operation in the spring, although a movement was on foot among business men to force the opening of the line last fall. No definite plan of operation nor decision as to who shall operate the city-built railway has yet been evolved. This matter is up to a citizens' committee appointed by the late Mayor Van Zandt and headed by John P. Morse.

All the city stations are complete. Besides caring for interurban traffic, thus relieving street congestion, the new line, which bisects the city, was built for use by local steam railroads to provide better switching facilities for industries of the city.

Traffic Control Surveys to Be Made in 250 Cities

PLANS for the work of the committee of the American Engineering Council which is to co-operate with the National Conference on Street and Highway Safety were outlined at the annual meeting of the council, held in Washington, D. C., early in the present month. It will include a survey of the methods for traffic control in about 250 cities which have populations of more than 50,000, together with a few smaller sample cities to be picked out geographically. Engineers living in these cities will be expected to co-operate by collecting the necessary field data. The committee of the Engineering Council is headed by W. B. Powell.

Taxing the Utility

Taxing Systems Are Reviewed, with Particular Reference to New York State—The Gross-Net Principle Is Believed Fundamentally Sound and Should Be the Only Tax the Utility Should Pay

By *Edwin R. A. Seligman*

Professor of Economics Columbia University, New York, N. Y.

EDITOR'S NOTE—Prof. Edwin R. A. Seligman of Columbia University, nationally known economist and tax authority, delivered an address before the regular and advisory members of the committee on taxation of the American Electric Railway Association at the meeting of that committee in New York held on Dec. 10, 1926. This meeting was briefly reported in the JOURNAL for Dec. 18. The address by Prof. Seligman was given extemporaneously and the stenographic notes have been edited by the author.

The address was a part of the committee's study of utility taxation. It was considered of such interest that it has been abstracted in this article.

NATURALLY the methods of imposing taxes are of vital interest to you as well as to the public. Quite naturally and justifiably you look at it from the point of view of your own interests and the conservation of your own properties. On the other hand, many of you have also learned to regard it from the additional point of view of the larger economic problems involved; that is, from the point of view of social policy and general economic welfare. For the most forward-looking men among you, like the big men in every business, realize that in the long run you cannot prosper unless the community prospers and that this interdependence—this dependence of business profits upon general welfare—is inevitable.

This is the point of view from which I shall endeavor to approach the subject. I am not unmindful of the problem of earnings and profits. After all, each of us takes up his particular vocation from the point of view of making a living or earning an income, but if he is wise he also adds to it the point of view of the equities involved. Thus I want to show, if I am able to, that there is a correlation between your own welfare and that of the public.

Leading up to that, let me say a word first as to the genesis of the problem. Although it is an old story to all of you, let me recall to your minds how it has come to be a problem with us. It is a curious fact that it is not such an extensive problem anywhere else in the world, not in England, not in France. The reason why it is a problem here is because our existing tax system is a survival of an earlier system which was indeed well suited to the more undeveloped and primitive conditions of a colonial or undeveloped economic community, whereas in all the other countries of the world when the street railways or the various public utilities came into existence the economic conditions had already changed materially.

With us, as you know, the system in the eighteenth and the nineteenth centuries was that of the general property tax, a system which had existed all over Europe in the Middle Ages, but which had been outgrown in each of the European countries long before the nineteenth century. As the general property tax responded to the instinctive feelings of justice on the part of the

American taxpayer at that time, what was more natural than that when the first few corporations began toward the end of the eighteenth century, and then gradually increased during the first quarter of the nineteenth century, such as toll roads, canals and banking corporations, the community should endeavor to fit this new phenomenon into the existing situation. The fact was that every man was taxed or supposed to be taxed upon his entire property, real and personal. Unfortunately this did not work well from the very beginning, for the obvious reason that a corporation is not an individual. It is a fictitious person, but not an individual.

So far as the real estate owned by this fictitious person was concerned, there was not much difference viewed as a tax problem from the situation presented in taxing an individual. The difficulty arose when it came to the personal property, because as over against the personal property owned by individuals, consisting mainly of tangible goods—the pots and pans of the housewife and the stock in trade of the merchant—the corporations had something else. As time went on and as corporate securities—first the stocks and much later on the bonds—developed, it was found that there were certain incorporeal rights attaching to a corporation, rights which nevertheless formed a part of their property, which could be bought and sold and which had a value. Therefore, to make a long story short, the problem that arose with us was this: What is the franchise, this peculiar thing, this liberty or privilege conferred upon artificial persons by government? How are you going to define it? How are you going to measure it? How is it to be valued and taxed?

TAXATION IN ENGLAND ON A DIFFERENT BASIS

Now this problem never arose anywhere else in the world. Why not? Because by the time corporations developed in England (let us confine ourselves to the England with which you are more familiar) the system of taxation there had become an entirely different one. As you know, there are two methods of measuring wealth, the basis of taxation. One is to figure it in terms of possession of property. But another method, and from the economic point of view the more fundamental, is that of utilizing the returns which when capitalized go to make up the property.

Our problem, moreover, was becoming increasingly difficult because the property which we had to measure and to evaluate in order to fit it into our system of taxation was becoming ever more elusive. It was intangible, and it was intangible not alone in the sense of corporate securities but it was intangible in the sense of this incorporeal privilege. After efforts more or less unavailing, however, all through the first half of the last century and down to 1875, it became increas-

ingly difficult to tax the corporations with any semblance of equality either as among themselves or with reference to other property. Even real estate formed no exception, because in the case of the land which formed the right-of-way of the steam railroads, one stretch was valued like cow pasture and another was assessed at immense sums. The disparity was absurd because of the different criteria applied.

IN 1880 CAME THE FRANCHISE TAX

Thus it came about that in 1880 the state of New York, following the lead of Pennsylvania, which was then in the van, and despairing of reaching corporations in general for state purposes by a tax on the tangible property, introduced the tax which in the next year became known as a franchise tax. This franchise tax was, and still is, imposed upon the capital stock, although the rates vary somewhat according to the returns on that capital stock.

All sorts of difficulties soon disclosed themselves. As tax rates became high they became unequal. As a natural consequence every corporation, as every individual would have done under similar circumstances, tried to rid itself of the burden. So far as individuals are concerned, you remember that our general property tax long ago became grossly unequal. At present in this state the personal property tax, by law on intangibles and in practice on tangibles, has disappeared for state purposes and largely for local purposes.

Then a clamor arose against the public utility corporations. It was about in the '70s that the Granger movement in the West was directed against the railways. Subsequently, owing to many reasons which I need not mention here, the general feeling of suspicion of large aggregations of capital became more pronounced. Finally something had to be done about taxing the transportation companies, not only steam but now also the street railways as well as the others.

THEN THE UTILITY BECAME PUBLIC

We began to call them public utilities or businesses related to the public interest. They were now conceived by the community as standing in a class by themselves and as not susceptible to that condition of private ownership which is common in ordinary industry.

By the time the tax laws of the '90s were passed, affecting the electric railway industry, the situation had changed a little. There was an uneasy feeling on the part of the general public that there was something wrong with the American method of measuring wealth. So many inequities were involved that it often resulted in the tax being based on the private arrangement with the local assessor rather than the personal property. However, the business man now began to measure his prosperity, not in terms of capital or stock or business inventory, but in terms of profits. His prosperity depended on what he made. Here might be two business men, each having the same amount of stock, the one with a turnover ten times as great as the other, with a consequent greater degree of prosperity.

EARNINGS CONSIDERED AS A MEASURE OF WEALTH

Thus you see that the idea of earnings rather than of property began to come to the front. At first it was very crude. When the state began to apply it to corporations, it said: "Let us tax them upon their gross earnings." It is obvious why they did that. In the first place, that is about the only kind of earnings they could tax, because when they tried to get the net earn-

ings there was no way of ascertaining them. Even among the railways there were no good methods of accounting. Every railway kept its accounts in its own way and according to no governing standard.

Thus under the conditions of that day the gross earnings tax was the only one which was practical. Here again, as time went on and as more refined methods of measurement became customary, it was realized that the gross earnings tax was a very primitive system. It was like the Biblical system applied to land—the tithe, the 10 per cent of the gross, which we still find in primitive communities in the world today, such as China.

The reason why gross earnings no longer responded to a sense of equity among the corporations themselves was that it drew no adequate distinction between the prosperous and the unprosperous companies and that it made no allowance for necessary expenses. As conditions became more complex the inequalities were intensified. Naturally, therefore, there began to arise more and more discontent. A slight attempt to meet the situation was made by the law of 1896, as a result of which the tax, although still on gross earnings, was supplemented in a minor degree by a reference to dividends.

THE SPECIAL FRANCHISE TAX APPEARED IN 1900

In New York, and in contrast to many other states, we are not allowed to deduct our debts from our real estate. In most states, if you have a farm worth \$10,000 and borrow on it \$5,000, you can deduct the \$5,000 which you owe, but not so in New York. On the other hand, if you have debts you are allowed in the state of New York to deduct them from your personal property, a condition contrary to that which exists in most states.

In the case of one of the large railways the company found that it had been heavily burdened by unreasonable assessments on its personal property by the local assessors. Accordingly it tried to reduce the burden and devised an ingenious method by which the capital stock was reduced and replaced by a large issue of bonds. Then, of course, under the law a bonded indebtedness was deductible from the personal property, tangible as well as intangible. By issuing this great amount of bonds, the company was thus able to make its personal property a minus quantity. Moreover, it owned but little real estate, because it used the public streets, which were not liable to taxation. As a result the local tax was virtually eliminated.

Something had to be done. The company paid no taxes at all or very little taxes. In order to silence the public clamor which ensued, an ingenious senator suggested a new plan—to replace the whole existing system of taxing railways by something new. The privilege to use the streets which the state confers was called a franchise—not a general franchise, because that is the franchise to be a corporation, but a special franchise. Moreover, it was declared to be real estate, so that all the mortgage bonds would not be deductible from the assessed value.

It was about that situation that Governor Theodore Roosevelt asked me to consult with him in 1899. I told him at the time that while it was a most ingenious method and while it would surely accomplish its object, that of bringing the railways to terms, I foresaw not a little of future difficulty. I had already by that time come to the definite conviction that our method of attempting to assess wealth in terms of property was erroneous and that this new attempt would simply add another difficulty to the problem. But the political

powers had determined to make capital of this situation, and, therefore, the advisers of the Governor tried to make it as good a tax, or as little bad a tax, as we could. Thus we came to have the special franchise tax.

THE TAX COMMISSION DETERMINED THE FRANCHISE VALUE

From this point on, the railways especially, and many other public utilities, began to have their worries. Why? Because the value of the franchise was relegated to the State Tax Commission and nothing was said in the law as to how it should proceed to value the franchise. Those of you who are acquainted with the situation in other states know that there are about as many different ways of valuing a franchise as there are human beings who do the valuing. Of recent years our commissions and officials have become very cautious in telling us how they value the franchise. The caution is easily explicable because as soon as they tell us how they value the franchise, you can attack it in the courts and perhaps overturn the assessment. But if they say, "We consider this the proper valuation," you can't very well claim that there is anything illegal about it.

So that is the situation as we have it today. The situation is further complicated by another unfortunate fact. As the price of securing the local franchise most of the street railway companies made all sorts of arrangements with the local bodies about paving and whatnot. In those days, horse cars were used and the horses continually got the stone pavement out of shape. That was long before the advent of good roads, the appearance of the automobiles, and the passing of the horse car. What was at one time a matter of little consequence has now, as many of you know, become a very decided burden.

In the meantime, while this antiquated and primitive system of taxation still applies to you, the efforts which some of us had been putting forth for some time bore fruit. In the case of personal, individual taxation our system has been completely changed in New York State. That is to say, we no longer rely upon the general property tax for either state or local purposes. New York is about the only state in the country which has gone almost to the limit.

In the first place, the property tax, even for local purposes, has become to all intents and purposes a real property tax. Ninety-eight per cent of the property tax or the so-called direct tax is raised from real estate.

Moreover, for state revenues, while we still have the so-called direct tax, it plays a very small rôle as compared to earlier times. We get ten, twelve or fifteen millions a year out of our total revenues of \$150,000,000 to \$200,000,000 a year. It has been replaced, as you know, by the income tax, the personal income tax and the corporate business tax. The personal income tax yields us this year about \$40,000,000 and the corporate business tax, also levied on net income, yields about \$60,000,000—together about \$100,000,000.

Unfortunately, the so-called public utilities had been left out. In the rest of the world no such distinction is drawn between public utilities and other corporations. This is partly because the early public utilities behaved themselves better there than they did with us, or were made to behave better by Gladstone and others at an early period, and partly because of the peculiar economic conditions in this country, whereby the public utilities were recognized as belonging in a class by themselves. Accordingly they were omitted in this general reform.

What you gentlemen now have to face is the question as to how you should be made to fit into this general change which has been applied to all the other interests, including even the banks. The banks were the very last of the corporations to come in. They were formerly in the same position in which you are, but they were finally induced to come in under the general income tax law.

In the attempt to solve this difficulty, we said: "The simplest thing, of course, would be to do as they do in England, France, Germany and Italy, namely, to apply the general rule of the income tax and make all the companies subject to a general corporate income tax."

There were, however, two reasons which prevented us from accepting that simple solution. The one was that the problem of local taxation is a very difficult one with us in this country. How are we to raise the funds for schools and for roads? In those days we didn't get so much help from the state and the federal governments as we do now.

If the public utilities were freed from the obligations to pay taxes on real estate, it would impose a burden upon the individual owners of the rest of the real estate. Inasmuch as a given amount of money has to be raised, if you eliminate a large proportion of the taxables, obviously it must be raised by the rest. Thus you see that if the local real estate tax were abolished the public utilities would be deemed a disadvantage rather than a blessing to the localities. The local taxpayer would feel that he would have to dig his hands into his pockets because of the freedom of the public utilities from the real estate tax. That was one thing with which we had to reckon. The other was that while income or net earnings, from the abstract point of view, is decidedly the better, it is not ideal.

INCOME TAX OF EVER-INCREASING IMPORTANCE

That is the reason that, whereas the Civil War was waged with practically no income tax at all, the recent great war has been financed almost entirely upon the proceeds of the income tax. The income tax is today the sheet anchor of our whole national finance. Although income has many advantages and although we are all tending away from our property tax to the income tax, there are certain disadvantages to this method as a criterion of tax-paying ability. There is, in fact, no absolutely ideal system of measuring capacity to pay.

One of the disadvantages is that in a lean year the income is materially reduced or might even change into a deficit, whereas from the point of view of the public, the government expenditures must go on, in good or in bad years. Of course in bad years we may have smaller expenditures, but still the expenditures will not decrease in correspondence with the bad times. Since therefore you have the expenditures, you have got to have some sort of revenue. If your tax system is based entirely on income, where are you going to be?

THE GROSS-NET TAX

The consequence was we devised what we call the gross-net system. That, in a nutshell, is a system which imposes a small tax upon a corporation according to its gross earnings so there will always be a revenue, but which changes the rate according to the amount of earnings so as to diminish the objections which apply to the gross earnings tax. By imposing this gross-net tax the old system, which is no longer defensible, is eliminated and the general system of income taxation is approximated as closely as practicable under our present conditions.

For that reason, gentlemen, I should say that you ought to give this question careful consideration. I know that it will affect some of the public utility corporations differently from others. To some it will be an immense boon to get rid of the special franchise tax; to others, which perhaps have been doing a little better in their ventures and which are not yet so heavily taxed, it may involve a more or less unwelcome change. But if you gentlemen are forward-looking and wise, as I am sure you are, you will realize that in the long run you can't attempt to escape your due proportion of taxation. What we need in this country and what we are getting today, especially from our big men, is the acceptance of the principle that every man should bear his fair share according to his capacity to pay. Don't forget that in the long run, especially in a democracy like ours, no class of people and no class of corporations can hope to escape its fair share of the liability. We have had several interesting examples of this truth in our recent history. The first one was that to which I alluded when I spoke of the special franchise tax. There was another matter dating back a few years ago, when the banks contested a law which attempted to put them on an equality with other businesses and fought it in the courts. Because some of them were national banks they managed to take advantage of that clause in our federal laws which prohibits the states from doing certain things to national corporations or nationally chartered bodies. What was the result? The banks had the law declared unconstitutional and were happy. But in the very next session Senator Davenport persuaded the Legislature to impose the capital tax. This was really one of the worst taxes you can think of, a reversion to the old discarded system of property taxation. What was worse, however, the capital tax had to be so framed that it applied not only to the banks themselves, but to the private bankers as well, thus causing discomfiture to a great many other people.

You all know the great excitement that ensued. After considerable negotiation I obtained for them the assurance that as soon as the section in the revised statutes was so changed as to permit them to conform to an equitable system the capital tax would be abolished. It took them about two years to come around. Finally they consented, as they saw that the Legislature was obdurate. When the banks came around the whole thing was quickly adjusted. As a result they are now

on a par with other moneyed corporations and the capital tax has been abolished.

You can't expect, in a democratic community, which is so jealous of the rights of the individual, to erect yourself into a favored class. You have got to take your portion with everybody else.

From the point of view of prudence, with reference to the situation as it is going to develop in the next five or ten or fifteen years, and from the larger point of view of what is fair and equitable and forward-looking for the community as a whole, you ought to get behind this gross-net proposition and do away with all the absurd things in our laws today, including the special franchise tax.

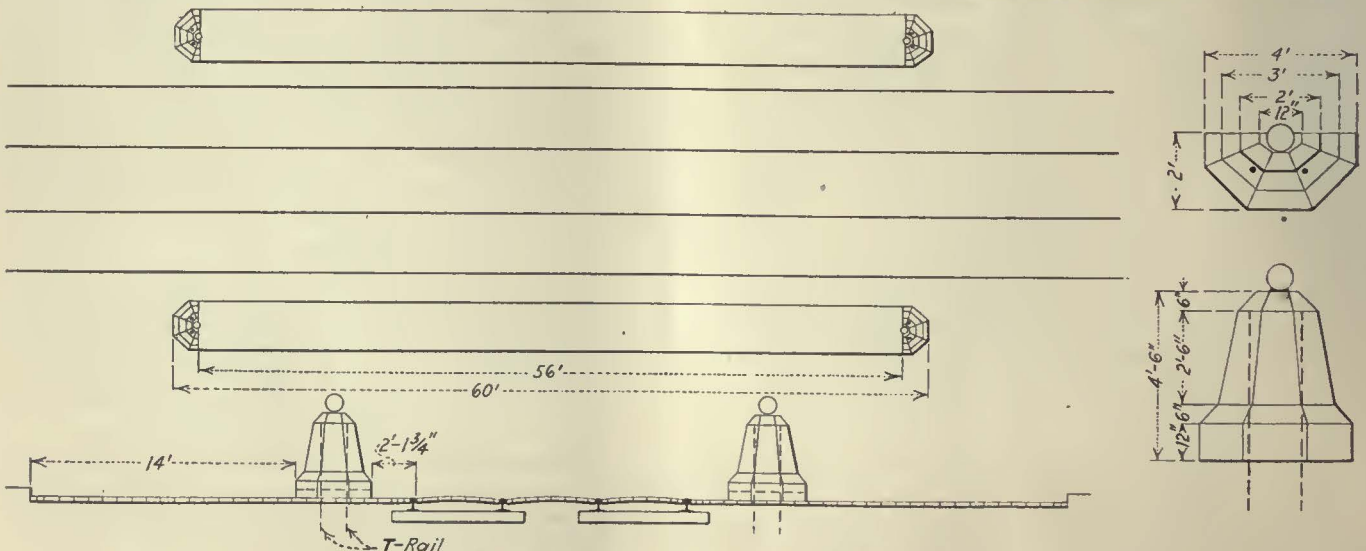
If you do this, and approach the subject fairly and loyally, you will be able to help solve both the state and the local tax problem and you will achieve something that will ultimately redound not only to your own benefit but to the prosperity of the community as a whole.

Loading Platform Meets Public Approval

LOADING platforms recently erected by the Wilkes-Barre Railway, Wilkes-Barre, Pa., have been heartily approved by the riding public. Four of these have been installed. Two are located at Fort Wells and Slocum Streets, Forty Fort, Pa., and two at Vaughn's Corners, Wyoming Avenue, Kingston, Pa. They are all of concrete, 4 ft. wide and 60 ft. long over abutments. The platform is raised 6 in. above the street surface. Abutments are octagonal in shape, 4 ft. 6 in. high and 4 ft. wide, reinforced by means of 80-lb. T-rail sunk about 4 ft. in the ground. Each abutment is illuminated with a single lamp incased in a round globe. This construction is rugged and presents a pleasing appearance.



Pleasing Appearance and Rugged Construction Are Combined in These Loading Platforms



Dimensions of Loading Platform Erected by Wilkes-Barre Railway

Berlin Carries Out Extensive Car Improvement Program*

FIRST ARTICLE

Complete Review of Car Development in German Capital Since Horse Cars Shows Change from Single to Double Truck Cars and Back to Four-Wheel Motor Cars and Trailers—Latest Type Equipped with Cardan Drive

By Wilhelm Pforr

General Manager Berlin Street Railway System, Inc.,
Berlin, Germany

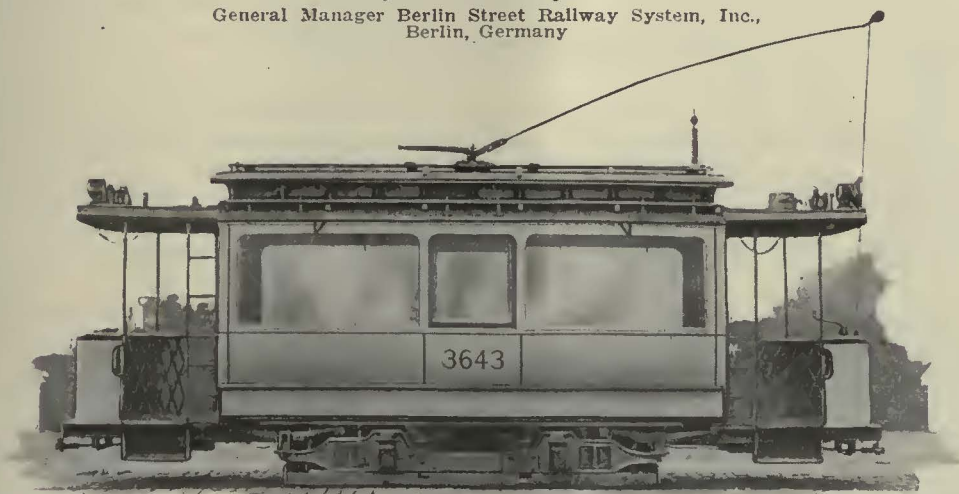


Fig. 1—Type of Motor Car First Used in Berlin. Weight, 22,000 lb.; Length, 27 Ft. 11 in.; Wheelbase, 5 Ft. 9 in.

STREET railway cars in Berlin have undergone a continuous development since the time of horse cars. For such service, only small, light cars were used. When the lines were equipped for electrical operation, the greater part of the horse cars were used as trailers. For service as motor cars new single-truck cars were built with a wheelbase of 1.75 m. (5 ft. 9 in.) and equipped with two motors, each of 15 kw. (20 hp.). On account of the short radius curves on the line and the consequently short wheelbase necessary, the length of these first motor cars had to be kept down to 8.5 m. (27 ft. 11 in.). Braking continued to be done by hand, and the brakes on the trail cars were operated by a brakeman on the trailer. To reduce the number of employees this method of braking was abandoned in favor, first, of short circuiting electric brakes, followed by air brakes, for which electrical solenoid brakes were later substituted.

Fig. 1 shows such a motor car which was put into service at the time electrical operation was begun. It weighs 10 metric tons (22,000 lb.) and has seating and standing room for 48 passengers. It is shown equipped with a trolley pole, but at the beginning of

electrical operation, for esthetic reasons, the installation of trolley wire was forbidden on certain streets, and cars strong enough to carry storage batteries had to be added to the rolling stock. Such a car is shown in Fig. 2 and its truck and wheel arrangement in Fig. 3. Its weight inclusive of batteries was 16 metric tons (35,200 lb.), and it had room for 28 seated and 35 standing passengers. When storage-battery operation proved impracticable, the batteries were taken out and the double-truck cars were equipped with trolley poles and operated over all lines of heavy loading. It developed then, however, that with only two driven axles these cars did not have sufficient traction to haul trail cars, but four motors were not put on, as at this time four-motor control had not been very well developed. Then, to improve their tractive effort, even when operated without trail cars, maximum traction trucks were installed, with total wheelbases and truck wheelbases as shown in Fig. 5.

Such a maximum traction car is shown in Fig. 4. It has room for 30 seated and 26 standing passengers and weighs 14 metric tons (30,800 lb.). About 600 cars of this type are yet in operation in Berlin. However, on account of their operating disadvantages and high operating and maintenance cost, they are being kept in service only until the time comes when they can be retired.

*This series of two articles is based upon an article by the author entitled "Die Entwicklung des Wagenparks der Berliner Strassenbahn," in the *Zeitschrift des Vereines deutscher Ingenieure* for Nov. 13, 1926, supplemented by other information just received by ELECTRIC RAILWAY JOURNAL from Mr. Pforr.



Fig. 2—Double-Truck Motor Car, Weight, 35,200 Lb., Originally Designed for Storage Batteries and Later Used with Overhead Trolley

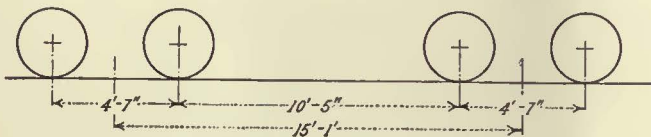


Fig. 3—Arrangement of Axles of the Motor Car Shown in Fig. 2 After Conversion for Trolley Operation

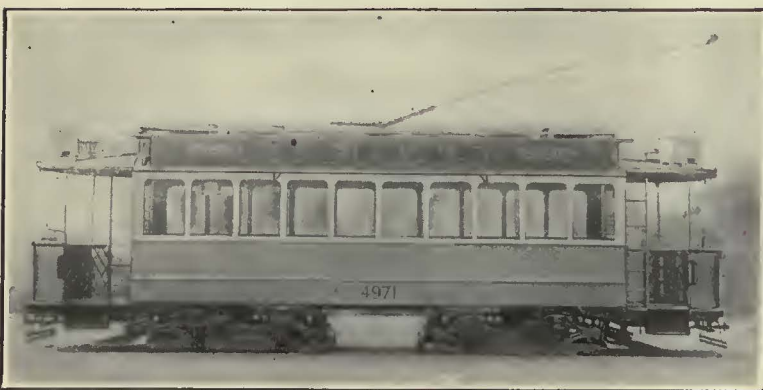


Fig. 4—Maximum-Traction Motor Car Truck of the Berlin Street Railway. Weight, 30,800 Lb. A Step in Car Development in Berlin Following the Design Shown in Fig. 2

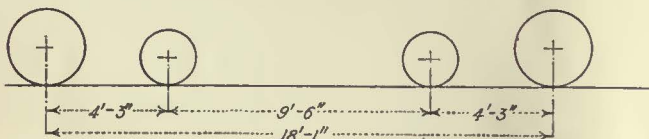


Fig. 5—Arrangement of Axles of the Motor Car Shown in Fig. 4

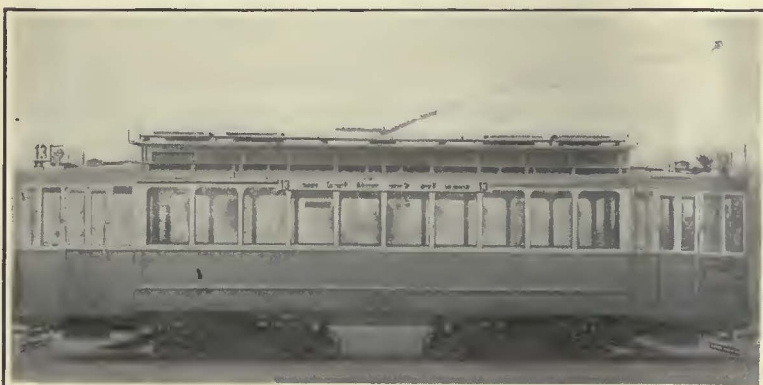


Fig. 6—Double-Truck Car with Inclosed Platforms Rebuilt from the Car Shown in Fig. 4. This Car Weighs 31,900 Lb.

On about 250 of these cars that appeared to be in the best physical condition the platforms were inclosed as shown in Fig. 6 and more powerful motors were installed. This car weighs 14½ metric tons (31,900 lb.) with 30 seated and 41 standing passengers, and its length was increased from 11 to 11.7 m. (from 36 ft. 1 in. to 38 ft. 5 in.). Cars of any greater length than this could not be run with safety in Berlin on account of the clearance at curves, and, moreover, with cars of larger capacity it is believed that two conductors would be required at many points along the line for proper collection of fares.

Of the cars shown in Fig. 1, the greater part have been scrapped, a few have been rebuilt and the remainder are used occasionally for extra service. Of those shown in Figs. 2 and 3, about 40 remain in service, but these will be retired as soon as substitutes can be provided.

During the past few years the Berlin Street Railway has been increasing the radius of its sharp curves. In all new construction a minimum radius of 15 m. (50 ft.) has been sought, and in most cases has been attained. Only in the entrance curves to carhouses in a few narrow streets have sharper curves than this been installed. With this improvement in the track, it was possible to increase the wheelbase of the two-axle cars from 1.75 m. (5 ft. 9 in.) to 3 m. (9 ft. 10 in.) and to build such cars with a length of 10 m. (32 ft. 10 in.) and a capacity of 24 seated and 43 standing passengers. Such cars are shown in Figs. 7 and 8. These were the first cars to be built with inclosed platforms, and since their construction all cars have been so equipped. The cars shown in Figs. 7 and 8 are equipped with two 39-kw. (52-hp.) motors each and weigh 13.3 metric tons (29,260 lb.). This is, of course, a large weight for a four-wheel car, but is cared for by motors of large capacity and rugged construction and by a truck with spring support between axle and truck and between truck and car body. About 200 of these cars are now in operation in Berlin.

The motors on these cars were the first in Berlin to be equipped with commutating poles, automatic ventilation and roller bearings. These three features have been continued in all of the cars used in Berlin since that time.

During the post-war inflation period it was not possible to add any more cars to the Berlin system, but some old cars, like those shown in Fig. 1, which seemed to be in good physical condition, were rebuilt to the type shown in Fig. 9. The system now possesses 250 cars of this type. It will be noticed that the truck side frames have been extended so as to reach under the inclosed platforms. This permitted an increase in length of the car from 8.5 m. (27 ft. 10 in.) to 10 m. (32 ft. 10 in.) In spite of this increase in length, the weight of the body is no greater than that in the old car shown in Fig. 1. This was made possible by the discontinuance of the use of heavy oak

side sills in the body, which were no longer necessary with the extended spring base; by the substitution for the old motors of modern high-speed motors, and by the discontinuance of the use of the old wheel brakes. These had to be abandoned because the brakeshoe hangers were supported on the side frame of the truck and consequently in the new design were affected by the movements of the car body. As a result, the brakeshoes got too far away from the car wheels and interfered with the working of the hand brakes. As substitutes for the wheel brakes a drum brake was developed, this drum being mounted on the armature shaft and not being affected by the spring support of the car body. Fig. 10 shows a motor equipped with one of these brakes that is modeled after the brakes used on automobiles. This brake was described in *ELECTRIC RAILWAY JOURNAL* for Feb. 13, 1926.

THE NEW CARS

The reconstructed car shown in Fig. 9 was the forerunner of an entirely new design of car, of which during the past year the Berlin Street Railway has added 500 motor cars and the same number of trail cars. The new motor car is shown in Fig. 11. It has an arched roof and the framework, Fig. 12, is entirely of steel. The side sill in the reconstructed car, as shown in Fig. 9, is visible from the outside and in this car is a Z beam on which the car body rests. To these beams, which are strengthened by a strut frame, are attached the axle pedestals and the car side posts, as shown in Fig. 12. The car journals are equipped with S.K.F. roller bearings and these cars were the first to use this type of bearing in Berlin. The high-speed motors, as shown in Fig. 10, were also used with these cars for the first time. Such a motor has a capacity of 35 kw. at 800 r.p.m., and weighs 800 kg. (1,760 lb.), as compared with the earlier motors, which ran at 600 r.p.m. and required an 820 mm. (32½ in.) diameter wheel, whereas the new motors could use a wheel of only 720 mm. (28½ in.) diameter. This permitted so low a car floor that the usual riser between the platform and the inside of the car could be omitted.

In these cars as well as in the reconstructed cars, as already pointed out, the drum brake was substituted for the usual wheel shoe brake. As it does not operate on the wheels it is independent of the suspension of the car body, brings no side pressure on the wheels and journal boxes, and is lighter than the ordinary wheel brake. Moreover, it has the advantage that the braking material used can be an asbestos composition. The efficient operation of this brake, combined with the long life of the brake band, is such that electrical braking can be used exclusively in operation and the hand brake is required only to hold the car at a stop. On account of the small wear, it is necessary to change the wearing parts of the brake only at long intervals.

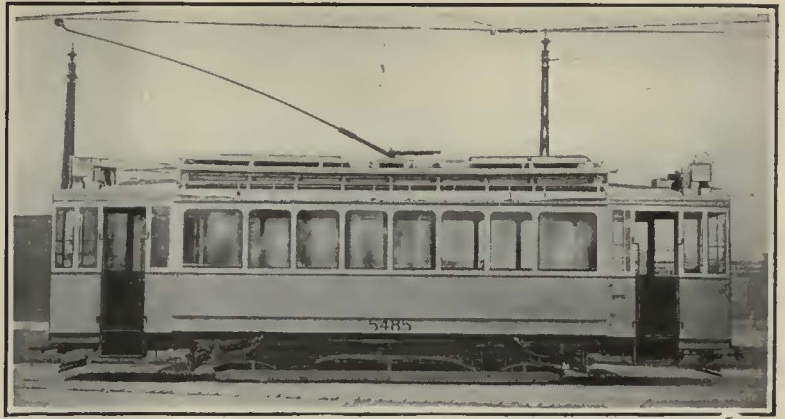


Fig. 7—This Car and That Shown in Fig. 8 Mark the Beginning of the Present Trend Toward Four-Wheel Cars with Extended Wheelbase in Berlin. The Weight of This Car Is 29,260 Lb. Its Wheelbase Is 9 Ft. 10 In.

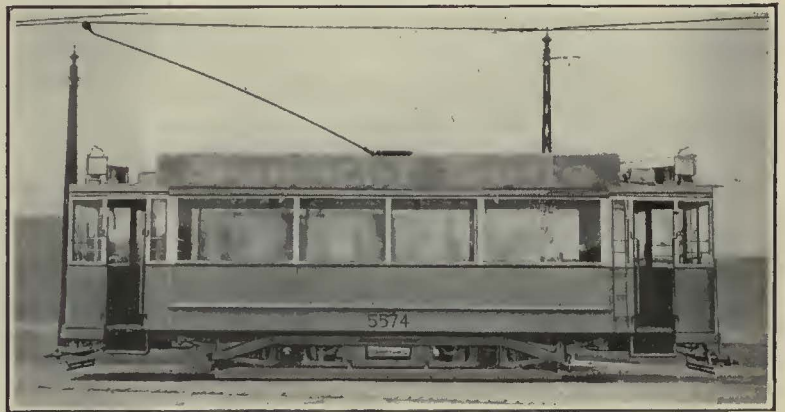


Fig. 8—A Modification of the Car Shown in Fig. 7 but with the Same Weight and Wheelbase

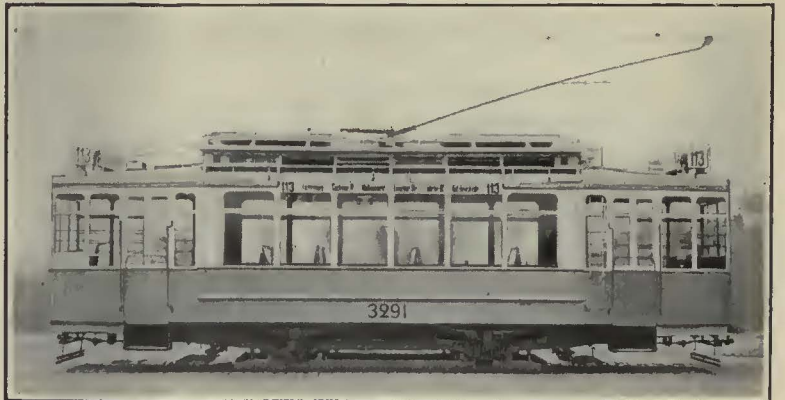


Fig. 9—Car with Long Inclosed Platform Rebuilt from That Shown in Fig. 1. The Weight Is 22,000 Lb. and the Wheelbase Is 9 Ft. 2 In.



Fig. 10—35-Kw. (47-Hp.) Motor with Drum Brake on the Armature Shaft. This Motor Was Built for Use on the Motor Car Shown in Fig. 9

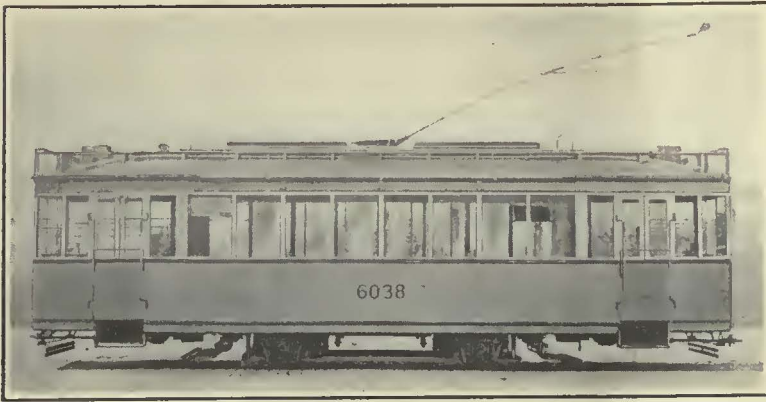


Fig. 11—The Last Type of Motor Car in Berlin in Which the Motors Are Hung on the Axles, and the Cardan Drive Is Not Used

This car is of all-steel construction with arch roof, but its principal feature of interest is the absence of a truck, the axle pedestals being attached to the body of the car. This car has a weight of 24,200 lb. and a wheelbase of 9 ft. 2 in., like that shown in Fig. 9.



Fig. 12—Framing of the Car Shown in Fig. 11. The Side Sills Are Z Channels

On the trail cars the shoe brake has been abandoned, as on the motor cars. For the trailers the latest braking device is the so-called plier (or tongs) brake, which provides for the trailers the same kind of braking advantages as given by the brakes on the motor cars already described. An article on this brake, with chart showing method of application, appeared on page 174 of last week's issue of this paper.

The new motor cars, Fig. 11, weigh 11 metric tons (24,200 lb.) and have a capacity of 24 seated and 42 standing passengers. In the trailers there is room for four more standing passengers because of the absence of the control equipment. The low weight is due in part to the high-speed motors and in part to the absence of any truck. With the same passenger capacity, the new motor cars weigh 2 tons (4,400 lb.) less than the four-wheel cars shown in Figs. 7 and 8, and about 5 tons (11,000 lb.) less than the maximum traction truck cars, Figs. 4 and 5. To these advantages should be

added that of the lower maintenance inspection required because of the new brakes and use of roller bearings.

TRIALS WITH CARDAN DRIVE

In all of the cars so far described, the system of motor drive has been that in which the armature shaft is parallel with the car axle to which it is connected by spur gearing. This system of drive, which is common on most street railways, has notable objections, among them the fact that the drive is not entirely dustproof and does not operate in oil. Another disadvantage is that part of the weight of the motor is not spring supported, and this is bad for both the motors and for the track.

To overcome these disadvantages, an attempt has been made to use the system of automobile drive, known as the Cardan drive, which was first tried out by the Dortmund Street Railway under the direction of General Manager Albrecht, and about the same time was applied to some new cars on the Paris street railway system. Cars with this same type of drive have been in use also by the Berlin Street Railway, which for the last two years has had a car similar to that shown in Fig. 9 equipped with this type of drive. The method employed is that shown in Fig. 14. Ten of these Cardan drive cars are now being used with satisfaction by the Berlin Street Railway. The one which has been in regular service for two years does not show the slightest wear on the drive. The motors also, which are of the high-speed type up to this time have not given any trouble.

It should also be said that the Berlin Street Railway has been engaged in a study to see whether light-weight metal cannot be used to reduce the weight of trailers. For this purpose two trailers of the latest type built with framing made entirely out of light metal have been put in operation. It has been found that by the use of this metal a saving in weight of from 10 to 15 per cent has been secured, though the cost has been increased by about that same proportion. The ability of such metal to stand up under the conditions to which it is subjected has not yet been determined. Such ability will be made clear only by experience.

Particulars of the operation of the cars equipped with Cardan drive and the plans of the company as regards rolling stock for the immediate future will be treated in a following article.

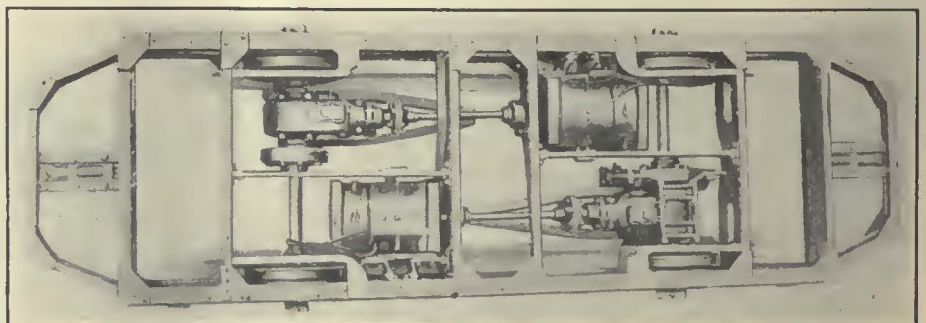


Fig. 13—(At Left) "Tongs" Type of Brake, Used on the New Trail Cars in Berlin. Fig. 14—(At Right) Floor Framing of Berlin Motor Car Equipped with Two Cardan Drive Motors

New Equipment Saves \$1,528 Per Car Per Year*

By *W. C. Bolt*

Superintendent of Rolling Stock and Shops
Eastern Massachusetts Street Railway, Boston, Mass.

Experience of the Eastern Massachusetts Street Railway with Modern Rolling Stock Has Been so Satisfactory that 50 New Cars Will Be Bought This Year—Other Equipment Is Being Remodeled for De Luxe Service

IMPROVEMENT in cars and equipment on the Eastern Massachusetts Street Railway has stimulated travel, increased revenue and reduced operating cost. During the war the company found itself in receivership, thoroughly impoverished, with equipment of all vintages, an infinite number of types of cars, trucks and motors, most of which were worn out. In 1917 such improvements as limited funds permitted were inaugurated. Following reorganization and formation of the present company under control of a board of public trustees appointed by the Governor of the state, 250 single-truck safety cars of our own design were purchased and placed in operation. These cars were reinforced and were more substantial than the standard Birney car sold at that time. Some 450 existing double-truck cars previously operated by two men were prepared for one-man operation, through the addition of a conductor's valve which when pulled by a passenger applies emergency brakes, unlocks rear doors, and cuts off power through the line switch. By the latter part of 1921 practically all of the service on the 681 miles of track operated was being performed through one-man operation.

All of these cars have been modernized in so far as possible. All cars have been provided with highly efficient glass reflector type of headlights, automatic heat regulators, pneumatically operated doors, pneumatic sanders and illuminated destination and side route signs. Cumbersome drawbars and fenders have been removed and the fenders have been replaced by wheel guards which met with the approval of the State Department of Public Utilities. Reduction of noise has been given every possible thought, and it has been the endeavor to eliminate noise on all cars to the greatest possible extent.

The value of clean and well-painted rolling stock as

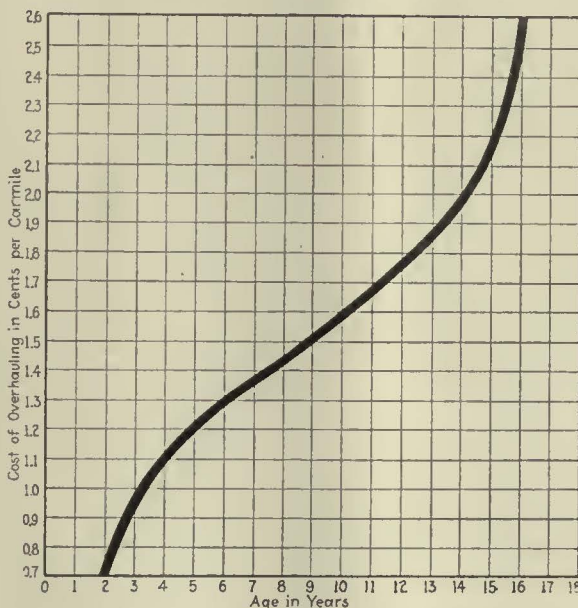
a business getter was recognized. After five or six years the frequent painting of interior and exterior of cars has lifted the estimation of the company to a high level. All service cars, including snow equipment, are likewise kept in first-class paint condition, as it is not intended that a single piece of equipment should appear shabby on the streets.

Within the last several years, 75 double-truck, low-level light-weight cars were added. Believing that service, particularly on longer routes, could be made still more attractive, nineteen light-weight, double-truck cars were provided with specially designed Spanish leather seats, cushions of which are 8 in. thick, double spring construction. Backs are of the individual divided type with curved tops. Seat spacing was increased from 28½ in. to 31 in. to provide greater kneeroom. The cars were provided with linoleum floor covering, and the piping in the vestibules was completely inclosed.

Cars of this type have been placed in service on the Lawrence-Boston route, distance one way 23.2 miles; on the Lowell-Boston route, distance one way 24.2 miles, and on the

Brockton-Boston line, distance one way 14 miles. The Lowell-Boston service was started in October of last year. The Lawrence-Boston and the Brockton-Boston line have just been started with de luxe service.

The first de luxe route established has shown very satisfactory results, and it is expected that the annual earnings of this route, about \$250,000, will be increased at least 8 per cent judging from the results of the first four months of operation. There is no question in our minds but that this improved service will attract patronage. The management is so firmly convinced that this improvement in car service will produce pleasing results that it has authorized the remodeling of a total of 50 cars along these same lines for use on other routes which for convenience we might call "suburban routes" as distinguished from city routes or interurban routes.



Overhauling Cost Increases Rapidly with Age of Cars

*Abstract of a paper presented at the midwinter meeting of the New York Electric Railway Association, New York City, Jan. 25.

In addition to this, the purchase of 50 additional double-truck light-weight de luxe cars has just been authorized, and deliveries are expected early this year. These cars will likewise be provided with a similar type of de luxe seats and Pullman type of rubber floor covering. They will be finished on the interior in genuine mahogany, and will be lighted with five Pullman type dome fixtures, each fixture containing a 94-watt compensated lamp.

Upon delivery of these 50 cars, the company will then have 100 de luxe trolley cars which will take care of the larger portion of the so-called suburban service. The new cars will replace 50 old-style heavy double-truck cars, and will still further improve the high standard of equipment which the management has fixed.

Purchase of these 50 de luxe cars was predicated upon a study made of economies which might result from their purchase as well as their added business getting value. Every company has car equipment of various styles and ages, and usually the older cars are less modern and are more expensive to operate. This was true in our case.

It has been our custom to keep accurate records of the cost of reconditioning every car at the expiration of the predetermined mileage interval, which will be later referred to. Individual car reconditioning costs were summarized by car group, and the results of this summary are given below. An accompanying chart shows this graphically.

SUMMARY SHOWING AVERAGE TOTAL COST AND COST PER CAR-MILE OF OVERHAULING OR RECONDITIONING ELECTRIC PASSENGER CARS CLASSIFIED BY CAR TYPE OR GROUP

Car Group	Nr. Cars in Group	Weight Per Car, Lb.	Age in Years	Average Cost	Miles Operated Per Overhaul	Cost Per Car-Mile, Cents
A	30	32,000	2	\$749.00	100,000	0.75
B	2	33,640	2	749.00	100,000	0.75
C	25	32,000	4	1,070.00	100,000	1.07
D	101	42,880	9	1,402.00	100,000	1.40
E	100	46,280	9	1,402.00	100,000	1.40
F	74	43,200	13	1,842.00	100,000	1.85
G	43	43,900	16	1,956.00	75,000	2.60

In order to arrive at an average annual saving in maintenance per car for each new car placed in service, the expense of maintaining an old type car for a service period of 400,000 car-miles, equivalent to eight years of time, was compared with the cost of maintaining a new light-weight car—all based upon the cost figures as previously set forth and as based upon our own cost records.

COST OF CAR MAINTENANCE

Old Type Car (400,000 Car-Miles)

Initial cost of overhaul to make old car reliable.....	\$2,600
Cost of overhaul at end of....	
{ First 100,000 miles at 2.6 cents per car-mile..	2,600
{ Second 100,000 miles at 2.6 cents per car-mile..	2,600
{ Third 100,000 miles at 2.6 cents per car-mile..	2,600
{ Fourth 100,000 miles at 2.6 cents per car-mile..	2,600
Total cost of overhauling (400,000 car-miles)	\$13,000

New Light-Weight Car (400,000 Car-Miles)

Initial Overhaul	New Car	0
Cost of overhaul at end of....		
{ First 100,000 miles at 0.75 cent per car-mile..	\$750	
{ Second 100,000 miles at 1.07 cents per car-mile..	1,070	
{ Third 100,000 miles at 1.20 cents per car-mile..	1,200	
{ Fourth 100,000 miles at 1.40 cents per car-mile..	1,400	
Total cost of overhauling (400,000 car-miles)	\$4,420	
Total saving 400,000 car-miles	\$8,580	
Total saving per car-mile, cents	2.145	
Total saving per car per year	\$1,072	

The saving in energy on a basis of 50,000 miles per car per year for the light-weight double-truck car over

the old type car and at the rate for energy of 1 cent per kilowatt-hour was calculated at \$455.80 per year.

It was also necessary to amortize the original value of the old type car to the extent of 20 per cent of its original value (\$6,000 × 20 per cent), or \$1,200 over the period of eight years or \$150 per year.

The combined annual saving in energy and in car maintenance was, therefore, as follows:

Annual saving in maintenance of equipment	\$1,072.00
Annual saving in energy	455.80
Total annual savings	\$1,527.80
Fixed charges for each new car:	
Interest at 6 per cent on \$15,000	\$900.00 per year per car
Depreciation on basis of twenty-year life, 5 per cent compounded annually.....	405.00 per year per car
Amortization of 20 per cent of original value of old car (\$6,000 × 20 per cent) or \$1,200 over a period of eight years.....	150.00 per year per car
Total	\$1,455.00 per year per car

The annual savings, therefore, in energy and in maintenance of equipment for each new car placed in service, and for each corresponding old type car retired from service, will more than pay for the fixed charges. In other words, the cost of service would actually be reduced, and no effect has been given in these calculations to other important economies resulting from this replacement, such as reduction of cost of general car-house labor and material, including brakeshoes, lubrication, armature maintenance, etc., and the intangible savings in maintenance of track.

IMPROVEMENTS IN CAR MAINTENANCE

Coincident with the modernization of shops and car equipment as earlier set forth, the company proceeded to inaugurate modernized maintenance practices. Thirty thousand car-miles was first established as a mileage interval between general reconditioning and overhauling. This interval was later increased to 45,000; as the condition of equipment continued to improve, the interval was again increased to 60,000, later to 75,000, and 100,000 car-miles has now been established as the reconditioning period.

Every passenger car has been equipped with Economy watt-hour meters complete with car inspection dials, and these meters accumulatively register the energy consumption. The meters are used as a basis for both carhouse inspection, which is equivalent to an inspection for every 1,000 miles of car service, and for the 100,000 car-mile shop reconditioning. On the first of each month, the meter dial readings are recorded by the local carhouse foreman, and these readings forwarded to the general rolling stock office on a form provided for that purpose. One point advance on the meter dial is equivalent to 4,000 car-miles. Accordingly, when a car has reached 25 points on the meter, it has operated the equivalent of 100,000 car-miles, and therefore is due for reconditioning. When the car is reconditioned, the locked dial is again set back to zero. Considerable economies have resulted from the use of this plan, as individual car mileage statistics are entirely eliminated with the corresponding saving of some 26 clerks formerly engaged in this one operation. Cars which are in regular service become due for shop reconditioning in approximately two years. Other cars which are in infrequent service, perhaps cars of older type, do not become due for reconditioning within three or four years. This system also enables us accurately to forecast our annual budget.

The department of rolling stock and shops is continuously engaged in the scientific study of life of various

car parts with consequent view of securing materials of such design and construction that will give maximum life to co-ordinate with the 100,000 car-mile overhaul basis.

Prior to 1920, it was the practice to make general repairs to cars in each of the larger carhouses. Such major repairs have been eliminated at carhouses, and have been concentrated at the shops, where work can be accomplished by specialists. Division carhouse work now consists almost entirely of inspection, cleaning, lubrication and replacement of rapidly wearing parts, such as brakeshoes, trolley wheels, controller fingers, etc.

Modern practice, together with modernization of equipment, has contributed largely to our substantial reduction in armature failures. In 1920 we were having armature failures at the rate of 475 per month, these failures occurring largely on motors of the old types. At the present time our failures aggregate 55 per month, or about 1 per cent of the total in service.

Every armature is dipped and baked and retested every 100,000 car-miles, and this procedure has had very marked effect upon armature troubles.

Similarly, a thorough examination, testing, dipping and baking of field coils every 100,000 car-miles has reduced field coil failures from some 300-odd per month in 1920 to practically 100 per cent performance.

At the period of reconditioning of car equipment, it is the practice of the company to remove all equipment parts, and thoroughly to overhaul and test each individual part. Motors which are found to have excessive wear in the axle bearing housings are welded and rebored to restore original conditions. It is considered of vital importance that armature and axle bearing housings be continuously in first-class condition, this resulting in ultimate long life of axle and armature bearings.

The company has entirely discontinued the practice of reabbaiting axle and armature bearings, and uses full brass bearings almost exclusively, with the exception of high-speed GE-264 and Westinghouse-508 motors. Every car at the overhaul period is equipped with new full brass axle and armature bearings and, barring accidents, these bearings do not require replacement until the next general overhaul period. This plan practically eliminates the necessity of installing armature or axle bearings in divisional carhouses. During the first ten months of this year 360 pairs of new axle bearings were installed in divisional carhouses, or an average of 36 pairs per month. This is equivalent to installing new bearings on only 4½ cars per month, or at the rate of one-half of 1 per cent per month of all axle bearings in service.

Within the past year and a half very careful investigation of air brakes on all passenger equipment has been made, with the purpose of bringing the brake performance on each car as near as possible to that of the light-weight double-truck car equipped with variable load brake compensators.

Maintaining car reservoirs in a safe condition is considered of sufficient importance to warrant more than the usual superficial examination for defects. Accordingly, a hydrostatic and hammer test of all tanks is included as a part of the regular car overhauling schedule.

A car repainting schedule of from 33,000 to 50,000 car-miles has been established, which operates to bring in regular cars for paint every twelve to eighteen months, while those in irregular service on this basis

receive paint approximately every eighteen to 24 months. This practice of repainting cars on a mileage basis is working out very satisfactorily. The frequency with which cars are repainted has been made possible by reason of some very substantial reductions in car painting costs. Our general painting schedule has been augmented within the last year to include the use of the so-called two-color scheme.

In 1920 the cost of repainting a 44-ft. double-truck car was approximately \$257, whereas today it is costing less than \$100 for complete repainting of a car interior and exterior.

The following tabulation indicates the total cost of maintaining rolling stock exclusive of depreciation and retirement for the years 1918 to 1926, inclusive:

Year	Total Cost of Maintaining Rolling Stock Exclusive of Depreciation and Retirement	Cost Per Car-Mile, Cents
1918.....	\$1,361,000	5.02
1919.....	1,485,000	5.69
1920.....	1,418,000	6.20
1921.....	915,000	4.65
1922.....	857,000	4.42
1923.....	797,000	4.06
1924.....	662,000	3.60
1925.....	556,000	3.04
1926 (eleven months)	533,000	3.14

The costs above indicated exclude our fixed charges, such as depreciation and retirement of equipment, and represent expenditures recorded according to the Interstate Commerce Commission classification of accounts:

- 29—Superintendence of Equipment
- 30—Maintenance of Car Bodies, Trucks and Air Brake Equipment
- 32—Maintenance of Brakes and Service Cars
- 33—Maintenance of Electrical Equipment
- 36—Shop Tools
- 37—Shop Expense
- 39—Miscellaneous Equipment

It should be noted that while the cost of maintaining equipment as a whole is now about 3 cents per car-mile, our cost for maintaining single-truck safety cars as distinguished from the whole is 1.6 cents per car-mile.

It may be pointed out that more than 75 per cent of the total car mileage is operated with double-truck cars, the larger portion of which are of a type weighing approximately 44,000 lb.

Car pull-ins are generally used to indicate the reliability of service. Comparison of pull-in records as between several properties is always difficult, and care must be exercised when such comparisons are made. Comparison, however, on any one property can well be considered as an indication of relative performance.

In 1920 our records indicate a pull-in for every 1,550 car-miles of service; this mileage interval was increased to 1,884 in 1921, and has been increasing each year, and for the first eleven months of 1926 the average was:

Year	Total Maintenance Pull-Ins	Average Maintenance Pull-Ins Per Month	Car-Miles Per Maintenance Pull-Ins
1920.....	14,436	1,203	1,550
1921.....	10,423	869	1,884
1922.....	4,972	414	4,035
1923.....	2,981	248	6,745
1924.....	1,864	155	9,994
1925.....	947	78	19,668
1926 (eleven months)	627	53	27,110

The pull-in record is carefully watched by each of the thirteen operating managers, comparative records being sent out each month. It is our endeavor to see that all divisions are as good as the best, and each manager is keenly interested in having his division at or near the top.

Seven Modern Light-Weight Cars for Gary Railways

New Equipment Part of Extensive Rehabilitation and Modernization Program Undertaken During Past Two Years—Light-Weight Steel Rolling Stock Is the Goal of This Utility

RECENTLY another step forward in the interest of operating economies, passenger comfort and safety was completed by the Gary Railways when it received seven new light-weight, one-man cars. This new equipment was ordered last June from the Cummings Car & Coach Company of Paris, Ill., and is soon to be placed in operation on the 10-mile interurban division between Gary and Hammond, Ind., to give a twenty-minute service.

While the new cars for the Gary-Hammond line closely resemble the type put into service last July between Gary and East Chicago, they embrace many new

ramp in the vestibule at either end which lowers the distance from the street to the main body floor level by several inches.

With their low, streamline body construction, attractive orange color, and wide letterboard above the windows, these cars present a striking and pleasing appearance. The interiors are finished in mahogany, the floors are covered with green battleship linoleum and the ceilings are painted an ivory color, giving a light, clean and attractive aspect. Seats accommodating 46 passengers are upholstered in green plush and equipped with deep, easy-riding springs. Directly over the aisles are mounted dome lighting fixtures of Pullman car design. The wide, clear-vision windows have been given a unique touch by making the sash of brass. This feature tends to exclude cold air. In the motorman's compartment all the unsightly control apparatus and piping have disappeared behind unobtrusive cabinets. All seven of the new cars are equipped with sliding doors and automatic treadle exits.

With the installation of the new interurban cars, the



New Interurban Cars for Gary Railways

These modern cars, weighing only 37,000 lb., have replaced two-man, 50,000-lb. cars on interurban line between Gary and Hammond, Ind. Each car cost \$17,000.

features. Whereas cars of the old two-man type weighed more than 50,000 lb. each, the new cars tipped the beam at only 37,000 lb. Besides being lighter in weight and much more attractive in appearance, this new equipment is expected to effect a material saving in operating expense not only with respect to maintenance and repairs but also in reduced platform and power expense.

The new interurbans are propelled by four GE-247 motors of 40 hp. each and have a free running speed of about 45 m.p.h. The low-hung frame and headlinings insulated with felt help to reduce noise in operation.

The cars are equipped with wheels of small diameter in order to do away with the high step, and there is a

Gary Railways will have completed a substantial portion of its extensive program of rehabilitation and modernization. During the past year twelve new modern cars costing approximately \$200,000 will have been purchased and placed in operation. Modern, light-weight, economically operated steel equipment is now being operated over every one of the company's four interurban lines.

Use of a chemical weed killer was begun by the Illinois Traction Company in 1924. The results were so successful that chemical weed extermination has now been made standard over all divisions of the Illinois system.

PRINCIPAL SPECIFICATIONS OF THE NEW GARY CARS

Type of car.....Light-weight, double-end, one-man interurban	Air brakes.....General Electric	Journal boxes.....Cummings Car & Coach
Seating capacity.....46	Armature bearings.....Sleeve	Lightning arresters.....General Electric
Weight:	Axles.....Forged steel, 4-in.	Motors.....Four GE-247, 40-hp., inside hung
Car body.....17,600 lb.	Bumpers.....Channel	Paint.....Detroit Graphite Co.
Trucks.....11,000 lb.	Car signal system.....Faraday high voltage	Rear exit treadle.....National Pneumatic
Equipment.....8,400 lb.	Car trimmings.....Statuary bronze	Registers.....Omer
Total.....37,000 lb.	Center and side bearings.....Cummings Car & Coach	Sanders.....Ohio Brass
Bolster centers, length.....21 ft. 0 in.	Doors.....Sliding	Sash fixtures (brass).....O. M. Edwards
Length over all.....44 ft. 8 1/2 in.	Door-operating mechanism.....National Pneumatic	Seats.....Hale & Kilburn reversible
Truck wheelbase.....5 ft. 4 in.	Fenders.....Steel pilots	Seating material.....Green plush
Width over all.....3 ft. 8 1/2 in.	Gears and pinions.....General Electric	Step treads.....Feralun
Height, rail to roof.....10 ft. 9 1/2 in.	Hand brakes.....Drop type	Trolley catchers.....Ohio Brass
Body.....All steel	Heater equipment.....Railway Utility	Trolley base.....General Electric
Interior trim.....Mahogany	Headlights.....Golden Glow	Trolley wheels.....General Electric
Headlining.....Agasote	Journal bearings.....3 1/2 in. x 7 in.	Trucks.....Cummings Car & Coach, MC-62
Roof.....Arch		Ventilators.....Nichols-Lintner
		Wheels.....Davis steel, 26 in.

Maintenance Notes

Asbestos-Incased Baking Oven

RADIATION of baking oven heat has been reduced at the Norfolk shop of the Virginia Electric & Power Company by the construction of an asbestos-incased oven designed and erected in the shop under the

Car Heating Company's double-coil car heaters, four units on each side of the oven, provide the necessary heat. They are controlled from a metal cabinet located outside the oven, which has four switches and four fuses to permit of four-step heat adjustment. The first step gives a maximum oven temperature of 100 deg. F., the second 150 deg. F., the third 225 deg. F. and the fourth 275 deg. F.

This oven has a capacity of approximately 25 field coils and three railway motor armatures. All armatures are placed in the oven and removed from it by means of a Frankline crane. The oven was made high enough to allow clearance for the entrance of the crane boom.

This oven has supplied a quick and effective method for the handling and the baking of armatures and field coils.



Neat and Substantial Appearance of Asbestos-Covered Baking Oven Used in the Norfolk, Va., Shop

supervision of the master mechanic, T. W. Madison.

This oven is 5 ft. 3 in. wide, 5 ft. 6 in. deep and 6 ft. 9 in. high. It is of all-metal construction. The corner, roof and door framing are made of 3-in. x 3-in. steel angles, riveted together. The floor framing consists of 3-in. tees. All cross framing and bracing is made of 1½ angles. This angle framing is covered entirely with No. 16 sheet steel. A layer of asbestos wool 1 in. thick is placed outside of this metal on all six sides of the oven and is held by an outer covering of ½-in. sheet steel. The seams of these plates are covered with ½-in. x 1-in. metallic strips fastened by means of machine screws. A substantial door, 3 ft. wide, provides for easy entrance and exit of the armatures and field coils.

Pipe racks for the support of the field coils undergoing the baking process are installed 4 ft. above the floor inside of the oven near the back. Two banks of Consolidated

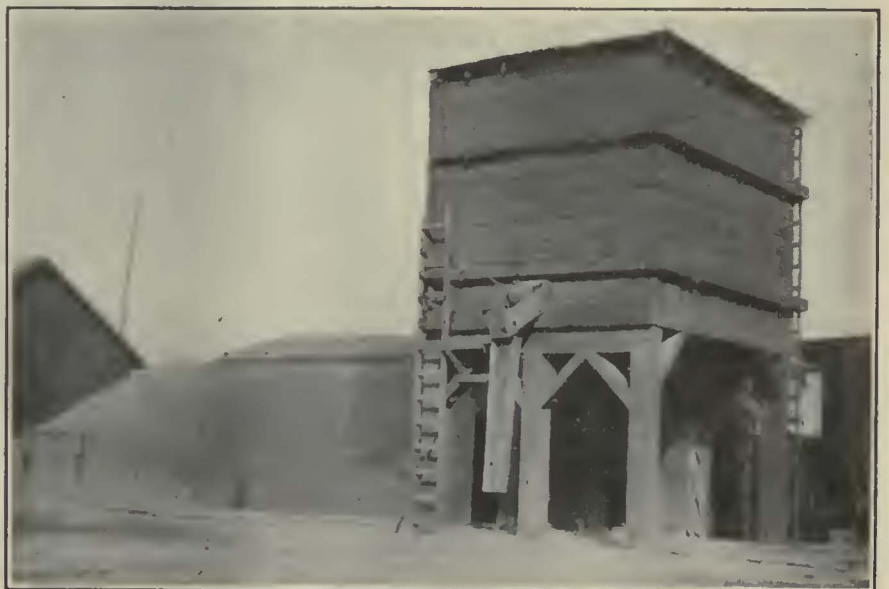
Sand Drier of Large Capacity

SAND used by the various departments of the Los Angeles Railway is dried in a rotary kiln at the materials yard of the way and structures department. This plant has a capacity of about 100 tons of sand a day. It is entirely machine operated, the only attention required being the breaking down of the supply of piled up wet sand.

In the drier wet sand is passed through an internally heated drum, placed at an angle of 10 deg. so that the sand flows through by gravity. The wet sand is taken from the pile outside by a bucket conveyor and carried to the head of the rotary, which is about 8 ft. above the floor

of the plant. There are two concentric drums, the outer approximately 4 ft. in diameter and 10 ft. long. In this drum is another of equal length, 2 ft. in diameter. This is supported by spokes between it and the outer one. Both are rotated by an electric motor drive in a manner similar to that used on drum concrete mixers. At the lower end of the inner drum are gas jets for directing an intense flame up through the cylinders, while the upper end is connected with a flue leading outside.

Sand from the hopper supplied by the bucket chain conveyor is fed into the upper end of the outer drum. It flows by gravity to the lower end,



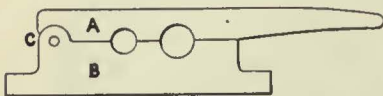
Sand Drying Plant of Los Angeles Railway Has Capacity of 100 Tons Per Day

Its operation is continuous and automatic, the wet sand being fed by bucket conveyor to an inclined drum kiln, out of which it falls into buckets of another chain conveyor, which carry it to the loading bin.

out of which it falls into buckets of another chain conveyor. These empty the now dry sand into a large hopper bin located over two side tracks. Openings in the bottom of this bin permit the controlled loading of two supply cars at a time. The whole outfit is contained in a frame building.

Device for Rounding Copper Sleeves

IT IS quite general practice among electric railways to use a sleeve over stranded conductors where they fit into terminals. For this use both the inside and outside dimensions of the sleeve must be maintained within desirable limits. Where seamless brass tubing is used both inside and outside diameters can be specified, so that the inside will fit the conductor accurately and the outside will fit the coil terminals or brush-holder lugs.



Device for Shaping Soft Copper Sleeves for Installation on Leads

Seamless brass tubing is quite expensive and some railways have had serious delays in getting delivery. Soft rolled copper is usually available as scrap from other electrical repair operations and has been used to advantage for these sleeves. This material, being soft, yields easily and so some method of rounding the sleeves after they are installed is necessary, as they will become distorted.

The accompanying illustration shows a device for rounding such copper sleeves which is in use in the department of electrical repairs of the Brooklyn-Manhattan Transit Corporation, Brooklyn, N. Y. The upper member, marked A, has an extension to be used as a handle. This is hinged to the lower member at B, the lower member being screwed to a bench so as to hold it firmly in position. The two members A and B are fitted with several half poles of different diameters as are required, the two sections being arranged so as to register accurately. With a sleeve installed on the end of a lead it is placed in one of the holes corresponding to its outside diameter and the upper member of the device is brought down sharply, so as to produce a hammerlike blow. This equalizes the diameter of the

"Save the surface and you save all." Another reason why you should dip and bake your armatures.

sleeve and insures an accurate fit in the round hole of the terminal or lug to which it is to be applied.



Heavy-Duty Reciprocating Grinder

FOR use by the larger electric railway companies which are troubled seriously with large quantities of corrugated rail, the Railway Track-work Company, Philadelphia, Pa., has just placed on the market a heavy-duty reciprocating rail grinder. Present practice of electric railway companies is to grind out corrugations as quickly as possible so as to insure that the amount of corrugated rails does not become excessive. The new track grinder will do a far greater amount of

water supply for the grinding the new machine has two storage tanks, which provide a total of 1,000 gal. The grinder has also been arranged so that it will operate as a self-propelled unit, and for this purpose a standard 25-hp. motor has been provided. The complete outfit weighs about 20,000 lb. and for ordinary work a crew of three men is sufficient.

Equipment Suitable for Bus Maintenance Shown

SHOP tools and fixtures for servicing of heavy automotive equipment was shown at the annual Automobile Show held in New York Jan. 8 to 15. The equipment was of particular interest to electric railway men who are operating buses because of the attention paid to maintenance problems. Servicing equipment shown covered a wide variety of types and uses. Jobs which are ordinarily done by hand on a bus chassis were demonstrated to show the use of maintenance tools in the various working exhibits. In most cases new equipment resulted in a considerable saving in time and labor and gave more uniform results than hand methods. Designers of



New Type of Heavy-Duty Reciprocating Grinder

work than smaller grinders, so that the cost is reduced.

The new machine is arranged with six grinding bricks on each rail. The reciprocating movement for the grinding is furnished through a rocker arm so as to give an 8-in. stroke. A 50-hp. motor is used for the driving and 150 strokes per minute are produced at the grinding surface.

In order to provide a convenient

apparatus were aware to the fact that maintenance service requires sturdy construction in order to give long life.

The provision this year for a shop equipment section at each of the various automobile shows throughout the country is sure to prove of educational value to electric railway personnel, since there will be an opportunity to see the various pieces of apparatus used for maintaining auto-

motive equipment in actual operation. Because of its general utility value to a bus repair shop, compressed air was a prominent factor at the show in New York. Equipment shown demonstrated the saving in time and labor that results from the use of air for paint spraying, cleaning operations and forcing methods.

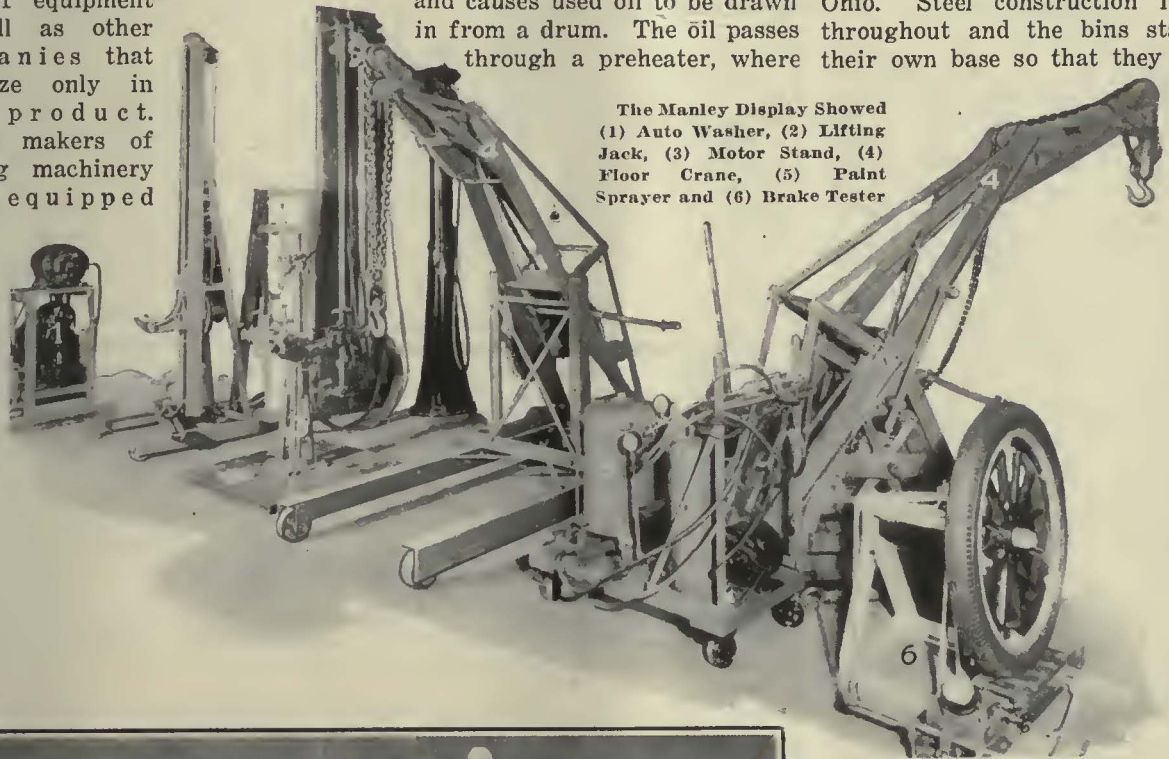
Car washing machinery was one of the leaders of the show. Air compressor companies exhibited this class of equipment as well as other companies that specialize only in this product. Several makers of washing machinery have equipped

"99-44/100 per cent pure" should apply to your wool waste for motor bearings.

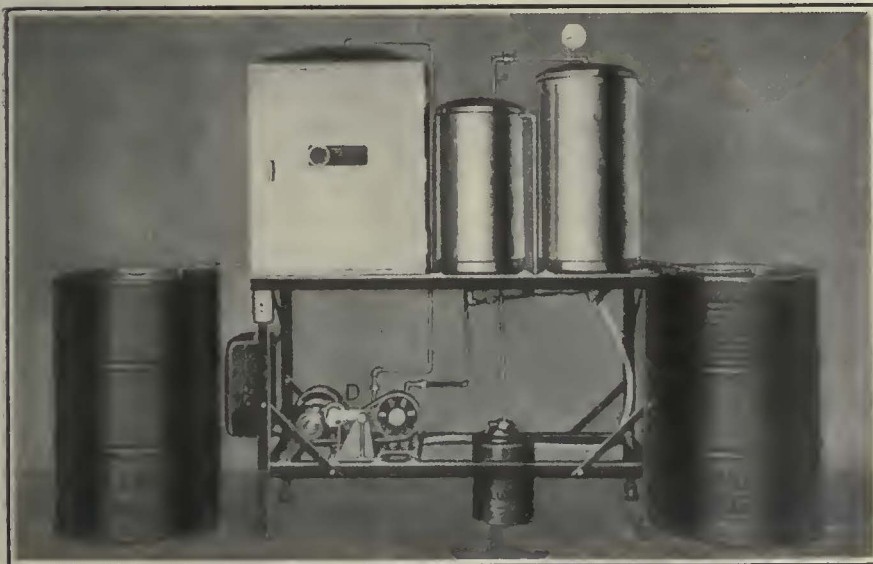
Another piece of equipment of particular interest to electric railway maintenance men was the oil reclaimer exhibited by the Skinner Automotive Device Company, Inc., Detroit, Mich. With this system a pump maintains a constant vacuum and causes used oil to be drawn in from a drum. The oil passes through a preheater, where

The refined oil in the tank is conducted to the preheater, where it flows into a chamber. Heavy solid particles settle out and are deposited in a drum. The oil is then delivered to the top of a filter chamber and passes over a series of filters to remove the remaining dirt. The oil as finally purified drains by gravity into a drum.

A revolving bin for economical storage was displayed by the Wellston Manufacturing Company, Wellston, Ohio. Steel construction is used throughout and the bins stand on their own base so that they can be



The Manley Display Showed (1) Auto Washer, (2) Lifting Jack, (3) Motor Stand, (4) Floor Crane, (5) Paint Sprayer and (6) Brake Tester



New Oil Reclaiming Equipment

their products so that compressed air is made available for other operations, such as tire inflation, air cleaning and spraying. A new fluid dynamometer exhibited for testing engines provides a quick and easy means for measuring the horsepower.

it is warmed, and then enters a rectifier tank, where it is heated and aerated until the liquid impurities are distilled out. The impurities pass as a vapor into the preheater, where they finally are condensed and collected.

located as desired. Each section revolves independently of the other and can be rotated in either direction. A patented stabilizing feature prevents sagging and getting out of line due to heavy load.

A very complete display of equipment suitable for bus maintenance was shown by the Manley Manufacturing Company, York, Pa. The display included portable floor cranes, motor stands, auto washers, tire changers, forcing presses, lifting jacks, paint-spraying equipment and a brake tester.

The brake-testing equipment shown, while simple in construction, is sturdy enough for most bus garages. This tester reverses conditions from the standard method by providing a moving platform on which the wheel of the bus is mounted in order to register the pressure required to cause the brake drum to turn in the band. A lever is used to build up pressure for equalization adjustment purposes.

Association News & Discussions

New York Electric Railway Men Meet

Annual Midwinter Session Well Attended—Papers Covered Wide Range of Operations, Specializing on Accident Prevention and Maintenance—L. S. Storrs Reviewed European Trip

ON JAN. 25 the members and delegates of the New York Electric Railway Association gathered at the Commodore Hotel in New York for the annual midwinter meeting. The morning and afternoon sessions were crowded with talks and discussions by New York operators as well as invited speakers from neighboring states.

The annual dinner was held in the evening, at which the Hon. A. Harry Moore, Governor of New Jersey, gave an address, followed by the "constructive humorist" Dr. W. Warren Giles.

At the morning session Lucius S. Storrs spoke extemporaneously and gave many interesting comments on his recent trip through Europe.

"Unbounded enthusiasm," said Mr. Storrs, "never existed in Europe in making extensions into undeveloped territories and in providing service to small communities as it has in America." Had it not been for such extension and overdevelopment in the early days of American electric railway development the industry today, in all probability, would not be in the condition that it is. It is general all through Europe that there is five times the population per mile of track that there is in the United States. Even with the further advantage of not having the number of private automobiles with which to contend and compete, European operators find their situation in many respects as acute as it is in America today.

Many of the same problems that are being solved in the United States today are being solved in Europe in a somewhat similar manner. The service in the big cities is being unified, or coordinated, and where competitive services have been unified it has generally been found that the patronage of the combined service was greater than that of the sum of the competitive systems. This unification work is being accomplished in London and Berlin particularly.

Mr. Storrs made the statement that European street cars are noticeably quieter than those in the states. This is due jointly to better maintenance of both track and rolling stock with the objective of noise reduction, as well as in the design of the cars.

"Along the lines of new design there have been many interesting developments in London, Berlin and Nuremberg," said Mr. Storrs, "and many of these designs have recently been brought to your attention through the good agency of the JOURNAL." There is somewhat of a general tendency to

get away from double-truck cars and to build long car bodies mounted on four wheels. New designers in London are for the first time beginning to use air brakes, but generally on the Continent electric braking is the rule.

New Paris cars are very free from cumbersome equipment mounted underneath the bodies. Two small high-speed motors below the floor are connected to the driving axles through a system of bevel gears which are completely submerged and running in oil.

Mr. Storrs read a brief comment from the manager of a large European system wherein the manager spoke of his visits to the United States and the reports of many other European visitors, saying in effect that "the time will come when Europe will be modern and the United States will become old fashioned. The world used to look to the United States for progress and new developments, but not so today." While Mr. Storrs disclaimed a belief in this, it was natural that it was food for much thought and an observation that cannot be overlooked by American transportation men.

H. K. Bennett, safety manager

United Electric Railways, Providence, R. I., delivered an inspiring talk on the value of safety work by utility companies as well as by all organizations. The monetary value of life and limb is of no consequence compared to the real value to the individual and his associates.

On Nov. 15 last year, through the agency of the radio, Mr. Bennett established an "Uncle Red's A.B.C. Club" for the promotion of safety, the A.B.C. being the initials of the club's watchword, "Always Be Careful." Announcement was made that the first eight whose names were received would be the officers of the club. The morning after the announcement 500 letters awaited opening. By Jan. 1 there were 900 names of children from 9 to 15 years of age enrolled, and on Jan. 24, due to a membership drive for which some 27 prizes amounting to \$500 were distributed, the enrollment became 16,950 children. As Mr. Bennett said: "There are nearly 17,000 children who have promised not to roller skate in the streets, not to use their scooters on the highways and to follow other similar rules of highway safety."

A. L. Hodges, assistant to the vice-president and general manager Brooklyn City Railroad, discussed the safety bonus plan. Mr. Hodges explained that this plan consisted of allowing each motorman and conductor \$5 for each 30 days that he worked on full time with no "at fault" accidents to his credit. Even a faultless accident that was unreported caused the trainman to lose the bonus for that month. Both the motorman and conductor are held jointly responsible for "at fault" accidents and likewise receive separate bonuses. The result for the first few months of this system are told in Mr. Hodges' analysis, which appears on page 215.

Dr. C. P. Segard, assistant secretary of the Third Avenue Railway, New York City, took an opposing view of the bonus plan, as explained in his paper abstracted on page 216.

In discussing the safety problem, A. D. Brown, claim agent for the New York State Railways, Syracuse, N. Y., said that the particular system employed, whether with or without a bonus system, was not of so much importance as the interest and energy that was displayed by the employees in promoting safety.

R. R. Hadsell, general superintendent of transportation New York State Railways, Rochester Lines, stated that the award system was in effect on that property. This plan has worked well and has created considerable interest in the subject of safety. Awards should not be monetary and the interest of trainmen can be aroused by talks from the executives in which the cost of accidents are thoroughly analyzed.

COMING MEETINGS OF

Electric Railway and Allied Associations

Feb. 2—Central Electric Railway Master Mechanics' Association, Toledo, Ohio.

Feb. 3—New England Street Railway Club, meeting, Copley Plaza Hotel, Boston, Mass.

Feb. 3-4—Central Electric Railway Association, winter meeting, Toledo, O., Commodore Perry Hotel.

Feb. 4—American Electric Railway Association, Metropolitan Section, Engineering Societies Building, New York City, 8 p.m.

Feb. 7-10—American Institute of Electrical Engineers, annual convention, Engineering Societies Building, New York City.

Feb. 18-19—Kentucky Association of Public Utilities, annual convention, Brown Hotel, Louisville, Ky.

April 26-29—Southwestern Public Service Association, convention, New Orleans, La.

Oct. 3-7—American Electric Railway Association, annual convention, Public Auditorium, Cleveland, Ohio.

Samuel Porcher, assistant to the vice-president Pennsylvania Railroad, developed at some length the purchasing and stores system as now used by that company. Some 14,000 articles in amounts totaling about \$50,000,000 represent the normal stock carried by the railroad. The purchases to maintain this inventory are about \$150,000,000 a year, or three times the normal value of stock on hand.

There is no centralized storeroom, but there is a centralized store control. The stores accounting system is based on actual inventories, which are kept up to date monthly. On the entire system there are 21 ordering and distributing storekeepers, with supplies under their jurisdiction kept in 400 to 500 locations. The entire department is under a stores manager and is divided into two main parts, under two general storekeepers, one of whom, located in Philadelphia, has charge of the requisitioning of material that must be purchased from outside sources, while the second, located at Altoona, has supervision over that element of the stores manufactured in the company's shops.

It is interesting to note the source of the maintenance and operating materials that are handled by the stores department. Sixty-six per cent comes from manufacturers direct, 12 per cent in value are materials that are essentially manufactured in the company's shops and 22 per cent are recovered or reclaimed from old or obsolete equipment which otherwise might be largely scrapped or wasted.

Operating under the stores manager are ten supervisors who are the eyes and the ears of the department. These supervisors have no definite office or any office force, but are continually traveling over the road observing the use or possible waste of materials and to see that the stores control is carried out as planned. Certain of these supervisors are specialists, one on scrap, one on supplies, one on storing and binning, and another specializes on "frozen" items of material.

Due to the reorganization of this department several years ago, the inventory for the property has been materially lessened, from \$87,500,000 to \$64,000,000, and in 1925 to \$50,000,000, due to the close adherence to minimum quantities in stock and by the close attention given to stores service.

Recent improvement in car design was the subject of a paper presented by W. C. Bolt, superintendent rolling stock and shops Eastern Massachusetts Street Railway. In the opinion of Mr. Bolt the electric railway industry is not up to date in the matter of car design. At least it has been slow in bringing out new models. While much valuable work has been done by the committee on unification of car design and the committee on equipment, he said that he thought another committee could do some worth-while work for the industry by studying European as well as American design. Germany and France have made radical changes in car design recently, while in this country there has been developed a car of less weight but very much resembling the car of 20 to 30 years ago. This, Mr. Bolt thought, is not sufficient to keep abreast of the times. Continuing, he

gave an outline of the developments in car design on the Eastern Massachusetts Street Railway system. An abstract of his paper appears on page 207.

Mechanical improvements to reduce maintenance costs were described by W. L. Welter, Public Service Railway, Newark, N. J. More than 5,000 motor frames were revamped by electric welding. Smaller bearings were installed and oilers added. This resulted in a reduction of about 50 per cent in bearing costs in 1926 as compared with 1920. He mentioned also the method followed by Public Service Railway of changing the operating end of single-end cars when they were rebuilt for one-man operation, thus placing the large platform at the front. Pneumatic door engines and electric fare boxes and registers were installed. At present the company is experimenting with refitted semi-de luxe cars.

Accounts, auditing and organization were discussed by H. D. Chamberlain, auditor Delaware & Hudson Company, Albany. He said that the balance sheet as a whole is inexorable. It will eventually reveal the truth, and any attempt to make it show results not in accordance with the facts will result in only temporary advantages to those indulging in such practice, with compensating disadvantages later to them or to their successors.

The auditor cannot successfully keep accounts without a knowledge of the practical and technical phases of the operations of his company. Neither can an operating officer successfully handle the affairs of any important department without a more or less complete knowledge of accounting. This would seem to obligate both the accounting officer and the operating officer to a certain degree of broadmindedness.

The afternoon session ended with a moving picture film showing the manufacture of steel wheels and axles. This was accompanied by a talk by George A. Richardson, manager technical publicity department, Bethlehem Steel Company.

Accident Prevention Bonus —A Means to an End*

BY A. L. HODGES

Assistant to Vice-President and General Manager Brooklyn City Railway

OFFERING of a bonus to conductors and motormen who operate their cars over a given period without an "at fault" accident is not new. We had the privilege of studying such plans as were in effect on other properties before adopting our "Accident Prevention Bonus" on Aug. 1, 1926.

During the fiscal year ended June 30, 1925, our company paid out \$679,283 in accident damage claims. During the fiscal year ended June 30, 1926, we paid out \$810,186, an increase of almost \$131,000 in a twelve-month period. The 1925 figure represents 5.8 per cent of our operating revenue and the 1926 figure 6.95 per cent. These figures include the cost of our legal and claims departments, which will average \$20,000 per month.

*Abstract of paper presented at New York Electric Railway Association, New York, N. Y., Jan. 25, 1927.

Various sorts of "no accident" contests were held as between depots, with talks by representatives of the management; charts were prepared showing just what the men on each line out of each depot were doing, but in spite of all this work our claim costs increased.

As a result it was decided to establish our accident prevention bonus plan, which became effective Aug. 1, 1926. An individual copy of this plan was put in the hands of every operator.

We feel that the results thus far obtained have been most gratifying. The first payments under this plan were made on Dec. 15, 1926, representing four months of operation under the bonus system. At that time we distributed \$20,770, more than half of this amount, or \$11,205, going to 747 men, in \$15 denominations. Ten dollar checks were distributed to 727 men and \$5 checks to 383 men. Also nineteen men (four conductors and fifteen motormen) received \$20 checks. This meant that this last-named group worked 120 days out of a possible 122 days without an "at fault" accident.

On Dec. 15 we had 2,172 conductors and motormen in service and 1,876, or 86.4 per cent, participated in this award. It is perfectly obvious, therefore, that while we might have, and did have, some skeptics among the conductors and motormen when this plan was first proposed, we now have at least 1,876 men who are thoroughly sold on the idea and are plugging every minute to see how many times they can get on the bonus list for 1927.

For the last five months of 1926 (August, September, October, November and December) we had 5,433 accidents of all classes. For the same period in 1925 we had 6,006 accidents of all classes, a decrease of 573 accidents. Some 3,439 of these accidents, or 57.2 per cent were car and vehicle collisions. Of the total of 5,433 accidents occurring during the last five months of 1926 we considered our conductors and motormen were at fault for 2,229, or 41 per cent. In other words, 49 per cent of our accidents are caused by the carelessness, selfishness or ignorance of the other fellow, and the most popular indoor sport in this great city is to try and get the railway companies to pay out their hard-earned nickles in this class of accident.

During the month of August our men were at fault for 45.5 per cent of the accidents. This percentage of "at fault" or "preventable" accidents has shown a steady decrease and for December was 38.3 per cent, the average for the five months being 41 per cent.

I know you are all thinking about the probable or possible increase in "blind" or unreported cases. That is a bugbear set up by most claims men whenever accident bonus is mentioned. Our experience during the last five months of 1926 in this connection has been most gratifying. During this period we received 128 blind accidents and for the same period in 1925 we received 194, a decrease of 33 per cent. This certainly should dispel any antagonism to an accident prevention bonus from the no-report viewpoint.

It is very difficult, on account of prolonged litigation in most claims work,

to give the definite monetary savings, especially when the plan has been effective for so short a time. However, our claims payments for the first half of the fiscal year ended Dec. 31, 1926, were \$349,567, which is 6.1 per cent of the operating revenue. If this same rate is continued, and we firmly believe that it will be, we will have an expenditure of \$700,000 for the fiscal year, which will be \$110,000 under 1926.

As a further argument along this line let me point out that our 1925 payments on 1925 accidents amounted to \$260,945, while our 1926 payments on 1926 accidents were \$231,571, a decrease in current payments of \$29,373.

Accident Prevention Work on Third Avenue System*

BY DR. C. P. SEGARD
Assistant Secretary
Third Avenue Railway System,
New York, N. Y.

THE approach to accident prevention and safety has changed because the factors involved have changed. Traffic accidents were few when the horse-drawn vehicle was in vogue. Our accidents were mostly in the shops, where machinery was not well designed nor well guarded. To-day the situation is reversed in two ways. Industry has cut accidents down to a small fraction of what they were and traffic accidents now head the list. Individuals were also personally responsible in the days of unguarded machinery and slow traffic, with automobiles averaging 5 to 8 miles an hour. But when the speed doubled and machinery became, to all intents, foolproof personal responsibility and contributory negligence stopped breathing and turned cold.

Special training should be instigated so that in emergencies the right thing is done by force of habit. If the motorists who are involved in the majority of traffic accidents had the habit training in starting, stopping, cautionary and emergency operation that is given to platform men accidents would decrease.

Two groups of accidents that are of personal interest are the passenger and pedestrian group. In my opinion the trolley is the safest mode of transportation on the street to-day. The passenger and pedestrian group live in their homes under more hazardous conditions than any public would stand for. Many conditions of poor stairs, hazardous gas and electric equipment and broken stepladders in the home would not be tolerated by any street railway.

Coming now to a question of bonus as a means of accident prevention, as a first consideration it is part of the job of all of us to give safe service. Congestion of population, great increase in autos, traffic regulations, passengers per car-mile, private right-of-way and speed of general traffic are all factors that affect the accident ratio. They are all variable factors in that they affect one run and do not affect another. Neither can their efficacy be valued. For these reasons I believe that a bonus plan is but a tem-

porary expedient that will cause new problems. Human weakness is such that every party involved lays the blame on the other. Your human classification of "who is to blame" can cause only dissatisfaction. Severity of the accident prevented cannot be measured. In view of all of these factors I am at a loss to understand how a bonus system can be equitable. In addition there is always the knowledge that the fellow who does nothing never has an accident. In other words, you can eliminate every accident by increasing the cost of transportation, decreasing your speed and slowing of traffic.

New England Street Railway Club to Hold February Meeting

NEW ENGLAND STREET RAILWAY CLUB will hold a meeting on Feb. 3 at the Copley Plaza Hotel, Boston, Mass. The afternoon session will be called at 3 p.m., at which session, "Buses—Mechanical Drive and Electric Drive" will be the subject for discussion by speakers: Charles Froesch, engineer Mack Motor Truck Company; R. E. Fielder, sales engineer Yellow Truck & Coach Manufacturing Company; and J. C. Thirlwall, engineer General Electric Company. At 5:30 there will be an executive committee meeting. And in the evening Hon. Ralph S. Bauer, Mayor of Lynn, Mass., will address the meeting.

The secretary requests that reservations for the dinner, \$2.50 per plate, be mailed immediately.

Equipment Men for Southern Properties Meet in Memphis

PLENTY of action pervaded the eleventh semi-annual meeting of the Electric Railway Association of Equipment Men, Southern Properties, at the three-day session in Memphis, Tenn., Jan. 26-29. More than 100 delegates were in attendance.

In his opening address Mayor Rowlett Paine emphasized the splendid co-operative spirit that exists between the Memphis Street Railway and the city of Memphis. A. D. McWhorter, president of the association and general superintendent of the company, visualized the magnitude of the railway industry for the members present by reviewing the subject in actual figures. He stated that the industry represented an investment of more than \$5,000,000,000, with 300,000 people in its employ and an annual payroll of \$300,000,000. In 1926 the industry transported more than 16,000,000,000 passengers. He also pointed out that 484 companies were operating 20,701 one-man cars. He supplemented this statement with a declaration of the fact that he believed the motor vehicle would be a co-operative factor rather than a competitive.

The subject "Modernization of Cars and Better Maintenance Practices" was discussed by E. W. Ford, vice-president of the Memphis Street Railway. Other subjects discussed were: "Modern Railway Control," by C. J. Axtell, special railway engineer General Electric Company; "Treadle Operation," by R. S. Frehse of the National Pneumatic

Company; "Experience with Safety Cars," by T. R. Bristol, assistant superintendent of equipment of the Georgia Railway & Power Company; "Importance and Methods of Instructing Safety Car Operators," by E. R. Ray, employment agent of Memphis Street Railway; "Essential Features of Modern Street Cars," by E. A. Palmer, special railway engineer Westinghouse Electric & Manufacturing Company; and "Co-operation," by J. L. Brown, master mechanic of the Dallas Railway.

Delegates were taken on an inspection tour to the Memphis Street Railway's shops, carhouses, service building and power house. Among the entertainment features was a banquet and ball on Thursday evening in the Louis XVI ballroom of the Hotel Peabody, the headquarters of the association.

American Association News

Association Collecting Data on Insurance

QUESTIONNAIRES calling for data on their insurance experience in 1926 have been mailed out from association headquarters to all electric railway companies. This is on behalf of the committee on insurance, which, under the chairmanship of Paul E. Wilson, vice-president Cleveland Railway, is charged with the task of gathering accurate insurance data from the whole electric railway industry as a basis for its study of the insurance problem with a view to improving the industry's position in respect to insurance.

It is of vital importance to the success of the committee's work that it receive answers to its questionnaire from every electric railway in the country.

Every company, therefore, without exception, whether a member of the association or not, is urged to give careful study to the committee's questionnaire and to return it promptly to headquarters, filled out with the data requested.

Transportation Man and His Job

ON FRIDAY, Feb. 4, a meeting of the Metropolitan Section, American Electric Railway Association, will be held at 8 p.m. at the Engineering Societies Building, New York City. "The transportation man and his job" will be the general subject of discussion. G. T. Geer, secretary Third Avenue Railway, New York City, and Major J. S. S. Richardson, Pennsylvania Public Utility Information Bureau, will treat of various phases of this subject. Isabel Dazie, secretary woman's committee, Public Relations Section, N.E.L.A., will talk on "woman's place in the public utility field." Before the meeting the usual Dutch treat dinner will be held at Friedlander's restaurant.

*Abstract of paper presented at New York Electric Railway Association, New York, N. Y., Jan. 25, 1927.

The News of the Industry

Now They Know What They Miss

Residents in the communities and various suburban towns along the route of the Grand Rapids, Holland & Chicago Railroad, which discontinued service, sold its equipment, buildings and right-of-way several weeks ago, are bending every effort to have railway transportation restored to their communities.

Since the interurban company ceased operations factory workers, office clerks and women shoppers have permitted themselves to be packed into buses, after long waits, for the ride into the city or home. Four buses were placed in service at first by the bus company that is presuming to cover the territory, but it now has twelve in operation, and a Chicago Shore line bus company had added a commuter service. Still the service is inadequate to care for the demand of the residents along the route.

Seeing no relief in transportation, weary of the inconveniences and the irregularities, these residents are now attempting to form a company, lease the cars, right-of-way and purchase power from the Consumers Power Company, which bought the right-of-way for its power lines, and attempt to restore the old order of things.

The interurban suspended because of lack of patronage. Since service was withdrawn property values in the several villages, towns and suburban districts have slumped and new homes in process of building are being left unfinished pending the outcome of the efforts to re-establish the line. Lumber firms are instituting legal action against home and property owners for materials, hoping to collect before property values decline and jeopardize their liens. Factory workers from these districts who used their autos in preference to the interurban service now find parking restrictions in the city more closely drawn.

So, grasping at any plan that would partly restore the old-time interurban service, reduce accidents and permit wives of workers in the villages to go to Grand Rapids to shop and attend to other necessary duties, the much-agitated residents are seeking to effect organization of all suburban communities interested in resumption of interurban railway service between Grand Rapids and Jenison, a distance of about 8 miles, and serving a population of about 30,000.

H. T. Slight, president of the Grandville State Bank, has been elected general chairman of the organization for the sale of stock in the United Suburban Railway, the name of the proposed company. Villagers, farmers and all who will pledge their support are being solicited. Subscriptions from \$10 to

\$1,000 and over are being solicited. The keynote of the soliciting committee's plea is loyalty to the new company backed by patronage—if the wheels ever get turning.

A mass meeting was held on Jan. 21 in Wyoming park and solicitors were instructed by Mr. Slight in anticipation of starting work the next morning. Committees are being formed in Galewood, Beverly, Homewood, Burlingame, Ivanrest and other communities. Every resident will be asked to subscribe.

Meanwhile the wrecking company from Chicago and H. Braudy & Sons, Grand Rapids, have completed the work of tearing up the track between Zeeland and Holland. The right-of-way between Saugatuck and Holland already has been cleared.

Manufacturing and other interests in Saugatuck made an effort to finance the purchase of rails, with the idea in mind of establishing a gasoline engine service between that town and Holland, but the move failed.

Chicago Extension Approved

Mayor Signs Ordinance Providing for a Day-to-Day Agreement for a Six Months Period—Public Referendum Suggested for Disputed Points in Proposed Transit Ordinance

CONTINUED operation of Chicago Surface Lines under a day-to-day franchise extension was assured on Jan. 27 by the Mayor signing an ordinance passed the day before by the City Council and approved by the federal court and the receivers of the Chicago Railways. The grant carries a six months limit cancelable at the city's option. The court relieved the city's anxiety by authorizing the receivers to continue payment of the percentage of net earnings stipulated under the terms of the grant under which the companies have been operating. The receivers of the Chicago Railways Company were also authorized to pay the interest on the first mortgage bonds and to utilize the present Surface Lines operating board.

Consideration of the consolidated surface and elevated lines ordinance framed some weeks ago by city and company attorneys was resumed on Jan. 21 by the local transportation committee of the Chicago City Council after several days inquiry into the independent proposal for the merging of all local transportation agencies into a \$1,000,000,000 corporation recently laid before the committee by Henry A. Blair, president of the Chicago Surface Lines. Criticism of many of its important financial features caused the latter plan to be temporarily dropped from the program of discussion.

The new elevated-surface lines unification ordinance now in tentative form proposes the granting to a single company the right to operate surface, elevated, subway and bus lines under an indeterminate permit. New state legislation would be necessary before the city could grant such an ordinance or before the surface and elevated lines could consolidate. The present legal limit on street railway franchises in Illinois is 20 years.

The feeling exists in the local transportation committee, however, that little would be gained by seeking enabling legislation until the companies can come to a definite agreement on con-

solidation terms, reasonable valuation of all properties involved and a satisfactory rate of return. So long as these vital points remain unsettled, it is pointed out, no solution of the traction problem can be effected.

In event of a complete deadlock over these questions, Alderman Joseph B. McDonough, chairman of the committee, let it be known that he would submit all disputed points in the ordinance to the citizens' traction committee, which was appointed by the City Council last month to help bring about a settlement.

The question was raised by Corporation Counsel Francis X. Busch as to whether the city would have financial and legal authority to terminate the permit without long and involved litigation in case the company was not living up to the terms of its contract. He offered no opinion in this matter, but insisted that legislation creating the terminable permit would have to be coupled with adequate provision for local regulation. Mr. Busch also urged that all ordinances now pending before the committee be submitted to a referendum so that the voters would be afforded an opportunity to determine which of the several plans they preferred. Whichever plan received a majority of all votes cast, he said, would then be adopted.

Protests by Cyrus H. Adams, attorney for the Chicago Rapid Transit Company, to a clause in the terminable permit ordinance which provides that the new company taking over all transportation agencies should bear the expense of removing tracks and structures thought unnecessary evoked a lengthy discussion of that feature of the measure. Mr. Adams contended that the provision might be expensive to his company because the removal of the entire Loop elevated structure may be ordered. The obsolete trackage of the surface lines that would come under the order would be negligible in comparison, he declared. The committee

finally overruled the objections, however, by voting to retain that feature in the tentative ordinance. Leonard A. Busby, president of the Chicago City Railway, and Weymouth Kirkland, attorney for the Chicago Railways receivers, agreed to accept the feature without disputing it.

The decision to require the company which receives the new ordinance to make surface lines extensions of 30 miles of single track each year for the first five years was one of the few points in which the committee was in complete accord. No recommendations were made as to elevated line extensions as attorneys for the rapid transit company have not indicated how much the company would be willing to undertake in this period.

At another meeting on Jan. 25, the subject of a suitable contract between the city and the company with regard to building and operating a subway was

exhaustively studied. The committee hopes to complete its study of the ordinance in about ten days or two weeks.

Local exponents of municipal ownership for public utilities, recently organized as the "Detroit Plan Traction Ownership Club," are accusing Mayor William E. Dever, once a strong advocate of city ownership of the street car lines, of desertion from his former pledge and of seeking to avoid a public declaration of his attitude toward the present traction franchise negotiations.

Under the leadership of Henry M. Ashton, a local attorney, members of the club have announced their intention of fighting the plan to grant a new franchise to the Surface Lines. They demand that the city purchase the properties, as was done in Detroit when that municipality took over the street car lines at the end of their franchise period.

gross earnings of the Municipal Street Railway to pay operating expenses or any other inferior claims until after the annual installment on bonds and interest due March 1 has been paid. The Puget Sound company recites the terms of the purchase contract and asks that Mr. Von Herberg be bound by the decree in the Frank Twichell case, in which the validity of the purchase ordinance and the bonds was upheld. In its complaint the company calls attention to the fact that in the purchase contract the city obligates itself to pay bond redemption and interest out of the gross earnings of the railway, even though the amount remaining should be insufficient to pay the operating costs of the line. It cites that since the city took over the lines the gross earnings have amounted to more than \$25,000,000, a large part of which has been devoted to the payment of operating expenses. It contends that the legality of the ordinance and the bonds has been upheld in court, and charges that the Von Herberg action against the city is an effort to cause the city to default on its bond and interest payments, thereby doing irreparable injury to the holders of the bonds. The motion asks that the city be required to perform its part of the contract and to pay daily into the special bond and interest fund the entire gross earnings of the railways so the payments due March 1 will be on hand in the fund Feb. 1 as the contract requires.

The city, in its return to the Superior Court on the order to show cause why a temporary injunction should not be issued restraining the railway from putting any more money in the bond fund until the payroll has been met, filed a motion asking that the plaintiff, Von Herberg, bring into the action the Puget Sound Power & Light Company, so that any decision that may be made will be binding on the company as well as the city. The city also asserts that two causes of action have been improperly joined, a mandamus and an injunction action.

Judge Calvin S. Hall, commented at length on the railway situation, saying among other things:

That the street car employees must be paid, and, that so far as he is able to do so, he will see that they are paid.

That the corporate authorities have operated the railway efficiently and have accomplished what seemed impossible.

That the railway is solvent.

That he does not believe the City Council will make illegal transfer of funds.

That the city owns the utility and that the power company has only a lien on the earnings and could not take it back.

That the taxpayers have paid nothing, own nothing and never will pay anything on the railway—only the people who ride will pay.

That the purchase contract is impossible of performance because the payments are too large.

That the annual payments on the purchase bonds should be reduced from \$833,000 to \$400,000 a year.

Judge Hall declares that if it was apparent on Jan. 25 that the employees would not receive their pay, he would announce a decision, and continued in effect the temporary restraining order preventing the city from removing bond payment money out of the jurisdiction of the court.

Mayor Bertha K. Landes appeared before the Judge with the statement that she believed that the men would receive their pay on Jan. 25, the next

Seattle in Throes of Suit

Theater Owner Demands City Must Pay Municipal Railway Employees—
Judge Hall Sums Up Railway Tangle—"A \$5,000,000
Utility Is Not Worthless," He Claims

SUIT to compel the city of Seattle, Wash., to pay in cash employees of the Seattle Municipal Railway and all other expenses of operating the railway and to enjoin the city from paying to Stone & Webster any further money on the purchase contract for the line until all labor and operating claims are paid has been filed in the Superior Court by John G. Von Herberg, Seattle theater owner. The court issued a temporary order restraining the city from paying any further money on the purchase price of the street railway until labor and operating claims have been paid. The suit came as a complete surprise to city officials and there are varied opinions as to who is back of the move.

In his complaint Mr. Von Herberg asks the court not only to construe the contract of sale as requiring labor and operating expenses to be paid out of the street railway earnings ahead of any further payments due Stone & Webster but also asks that the city be prevented from using funds from any other municipal utility for the relief of the street railway, for operating, maintenance, purchase, replacement or for any other purpose. The court also is asked to direct the city to pay into the street railway operating fund all of the gross revenues of the line.

The suit attacks the City Council's position that bond redemption and interest payments of the street railway lines must be paid out of the street railway funds before the salaries of the employees. It came on the eve of the third consecutive "payday" in which street car men were paid in warrants, while the earnings of the line are diverted into the bond redemption and interest fund. Mr. Von Herberg on the Dec. 24 pay day took care of the employees' warrants and announced himself ready to cash the Jan. 10 warrants, but the employees found no difficulty in cashing their checks throughout the city.

On Feb. 1 the Seattle Municipal Railway must have \$1,151,845 to send to

New York for March 1 bond redemption and interest, and to provide this sum all earnings of the lines have been diverted into the bond redemption fund and the payroll and material charges have been placed on warrant. Unless enjoined by the court, this sum will be forwarded before March 1. In his complaint Mr. Von Herberg sets forth that no payroll of the Municipal Street Railway can be met in cash for a period of at least five months. It charges that the city is accumulating all the revenues of the railway and keeping them on hand to meet the payment due in March; that the city unlawfully transferred, on Dec. 21 last, \$135,000 from the light and water fund to the railway fund, and that it has since dipped into the water fund and wrongfully transferred \$10,000 from the water to the railway.

FORMER OWNERS WANT TO INTERVENE

Concluding an all-day hearing on the Von Herberg suit, Judge Calvin S. Hall of the Superior Court continued the case until Jan. 25. Previous to the hearing, and coincident with an attack by the city on the Von Herberg suit, the Puget Sound Power & Light Company, representing Stone & Webster interests, who sold the railway to the city in 1919, filed an action in the federal court in which it names both the city and Mr. Von Herberg as defendants, asking that they be restrained from withholding payment of the bond redemption and interest on the railway purchase contract until operating expenses of the line have been paid. In the city's return on the show cause order in the Von Herberg suit it asks that the plaintiff make the Puget Sound company a party to the suit, and in the federal court the Puget Sound company asks that Mr. Von Herberg be restrained from making the company a party to his action against the city.

The company, in its petition, asks for a temporary order restraining the city from using any portion of the

railway payday. Judge Hall declared that if he could be assured that the men will get their money, he would not grant the restraining order.

After hearing the attorneys for both sides, Judge Hall made a statement in which he praised the accomplishments of Superintendent D. W. Henderson, Superintendent of Utilities Clark R. Jackson and the Council. He then continued thus:

And I want to say that, in my opinion, if it ever comes to the Supreme Court, it will be held that due regard was not given for the payment of the cost of operation and the cost of maintenance in fixing this fixed amount of \$833,000 annually, with interest. Neither the traction company nor the Council could have exercised its honest judgment and said that it would be able to pay that, because it amounted to 10 per cent upon \$15,000,000.

It has come to a point now where I believe the contract is impossible of performance, because the payments are too large to be made. The bondholders should recognize that fact, because if a receiver was appointed for the operation of the railway company, it would not mean that we would lose the railway. It would mean, in my opinion, that the cost of operation and maintenance would first be paid and then the bondholders would get what was left.

The fair thing to do, in my opinion, would be for the traction company to acknowledge the fact that they exacted too much from the first; and instead of paying the balance of ten million dollars in twelve installments, that they make that twenty-five installments of \$400,000 a year. Then the street car company would be solvent. The fund would be solvent then. Whatever additional amounts the utility could pay should be paid, but just blind the earnings to \$400,000.

I do not want to handicap the railway, and it is about time that the citizens of Seattle were not handicapping it, but should give full credit to those who are trying to work it out of the condition that it is in, and not by vexatious suits keep it in the minds of the public as being a utility that is worthless and discredited and thrown away, for it is not, as long as we have it and have paid \$5,000,000 for it.

The city demurred to the Von Herberg application on the grounds that the court did not have jurisdiction in the case and that the bill of complaint did not constitute sufficient cause for action, but Judge Hall overruled the demurrer and the hearing proceeded on the application for the injunction.

Lord Ashfield for Complete Co-ordination Study

Lord Ashfield, first Baron of Southwell and chairman of the board of the Underground Electric Railways, London, has been making a visit in this country during the past few weeks. During this time he visited New York, Detroit, Washington, and other American cities. He returned to London Jan. 29. While in Detroit in discussing that city's transportation situation he said in part:

Detroit, as well as other cities, should avoid the notion that the building of subways or the mere improvement of one branch of the system will meet any transportation difficulties it may have. These things should be done, of course, but they should be done with a view to co-ordinating all branches of the system.

Buses will inevitably play an important part in the development of Detroit's transport system, but the street cars must be retained. The two should be operated as one system, even running on the same streets. Buses must be used in increasing numbers.

In speaking about subways, Lord Ashfield said:

The work of constructing underground streets, for that is really what they are,

should be started. And the subways should become part of the general transport system. At the outset, trolley cars in three or four car trains might be used to advantage on the underground streets.

Subway construction is costly, but the results justify the outlay, just in the time saved the daily wayfarer. Time taken in traveling to and from work is time wasted, of no use to any one. Underlying discontent with transportation systems is, in most cases, slow service.

The average speed of trolley cars and buses is 9 m.p.h.; subway trains—and I am not speaking of express trains—average 18 m.p.h. There is a time saving of 50 per cent. And, after all, time is money. I know of no city that needs an up-to-date transportation system more than Detroit, with its many factories in the outlying districts.

The next step should be the drafting of plans of development of a co-ordinated system for the next ten years. And in exact proportion to the additional facilities provided, traffic will grow. We sometimes speak of "point of saturation," but I have never encountered this in the transportation business.

\$175,000 for Another Milwaukee Cut-Off

Plans are under way by the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., providing for the construction of a third cut-off electric line with a view to improving the interurban service now provided from Milwaukee to Hales Corners, Muskego Center, Big Bend, Mukwonago and East Troy on the East Troy division and from Milwaukee to St. Martins, Wind Lake, Waterford, Rochester and Burlington on the Burlington division. Faster time will also be made to Lake Geneva, Elkhorn, Delavan and Beloit, from which cities patrons are carried to the East Troy-Burlington electric line by the company's bus feeder line.

According to the application, which is now before the commission for approval, the proposed cut-off, which will be about a mile in length, is to be built from the West Junction station of the Milwaukee-Waukesha-Watertown rapid transit line south to the Fruitland station on the Burlington-East Troy line. This project will cost approximately \$175,000 and will mean a 20-minute reduction in the running time of electric trains to Burlington, East Troy and intermediate points. This saving in operating time will be achieved by running the Burlington-East Troy trains over the more direct rapid transit route instead of the present slow roundabout way through the south side district of Milwaukee and the city of West Allis. The new line is also expected to effect substantial operating economies.

The cut-off will tap a large area now without any form of public transportation. It will be built over a private right-of-way acquired by the company. Three bridges will be constructed, one over the company's West Allis-West Junction electric line tracks and the others over the Sparta and Madison divisions of the North Western Railroad, coupled with the elevation of tracks at one grade crossing and depressing of tracks at another crossing.

Construction work on the cut-off will be started immediately upon receipt of the commission's consent of the plan so that it may be completed and in operation by midsummer. It is just another evidence of the progressiveness of the company.

"Silent Watcher" Contest in Salt Lake City Rewards Employees

Thirty trainmen of the Utah Light & Traction Company, Salt Lake City, Utah, and their wives, together with several officials of the company, attended an informal dinner party on Wednesday evening, Jan. 12, at the Newhouse Hotel, Salt Lake City, as guests of *Kar Fax*, the public relations publication of the utility.

The company prides itself on the high type of its trainmen, and this belief was substantiated when *Kar Fax*, started its contest for the pre-Christmas shopping days. The "Silent Watcher," a young newspaper woman here, was selected to observe and report the good things she heard and saw in connection with trainmen's performance of their duties. Her familiarity with company rules, car routes and human characteristics in general was sufficient evidence of her competency to judge and report her observations.

A notice posted on the trainmen's bulletin board a day or so before the contest explained its purpose. The points were scored in this order:

1. Courtesy toward passengers.
2. Consideration for the aged and for children.
3. Efficient operation of cars—easy stops and starts.
4. Calling streets.
5. Neatness and cleanliness in appearance.
6. Neatness and cleanliness of cars.
7. Efforts made to make car riding safe, comfortable and pleasant.
8. Refraining from unnecessary conversation.

All trainmen were eligible to compete. The trainmen were enthusiastic from the start and dubbed the "Silent Watcher" their "Guardian Angel." The reports received and results obtained were encouraging and satisfactory in every respect.

The task of selecting the winners was by no means an easy one. When it was completed written invitations were sent to the winning trainmen and their wives. Each lady, before she was seated at her table, received a rose. The public relations department representative was toastmaster. Short talks were made by some of the company officials, the "Silent Watcher" was introduced and made a few remarks, and Mayor C. C. Neslen, on behalf of the company, presented each trainman with a card of thanks and appreciation to which was attached a \$5 gold piece.

St. Petersburg Bond Election Set for March 1

A referendum bond election is scheduled for March 1 in St. Petersburg, Fla. The purpose is to authorize the construction of a municipal belt line railway connecting the port of St. Petersburg with rail transportation. By unanimous vote of the five city commissioners present at the regular meeting of the board the election was passed on first reading. The issue of the municipal securities proposed will amount to \$362,000. In taking action city officials pointed out that the industrial electric railway could be constructed for at least \$30,000 less than the amount already voted and now remaining of the proceeds of the bond issue formerly authorized for the transit shed improvements.

New Franchise Draft in Kansas City

A tentative draft of the proposed 30-year franchise for the Kansas City Public Service Company, new owners of the railways system in Kansas City, Mo., has been drawn up by A. N. Gossett, chairman of the special committee of the City Council. The franchise embodies points already agreed upon by the committee and the Council. The franchise will be presented to the City Council and then considered at public hearings. Included among the proposals of the tentative franchise are:

A return of not more than \$2,000,000 annually after the company has expended \$3,300,000 in repairs in the next two or three years.

A sliding scale of fares based on an implied valuation of \$25,000,000.

An additional expenditure of \$3,300,000 in improvements and extensions.

Resumption of traffic through the Eighth Street tunnel into the central industrial district.

Construction of a concrete viaduct over Mill Creek Parkway near St. Luke's hospital.

A sliding scale for fare reductions based on the earnings of the company.

Increased frequency of the railway operation.

Maintenance of all present lines and extensions when needed.

Limitation of fare increases and decreases to one year.

Reduction of the city members of the company board of directors from five to two, one of whom will replace the city member of the board of control and will have authority to determine what constitutes improvements and repairs.

Inclusion in the new franchise of the obligations of the company to pave the streets between the car tracks, pay car licenses and viaduct rentals and assume other obligations of the Jost franchise.

The Council committee is composed of Mr. Gossett, H. L. McCune and Jasper Bell. John T. Barker, city counselor; E. F. Halstead, assistant city counselor, and Bennett C. Clark, general counsel for the Public Service Company, also will attend the sessions of the special franchise committee negotiating with the company in drafting a new railway franchise.

Commission Claims 8-Cent Fares in Buffalo Sufficient

Expert accountants in the employ of the New York Public Service Commission have submitted a report to the board saying that the International Railway has been earning an average of 8 per cent on the investment of its Buffalo, N. Y., property under the valuation as fixed by the commission. The commission in its answer filed in the United States District Court at Buffalo to the equity action brought by the International Railway, seeking to raise its fare in Buffalo from 8 to 10 cents, says the company has been operating at a profit under the present rate of fare. It also contends the present rate of fare is adequate and that if the company is losing money the commission is the proper authority to grant an increase, without taking the case into the federal court.

The company in its equity action contends the 8-cent fare is not sufficient to pay operating expenses and that the rulings of the commission are confiscatory. It requests an injunction from the federal court restraining the commission and the cities in which it operates local and interurban lines

from thwarting the efforts of the company to put higher tariffs into operation. The company's application for a 10-cent fare in Buffalo will be heard by the utilities board early in February.

Atlanta Wage Scale Renewed

The Georgia Railway & Power Company has just secured a wage contract for the coming year with its railway employees without any increase in the wage scale now in force. The new contract for 1927, which has just been signed by representatives of the company and of the local employees' union, has been under consideration for several weeks. The employees demanded a material increase. The company averred that under present circumstances it could not afford to pay more than the scale now in existence. A renewal of the present wage scale was finally agreed upon, with provision for negotiations in May looking to an increase in wages for railway operators. The continued scale in Atlanta runs from 49 to 54 cents an hour, with extra pay to one-man car operators.

Battle Won with Customer Is No Victory, Says Woman Writer

At least one woman has been found who has emancipated herself from the class of female fighters. She is Mary Loftus Hulsman, copy writer in the advertising department of the Philadelphia Company, Pittsburgh, Pa., who tells the employees of the Pittsburgh Railways "if you want to argue join a debating class at night, but don't practice on your passengers." That is only one of the many admonitions contained in a recently written booklet entitled "Employees' Service Code." The purpose back of her literary effort is to suggest new ways and to recall old ways of serving the public in the best way possible. In twelve pages, with illustrated paragraphs about some phase of electric railway operation, Miss Hulsman suggests to the conductors ways of winning over the ladies, dilates on the value of being good natured and stresses the value of knowing their city and avoiding accidents. Loyalty for the company and enthusiasm for the work, she believes, are assets without which success cannot be attained.

"Show Me the Way to Go Home"

ON BEING informed that one of the most successful operators in the electric railway business was formerly a show man, the editor of the *Ottawa Electric Railway News* said:

"Even at the present moment the successful street railway operator is a show man, responding through the medium of speedy, direct and comfortable service to the almost universal demand of the human race: 'Show me the way to go home.'"

Man Failure Responsible for Tragedy at Superior

An investigation conducted by Chairman Gettle of the Wisconsin Railroad Commission into the one-man car accident at Superior, Wis., has disclosed that the accident was due only to error by the human element and was not attributable to the one-man type of car. In this case the operator of the car, crossing the railroad track without first walking out upon it ahead of his car, saw the approaching train and, instead of crashing forward through the lowered gates, attempted to back off the tracks, then started forward again, and the car was caught by the train as it was finally pushing on ahead. The car was equipped with the required safety exits.

In reply to the wave of opposition against the use of the one-man car, statewide in character since the accident, Mr. Gettle declared that in all other cities now served in part or whole by one-man cars the record of accidents is no worse than is that experienced under two-man operation. In many instances the accident record of the one-man car is better than during the time two-man cars operated on the same streets. It is not believed that the accident will in any way change the commission's stand to continue to permit the operation of the smaller cars on those lines where they appear to be the most economical without retarding service.

On the other hand it is said that several legislators are gathering information preparatory to presenting bills for passage by the present Legislature requiring every street car to be manned by a crew of two men. To this end eight members of the Assembly from Milwaukee plan to attack the one-man car issue from another angle. They propose to introduce a bill taking the power of utility regulation out of the hands of the commission and giving it to local authorities.

The Railroad Commission has scheduled a hearing early in February on the application of the Superior Council to have one-man cars entirely withdrawn.

Rockford Franchise Adopted

The City Council of Rockford, Ill., recently adopted a new twenty-year franchise for the Rockford Public Service Company, with many changes from the franchise granted the Rockford City Traction Company in 1925. Two dissenting votes were cast. The new franchise grants many provisions sought by Milton Ellis, president and general manager of the new company. The new franchise exempts the railway from paving between its rails by direct assessment after five streets have been paved while the company bears the cost of paving between those rails; it must pay \$50 annually for each car or bus it operates, a tax of \$4,000 under the present equipment; may use one-man cars; must clear snow on its right-of-way within 48 hours, clearing the road to within a few feet of the curb. Wherever lines are abandoned the company is to remove tracks and restore paving to its original condition.

Louisville's "Best Public Servant" to Be Named

A notice has been posted on the various bulletin boards around the property of the Louisville Railway, Louisville, Ky., in connection with the Anthony F. Connelly award for 1926. Employees are urged to secure the necessary nominating blanks from the foreman and send in to the award committee the names of those considered best suited for the designation "Best Public Servant."

The notice tells the employees that in December, 1925, the directors of the Louisville Railway announced that as they had been inspired by the general effort on the part of the employees toward increased safety and efficiency they felt that this effort should be tangibly recognized and at the same time set up as a permanent recognition of the outstanding record of service of Anthony F. Connelly. The Anthony F. Connelly award carries an annual cash prize of \$75 and a medal known as the Connelly Award, to be given to the employee of the Louisville Railway who during the calendar year rendered in his individual capacity the most useful or efficient service to the public which it served. All employees except officers and department heads are eligible for the award. The award is based either upon a sustained record of excellent public service throughout the year or upon one or more individual instances of outstanding and unusual public service, whichever, in the opinion of the award committee, constitutes the greatest contribution to public service record of the company. The notice was signed by James P. Barnes, president.

Work on New Kansas City Viaduct to Start

The Kansas City Public Service Company, Kansas City, Mo., has just begun work on its plans for a new viaduct to be built over Mill Creek Parkway at 43d Street. The new viaduct will be of reinforced concrete. During the process of construction a temporary trestle just north of the old viaduct is being used.

In all probability the roadway will be closed during the months of April and May to allow construction on parts of the new viaduct, according to William G. Woolfolk, president of the company. The viaduct is used constantly, being a Westport freight spur.

News Notes

Good Record in 1926.—During 1926 the number of accidents, cars charged off for defects, overhead emergency troubles and the number of derailments decreased substantially on the lines of the Toronto Transportation Commission, Toronto, Canada, over the previous year. The number of accidents per million car-miles in 1926 was 326, against 338 in 1925, 420 in 1924, 460 in 1923 and 512 in 1922. The company claims that the constant decrease is

due largely to the vigilance and efficiency on the part of the men, the new and reconstructed rolling stock and the elimination of wyes.

Chair Car Service Withdrawn.—Operation of limited chair cars has been withdrawn by the Chicago, South Bend & Northern Indiana Railway on its South Bend-Michigan City division.

Early Report on Zone System.—The Tacoma Railway & Power Company, Tacoma, Wash., is now operating its railway lines under the zone system, effective from Dec. 20 until March 1, under the schedule filed with the State Department of Public Works. T. F. Marsh, superintendent of transportation, reports that the first few days operation indicate that the 5-cent downtown fare will prove popular with close-in dwellers and will increase this class of riding. No great confusion or difficulty was encountered in distinguishing car riders who traveled to the outside, or 10-cent fare zone. All fares are now collected as the passengers leave the cars instead of, as heretofore, upon entering.

Leavenworth Submits New Grant.—The City Commission of Leavenworth, Kan., submitted on Jan. 17 to the Kansas City, Leavenworth & Western Railway the draft of a new franchise ordinance. The new grant would permit the company to operate over the streets of the city for twenty years.

News Sheet Reappears.—The Augusta-Aiken Railway & Electric Corporation, Augusta, Ga., has resumed publication of the Augusta-Aiken *News Letter*. The sheet will be published occasionally and will be arranged by employees for circulation among the employees. The last issue of the paper came from the press in March, 1924.

Gives Gift to Parting Official.—Members of the Street Railway Employees' Union, No. 313, Rock Island, Ill., as an expression of regret at the departure of Thomas C. Roderick, manager of the Illinois lines of the Tri-City Railway, presented to him a handsome desk set at a recent farewell reception in the assembly rooms of the Rock Island car-house. H. E. Wendell, president of the union, made the presentation. Mr. Roderick leaves Feb. 1 to become general manager of the Ottumwa Gas Company.

Hears Foes of Subway Pact.—The Pennsylvania Public Service Commission heard argument on Jan. 24 from opponents of the contract between the city of Philadelphia and the Philadelphia Rapid Transit Company to construct a two-track subway in Chestnut Street. Counsel for the company, the city and the underlying lines summed up the case by emphasizing the necessity for the improvement and defending the agreement. The objectors claimed that the application was unconstitutional because the city was lending money to a corporation and also that it was illegal in that it violated the act of 1917 limiting contracts between municipalities and utilities to 50 years. Councilman Roper and former Public Service Commissioner J. Henry Scattergood opposed the scheme. Other representatives of organizations opposing the lease included C. Oscar Beasley for the United Business Men's Association.

Foreign News

Electrification of French Railroads Progresses

Electrification of the Paris-Orleans railroad line is progressing steadily. Recently ten passenger trains were carried by electric power between Paris and Les Aubrais, a distance of 123 kilometers. Before the end of 1926, electric traffic will be complete as far as Vierzon, and the power for the route to this point will be supplied by the hydro-electric mill of Eguzon, representing a total installed power of 50,000 kw.

The electrification program of the Paris-Orléans line includes the Paris-Brives section of the Paris-Toulouse line and the two transversal lines, St. Sulpice-Gannat and Brives-Clermont.

Safety First the Aim in Keighley

Despite the alarming increase of fatal street accidents in the London area, accidents caused by trolley cars are on the decline and only four are recorded for the last quarter of the year ending with the month of September as compared with 29 on the bus. The Keighley Corporation Tramways is helping to reduce still more the mortality caused by vehicular traffic by distributing to all of its traffic employees, small leaflets—miniature reproductions of the safety first posters used by the National Safety First Association.

Proposed Tunnel Through Mont Blanc.—Much interest is being taken in Italy in a project for the construction of a tunnel through Mont Blanc in order to give better means of railway communication with Italy, France and western Europe. The tunnel would be a little more than 9 miles in length, but although not so long as the Simplon tunnel, which is nearly 11 miles, its cost is expected to be much greater. The project would include the construction of an electric railroad.

New Railway Offices Approved.—The directors of the London Underground Railway companies have approved the design for new headquarters which will be erected on Broadway, Westminster, where the present offices are situated. The plan is in the form of a Latin cross, the center portion of which contains entrance halls, staircases, and lifts, while the four arms give the office accommodation. The north wing will form on the ground floor the new entrance to St. James Park Station and will connect with the existing offices. The building is estimated to cost £300,000. The maximum height will be 100 ft.

Trackless Trolley System Adopted by Chesterfield, England.—Chesterfield Town Council has recently announced a decision to change its entire system from tram cars to trolley buses and as a result has placed a contract for fourteen trolley buses to be put into operation as soon as the alteration of overhead equipment is completed.

Recent Bus Developments

New York Awards to Be Narrowed to Seven Bidders

The Board of Estimate of New York City on Jan. 27 adopted resolutions directing the Board of Transportation to prepare franchise contracts with seven bus petitioners. Originally there were 72 such applicants. They submitted 106 separate petitions. The adoption of the resolutions by the board was in ratification of an agreement reached at an executive session on Jan. 26.

The companies for which the Board of Transportation was directed to prepare franchise contracts are the Equitable Coach Company, for a franchise for Manhattan, Brooklyn and Queens; the Surface Transportation Corporation, a Third Avenue Railway subsidiary, for a franchise for the Bronx; the Manhattan Surface Coach Company, a subsidiary of the New York Railways, which is seeking a franchise for Manhattan; the Coney Island & Gravesend Bus Corporation, a subsidiary of the Brooklyn-Manhattan Transit Corporation, and the Brooklyn City Railroad, which asks a franchise for Brooklyn; the Rauchwerger Bus Company, which seeks a Queens franchise, and the Tompkins Bus Company and the Staten Island Coach Company, a subsidiary of the Richmond Light & Railroad Company, each of which is an applicant for a bus franchise for Richmond.

The Board of Estimate set March 22 as the date for a public hearing on these contracts. Presumably the board will award the actual franchises soon after this meeting. The first regularly scheduled meeting of the board at which this can be done will be on March 24.

Gary Subsidiary Buys Coach Company

Authority to purchase the equipment of the Calumet Motor Coach Company, Hammond, Ind., was granted on Jan. 15 by the Indiana Public Service Commission to the Shore Line Motor Coach Company, a subsidiary of the Gary Railways and the Chicago, South Shore & South Bend Railroad. The capital stock of the Calumet Motor Coach Company, which operates ten bus routes in Hammond and adjoining communities, including two lines between Hammond and Chicago, was purchased last July from its former owners by the Midland Utilities Company, an investment company interested in the Shore Line Motor Coach Company and other utilities in that section of Indiana.

In a separate order the commission authorized the Gary Railways and the Chicago, South Shore & South Bend Railroad, each to buy at not less than \$10 a share 13,614 shares of common stock of the Shore Line Motor Coach Company. Sale of this stock will en-

able the latter company to buy the equipment of the Calumet company.

Certificates of convenience and necessity were simultaneously issued by the commission to the Gary Railways authorizing the operation of two new bus routes in the city of Gary.

Bill Would Provide Tax on Buses

Corporation Counsel Countryman of Hartford, Conn., as a private citizen, and not as legal adviser, has drafted a proposed bill concerning the maintenance of highways used by street railways for the transportation of passengers by buses. It provides that for the transporting of passengers by bus over the streets of the city a company will pay to the municipality the cost of maintaining a street area which would be occupied by a single track of street railway plus an additional 16 in.

Changes Made in Lincoln.—The Lincoln Traction Company, Lincoln, Neb., has been given practically a free hand by the Nebraska Railway Commission in rearranging its downtown service by permitting it to add twelve more buses and to dispense with the operation of as many electric cars. Five different lines are affected.

Would Alternate with Buses.—The Northwest Traction Company, a subsidiary of the Puget Sound Power & Light Company, Seattle, operating sixteen round trips daily between Mount Vernon and Bellingham, has been permitted, in an order from the Department of Public Works, to take off half the cars and alternate with buses upon the Pacific Highway connecting Burlington, Skagit County and Bellingham. The application stated that the interurban system had met with greatly decreased earnings during the past several years and that it was thought buses along the highway, which parallel the railway's tracks, would render better service, if alternated with the electric cars, and would result in increased earnings.

Bus Lines Under Consideration.—Monroe, La., is considering a plan for operating bus lines in connection with its Municipal Street Railway. At a meeting of the junior board of the Chamber of Commerce the plan was given approval. It was said that such service would provide the city with fuller facilities on an economical basis. It was pointed out that the rapid growth of the city in recent years had brought into being two or three sections of the city to which street car service was not conveniently available.

Would Substitute Buses.—The street and the public utility committees of the City Council of Gadsden, Ala., it is reported, will take up with the Alabama Power Company the proposition to abandon railway tracks on the Ewing Avenue and Walnut Street lines and

substitute bus service. The suggestion to abandon the trolleys was made by President Evan J. Owen of the Council.

Will Purchase Bus Line.—Clark V. Wood, president of the Worcester Consolidated Street Railway, Worcester, Mass., has announced that negotiations have been completed for the purchase by the railway of the Carter Bus Lines, Worcester. The Carter lines operate between Salem Square and the Lake District in Worcester, a large territory not directly served by the Consolidated where there are several hundred permanent residents and a much larger summer colony.

Cars Will Be Abandoned.—The City Council of Mattoon, Ill., has granted the request of the Central Illinois Traction Company to substitute buses for trolley cars in the city of Mattoon. The company recently asserted that for a number of years the lines were being operated at a loss, but of late the deficit reached such proportions that suspension became imperative. The rails will be torn up and trolley poles taken down. Three to four buses will be operated as traffic conditions warrant.

Seeks to Win Bus Grant.—The Grand Rapids Trust Company, receiver for the Grand Rapids, Grand Haven & Muskegon Railway, Grand Rapids, Mich., seeking to protect the railway's request for a bus franchise paralleling its route against a similar petition of the Greyhound Bus Line Company, has filed a statement with the Michigan Public Utilities Commission. The interurban company is prepared to put on the highway buses supplementing its railway service within ten days after approval of its application by the commission. Plans hinging on the approval call for hourly service by bus or railway from Grand Rapids, Grand Haven and Muskegon with transfer privileges at junction points.

New Line Opened.—The East St. Louis & Suburban Railway on Jan. 17 opened its bus line between Edwardsville and Glen Carbon, Ill. It replaces a private bus line formerly operated without a certificate from the Illinois Commerce Commission.

Buses Succeed Cars.—The Milford & Uxbridge Street Railway has received permission to abandon its railway lines between Milford and Hopkinton, Mass. Following this approval, the Milford Selectmen granted a permit to the Johnson Bus Lines, Inc., Milford, to operate buses from the Milford-Hopkinton town line to the Milford-Hopedale town line.

Would Run Line Between Olean and Bradford Junction.—The Olean, Bradford & Salamanca Bus Line, Inc., Olean, N. Y., subsidiary of the Olean, Bradford & Salamanca Railway, on Jan. 19, filed a petition with the Public Service Commission for permission to operate a bus line in the city of Olean, town and village of Allegany and the towns of Carrollton and Great Valley and the village of Limestone. This line is to be operated between Olean and Bradford Junction, sometimes called "Seneca Junction," through the village of Limestone to the state line and also to the city of Salamanca. The commission will hold a public hearing.

Financial and Corporate

Hearing on Boston Elevated

First Public Consideration of Matter of Disposition of Property with Passing of Public Control

The proposition to liquidate the present Boston Elevated Railway, Boston, Mass., and organize the Boston Transit System as a new public corporation to take over the business under a term of 40 or 50 years of public control was considered publicly for the first time at a hearing in the Massachusetts Legislature on Jan. 25. It was explained in detail by Henry I. Harriman, chairman of the Metropolitan Planning Division, which sponsors the proposition, and by B. Loring Young, former speaker of the Massachusetts House of Representatives.

The extension of the Boston Elevated, as outlined in the bill, would invade territory that is served by the Eastern Massachusetts and by the railroads entering Boston. Regarding the steam railroads Mr. Harriman told the legislative committee that they are in favor of the proposition as they would welcome being relieved of the burden of passenger service in and near Boston. The Eastern Massachusetts might not be so willing to give up territory to the Boston Elevated.

Briefly, it is proposed to extend the rapid transit lines in Boston from East Boston to Brighton in one direction and from Lechmere Square to Huntington Avenue in another direction, to parallel some of the railroads because of the cheaper cost of construction, and so push the Elevated lines out to Reading and to Winchester and Woburn, run them out to the Waltham branch of the Boston & Maine and to the Newton Circuit of the Boston & Albany. Proposed extensions would make use of existing subways and tunnels in which platforms would be lengthened so as to permit of the operation of four and five-car trains. Surface cars would be taken out of the subways.

Financing of these projects, as they are needed, would be facilitated by the state guarantee back of the new stock issues. This would make these issues almost equivalent to state bonds, carrying a lower dividend rate than the present Elevated Railway stock issues. A part of the saving on stock dividend would go toward a sinking fund with which the Commonwealth of Massachusetts would buy the road at the end of 40 or 50 years.

There will probably be a bitter fight in the Legislature during the next few weeks over these propositions.

Consolidation of Georgia Properties Approved

Preferred and common stockholders of Georgia Railway & Electric Company, Atlanta, Ga., have approved the consolidation of public utility properties acquired by the Georgia Power Company. Other properties involved in the consolidation are East Georgia Power

Company, Athens Railway & Electric Company and Rome Railway & Light Company.

Consolidation of the utility interests involves the cancellation of the 999-year lease under which the railways of Atlanta are controlled by the Georgia Railway & Power Company.

Under terms of the consolidation, common stock in the electric company

will be exchanged for 6 per cent preferred stock in the Georgia Power Company on the basis of 1½ shares of Power Company preferred for one share of electric company common.

Preferred shares of the electric company will be exchanged for preferred shares in the Georgia Power Company on the basis of one share of 6 per cent preferred for one share of 5 per cent non-cumulative preferred in the electric company.

Before the consolidation can be consummated it will be necessary for the State Public Service Commission to decide whether it is in the public interest.

Good Showing in Grand Rapids

Net Income Was \$9,929 in 1926, Compared with \$67,541 Deficit in 1925—Approximately 40 Per Cent of Price of New Rail Coaches Paid—Balance Due in Convenient Monthly Payments

GROSS earnings of the Grand Rapids Railway, Grand Rapids, Mich., in 1926 increased \$37,978 over 1925. This is noted in the annual report to the stockholders for the year ended Dec. 31, 1926. The number of revenue passengers carried during the year was 19,542,920, an increase of 209,612 over 1925. Local business conditions, in so far as they affected street car riding, were not materially different from those in the preceding year. It was brought out that these increases were attributable largely to the operation, beginning on June 13, 1926, of 27 new type "one-man" cars on three of the principal car lines.

The decrease in operating expenses effected by the use of these 27 new cars could not be shown definitely. The general effect, however, was reflected in the total operating expenses, which, from Jan. 1 to May 31, the five-month period immediately preceding their installation, decreased \$8,465 compared with the corresponding period in 1925, whereas for the five-month period from July 1 to Nov. 30, immediately following the installation of the new cars, the decrease was much greater, or \$45,170 compared with the corresponding period in 1925. It was fair to as-

sume then, according to General Manager DeLamarter, that more substantial gains in both gross and net would have been made if the new cars had been in continuous service throughout the year.

The rates of fare in effect during 1926 were the same as those in effect during 1925, namely, 10 cents individual cash fare and six tickets for 50 cents. Under these rates the company was entitled, according to the terms of its service-at-cost franchise, to earn a return of 7½ per cent on the value of its property after the deduction of operating expenses, taxes and an amount equal to 3 per cent of the value of the property for retirement reserve. The company's earnings in 1926 available for such return were \$105,777 less than those allowed by the franchise.

On the subject of buses the report states that the company operated six passenger buses on five different routes in various sections of the city. One of these routes operated from an outlying district to the business section. The other routes were operated to extend the service of the present railway lines and to transfer their passengers to and from the street cars at intersecting point on the car line. The operation by buses was approximately the same as during 1925, and it is the intention of the management to change or extend bus service to the other parts of the city, when, and as, such service can be justified.

No public financing was done by the company during the year. The cost of the various additions and improvements to the property was provided for partly from earnings, partly from retirement reserve and \$159,892 from the unexpended balance of insurance money referred to in the 1925 annual report. The purchase of the new rail coaches was arranged for on a satisfactory basis. Approximately 40 per cent of the purchase price has been paid and the balance is due in convenient monthly payments up to May 26, 1929. During the year the company's bonded indebtedness was further reduced through the retirement by sinking fund of \$128,000 first mortgage 7 per cent bonds. This resulted in a total reduction of \$223,000 since the bonds were issued in May, 1924.

COMPARATIVE STATEMENT OF INCOME AND EXPENSES OF THE GRAND RAPIDS RAILWAY

	1926	1925
Gross Earnings:		
Passenger revenue.....	\$1,724,395	\$1,697,310
Revenue from special cars....	3,480	4,273
Rent of equipment and tracks	38,035	23,994
Non-operating revenue.....	10,847	13,200
Total.....	\$1,776,758	\$1,738,779
Operating expenses and taxes:		
Operating expenses.....	1,108,709	1,172,157
Taxes.....	146,287	144,122
Total.....	\$1,254,996	\$1,316,279
Gross income available for fixed charges, retirements and dividends.....		
	521,761	422,499
Interest on funded debt.....	261,515	268,248
Interest on unfunded debt....	56,609	36,755
Amortization of debt discount	18,577	19,072
Provision for retirements.....	175,129	165,963
Total interest, other fixed charges and retirements....	\$511,832	\$490,038
Net income.....	\$9,929	*\$67,541
Ratio of operating expenses to gross earnings.....	62.40	67.41
Ratio of operating expenses and taxes to gross earnings.	70.63	75.70
*Deficit.		

The additions and improvements referred to aggregated \$533,435. Of this amount approximately \$370,000 was for the 27 new light-weight, double-truck cars referred to, the remodeling of seven two-man cars for one-man operation and the remainder for track and roadway.

The use of loading platforms and safety zones in the downtown districts was continued throughout 1926 and was helpful in giving the public efficient and safe transportation service. The degree of safety to the public with which service has been rendered in Grand Rapids was indicated by the company's low expenditure for public injuries and damages, it being only 1.32 per cent of the transportation revenue in 1926 and 1.70 per cent in 1925.

Effective June 1, 1926, the company adopted the group life insurance plan for the benefit of its employees and families. Under this plan all employees who are in the service of the company for a year or more receive as a gift life insurance and total and permanent disability protection under a policy issued by the Equitable Life Assurance Society. A feature of the plan is that policies are issued to employees without their undergoing any physical examination, and no employee is excluded on account of advanced age, impaired health or nature of occupation. As of Dec. 31, 1926, a total of 389 employees had received certificates representing a total insurance of \$464,100.

Reporting on general conditions, Mr. DeLamarter said that recent surveys in representative cities showed that, compared to motor vehicles, the electric cars carried from 75 per cent to 80 per cent of the riding public in and out of the business centers, and that they occupy only from 10 per cent to 15 per cent of the occupied street areas.

Much space is given in the report to the history of the new electric rail coaches, with copies of testimonials from Grand Rapids residents and letters from automobile dealers praising this type of equipment. Pictures are included showing the new coaches in service.

Receivers Make Favorable Report on Oklahoma Properties

The Oklahoma Railway, Oklahoma City, Okla., during the first eleven months of 1926 carried 13,013,299 revenue passengers, according to W. C. Jones, auditor of the company. This is an increase of nearly 2,000,000 over a similar period of 1925. G. A. Henshaw and G. T. Lackey, joint receivers of the company, attribute a great part of the increase to the many improvements made in the service of the company on its city and interurban lines. They state that a 35 per cent increase was made in railway service and twenty buses were put in operation on five lines. The buses have materially increased the company's profit according to the receivers. Other factors which have contributed to improvement of the financial condition of the railway, according to the receivers, are the increasing seriousness of the parking problem and the enormous advantage of the street car over the automobile from the cost standpoint.

Rhode Island Merger Approved

Stockholders of the New England Power Association approved the purchase of the entire issue of class B stock of the Rhode Island Public Service Company, Providence, R. I., at a special meeting held recently. The Rhode Island Public Service was recently formed to acquire control of the Narragansett Electric Lighting Company, which does the electric and gas business, and the United Electric Railways, which operates the traction lines and buses in the city of Providence.

A statement issued by the New England Power Association says that more than 95 per cent of the United Electric Railways stock and Narragansett Electric Lighting Company stock is available for carrying out the plan and agreement of July 28, 1926, subject to the right of withdrawal. To enable the merger to become effective, a modification to the plan and agreement has been announced permitting the issue of collateral bonds in lieu of the first mortgage bonds originally contemplated. Under the plan, the railway's stockholders have until Jan. 28 to withdraw their shares.

By reason of the facilities enjoyed by the New England Power Association a reduction in lighting rates will be made on or before the close of the present year.

Stockholders also voted to increase the number of directors to enable representation of Rhode Island interests on the board.

End of Public Control of Eastern Massachusetts Near

It is a matter of comment that while there is a great deal of commotion in Boston over the future of the Boston Elevated Railway, Boston, Mass., nothing has apparently been done by anybody to take care of the Eastern Massachusetts Street Railway when the public control of that road terminates two years hence.

The difference in status between the Elevated and the Eastern Massachusetts is that in the case of the Elevated the public control continues automatically at the end of the ten-year period unless the Legislature takes specific action to terminate it. On the other hand, in the case of the Eastern Massachusetts Street Railway the public control terminates automatically unless the Legislature takes measures to continue it.

Unless something is done very soon the public control of the Eastern Massachusetts will end on Jan. 1, 1929, and the property will go back to the stockholders. The public trustees who are now operating the road do not want to take any action, lest it be interpreted as a move to influence their own terms of office. The directors and stockholders have not asked for any new legislation.

A controversy has developed between the trustees and the directors over the bus service policy. The directors say that the trustees have gone too far in allowing the New York, New Haven & Hartford to operate buses in the field which is served by the Eastern Massachusetts, and a movement has been

started among the stockholders to organize an independent bus service in competition with the New Haven Railroad buses for the purpose of protecting the property of the Eastern Massachusetts. At the end of the public control period on Jan. 1, 1929, the bus lines and property would be turned over to the Eastern Massachusetts without any profit to the interests organizing these bus lines. The stockholders who are interested in this move have engaged Henry H. Hurlburt as counsel.

Initial Dividend by Philadelphia & Western Railroad

The Philadelphia & Western Railway Company, Philadelphia, Pa., on Jan. 25 declared an initial dividend of 50 cents on the common stock, payable on Feb. 15 to shareholders of record Feb. 5. The company operates out of Philadelphia from a connection with the Philadelphia Rapid Transit Company at the 69th Street Terminal to Strafford and from Villa Nova to Norristown. The system comprises 38 miles of track.

Liquidating the Chautauqua Traction Company

The property of the Chautauqua Traction Company, Jamestown, N. Y., is being dismantled and the net proceeds from the sale of the equipment will be used to retire the bonds, which are in default. The company's first mortgage 5 per cent gold bonds due on April 1, 1934, are almost entirely held by members of the Broadhead family or affiliated interests. Members of this Broadhead family are the sole stockholders of the Chautauqua Traction Company and are the sole owners of affiliated traction lines. Owing to the manner in which these bonds are held there has been no foreclosure, as it was desired to liquidate in the least expensive manner possible.

\$18,199,200 of B.-M.T. Bonds on Sale

Offering of \$18,199,200 par value of 6 per cent sinking fund gold bonds, series A, due on July 1, 1968, of the Brooklyn-Manhattan Transit Corporation, Brooklyn, N. Y., is to be made by the War Finance Corporation it was announced on Jan. 13 by Secretary of the Treasury Mellon, who is chairman of the latter corporation, which has been ordered to wind up its affairs.

These bonds are part of an authorized Brooklyn-Manhattan Transit issue of \$250,000,000 dated July 2, 1923, of which \$92,543,500 is outstanding. The War Finance Corporation's holdings represent a loan made to the old Brooklyn Rapid Transit Company in the war period to enable the company to carry on subway work then in progress, which the government had approved as "necessary private construction." The raising of all private capital had been prohibited in order to give the full market to the Liberty Loans, and the only way in which the Rapid Transit company could raise the funds was through a loan from the War Finance Corporation. It had a note

issue of about \$60,000,000 coming due and the War Finance Corporation agreed to advance 30 per cent of the funds, the note holders accepting an extension covering the remaining 70 per cent.

The bonds now being offered are in coupon form. They consist of 18,999 bonds of a par value of \$1,000 each and two of \$100 each. The Federal Reserve Bank of New York holds them as custodian and fiscal agent of the War Finance Corporation. The price is 99½ and interest.

Dividend Cut by Brooklyn City Railroad

The Brooklyn City Railroad, Brooklyn, N. Y., on Jan. 25 declared a quarterly dividend of 10 cents on the capital stock. Previously 20 cents was paid quarterly. In explaining the reduction the company issued the following statement:

The Brooklyn City Railroad and the B.-M. T. have applied to the Board of Estimate for franchises to operate buses in Brooklyn. In view of the large investments the Brooklyn City Railroad may be confronted with in this connection the directors deem it advisable to pursue a more conservative policy as to dividends at this time.

The company has only one class of stock outstanding. It is of a par value of \$10 a share.

Last Step Effected in New Haven Control

The Public Utilities Commission of Massachusetts has approved the acquisition of stock of the New England Investment & Security Company by the New York, New Haven & Hartford as the final chapter in the return of the control of the Springfield Street Railway, Springfield, and the Worcester Consolidated Street Railway, Worcester, to the New York, New Haven & Hartford Railroad. The commission approves the acquisition of \$300,000 first mortgage bonds of the Springfield Street Railway; authorizes the issue of shares of preferred stock of the New England Investment & Security Company and authorizes the acquisition of outstanding shares of common stock of the New England company.

Financial Situation on Boston Property Revealed

The application of Franklin T. Miller, receiver of the Boston & Worcester Street Railway, Boston, Mass., to issue receiver's certificates for \$100,000 to finance continued operation has been denied. The receiver has now applied to the court for authority temporarily to suspend all electric railway service, with permission, however, to resume operation between Boston and Wellesley Hills and possibly South Framingham as soon as arrangements for electric power can be made. If buses are continued and cars are operated only between Boston and Wellesley a monthly profit of \$3,400 is indicated. If buses are operated to the exclusion of the railway it is figured by the receiver there would be a monthly gain of about \$6,700. Since Feb. 11, 1925, when Mr. Miller assumed the duties of receiver,

to Nov. 30, 1926, total losses were \$57,924. The financial situation of the company was made plain in Mr. Miller's seventh report filed in the Supreme Court wherein he asked authority to issue receiver's certificates.

In connection with Receiver Miller's petition Roland W. Boyden, appearing for the American Trust Company, trustee for the \$2,500,000 of the bonds, said that the loss was not so great as it might seem. He said that a committee of bondholders was trying to complete arrangements to continue the company. He complimented Mr. Miller on his work as a receiver. One of Mr. Boyden's suggestions was that Mr. Miller be allowed to issue certificates of indebtedness, but the court declined to sanction this.

Mayor Temple of Marlboro and officials of the towns of Framingham, Shrewsbury and Hopkinton opposed the proposed substitution of buses for electric cars. They said the bus service would not be adequate for the factory employees.

After the hearing Judge Carroll said it was a serious matter for the court to take the responsibility of continuing a public service corporation which is being run at a loss, and he suggested to certain lawyers interested in the affairs of the railway that they try to devise a plan for the operation of the road. If they cannot agree about the matter in the course of a month the court may grant permission to abandon the service.

Chicago South Side Surface Lines to Pay Interest

A statement indicating that the south side surface lines at Chicago may seek their way out of the present traction difficulty without a receivership has been addressed to bondholders of the companies by Leonard A. Busby, president. The interest on the \$33,926,000 bonds of the Chicago City Railway and the Calumet & South Chicago Railway, which matures on Feb. 1, will be paid promptly, but the principal will be defaulted, the statement said. It added that the interest will continue to be paid until the city and the companies reach an agreement and new bonds are issued for the present liens.

A. L. Drum Made Detroit United Receiver

W. C. Dunbar and the Security Trust Company, Detroit, Mich., have resigned as receivers of the Detroit United Railway, and A. L. Drum, who has been acting as executive manager, has been appointed receiver by the federal court. Mr. Drum's appointment combines the duties of operation and reorganization under one head.

The plan of reorganization worked out by the former receivers proved impracticable. It has been abandoned. According to the former receivers, the working out of the facts and circumstances bearing on the rights and relationship of parties at interest has been largely accomplished, though for the most part not yet adjudicated. The executory contracts existing at the time of the receivership have been

either rejected or adjusted and put upon a permanent basis. The primary function of the receivership for some time to come will be the operation of the railway.

The receivers are, therefore, of the view that under such conditions the expense of conducting such receivership ought to be minimized by cutting off so far as practicable all expenses other than for operation. That is their reasons for tendering their resignations.

Traffic on the Increase.—Reports of the Illinois Power & Light Corporation for the first eleven months of 1926 in Decatur, Ill., show gains in numbers of both street car and bus passengers. The buses carried 2,827,000 passengers during the period and the cars 5,569,000 passengers. Ten buses and 22 cars were in service and buses averaged 5.4 miles to the gallon, while the tire mileage was between 21,000 and 22,000.

Traffic Gains.—The lines of the Chicago & Joliet Electric Railway carried nearly 7,000,000 people in Joliet, Ill., last year and the interurban system, the Illinois Traction, carried 2,500,000. The totals exceeded any year since 1920 and indicated steady increase throughout the year with a sharp upturn in the last weeks of the year. Freight gains were marked, too, and from this source the traction officials reported a slight increase in the net earnings of the company for the year.

Railway Issues Increase.—The California Railroad Commission during the twelve months ended Dec. 31, 1926, authorized the issue of \$158,012,522 of stock, bonds, notes and other evidences of indebtedness. Of this amount \$5,700,000 was issued by electric railways. In 1925 the total amount was \$132,037,049, of which the electric railways issued \$3,610,461.

Does Big Holiday Job.—The Public Service Railway, Newark, N. J., played an important part in the great holiday trade done during the week preceding Christmas, 1926. Its cars and buses made it possible for more shoppers to get to and from the stores than in any previous holiday season in the history of the company. In commenting on this situation M. R. Boylan, who directs operation, said that for the six business days immediately preceding Christmas the company transported 11,945,380 passengers, or an average of 1,990,896. He said that this figure was nearly 300,000 riders a day in excess of the normal average. The heaviest day's riding was the Saturday before Christmas, which condition, he believed, showed that the "do your shopping early" idea was beginning to take hold.

Traffic on the Increase in Madison.—A gain of 64,737 railway and bus passengers was made by the Madison Railways, Madison, Wis., in December, 1926, over the corresponding month of 1925, when 605,864 patrons were carried. Of the 670,601 passengers carried during the last month of 1926, 609,643 used the street cars. Gross railway and coach revenues for December, 1926, were \$45,545, against \$41,108 in December, 1925. Gross railway revenue for December, 1926, was \$41,025, compared with \$38,212 for December, 1925.

Personal Items

J. A. Ritchie and P. W. Seiler in New Posts with Yellow Coach

John Hertz, chairman of the board of directors of the Yellow Truck & Coach Manufacturing Company, Chicago, Ill., announced on Jan. 22 important changes in the personnel of that company. John A. Ritchie has been made vice-chairman of the board of directors and Paul W. Seiler has been elected president and general manager.

Mr. Hertz said that the change was made in order to enable Mr. Ritchie to devote more time to the sales end of the coach business, because of the general nation-wide demand for coach service at this time. Mr. Ritchie is president of the Chicago Motor Coach Company and chairman of the board of directors



P. W. Seiler

of the Fifth Avenue Coach Company, New York. He will continue in these capacities. Mr. Hertz said:

Mr. Ritchie will serve as vice-chairman of the board of directors. This will enable him to share with me some of the work that I have been giving personal attention.

Mr. Seiler, the new president and general manager, is one of the youngest chief executives in the General Motors fold. He has been president and general manager of the Ternstedt Manufacturing Company, a subsidiary of Fisher Body Corporation, the largest manufacturer of automobile body hardware in the world.

Changes in United Light & Power Company Announced

Important changes in the personnel and promotions in the officers' ranks of the United Light & Power Company, with main office in Chicago, Ill., will occur on Feb. 1. Only slightly is the railway department affected by these changes.

T. C. Roderick, who has been general manager of the Tri-City Railway of Illinois, stationed at Rock Island, Ill., will leave the railway division and enter the gas division as general manager of the Ottumwa Gas Company, succeed-

ing Mr. Wuestenfeld. Mr. Roderick went to the United Light several years ago from the Grand Rapids Railway.

R. J. Smith, who has been manager of the Tri-City Railway of Iowa, also becomes general manager of the Tri-City Railway of Illinois. Both the Iowa and Illinois traction lines of the Tri-Cities and the Clinton, Davenport & Muscatine Interurban Railway will be under his charge. He succeeds to the responsibilities that formerly were Mr. Roderick's.

F. A. Nolan Assistant to Detroit Municipal Manager

Fred A. Nolan, who has been connected with the Department of Street Railways at Detroit, Mich., since its inception, has been named assistant to the general manager by the Street Railway Commission. The commission's action was taken upon the recommendation of Del A. Smith, acting general manager, to fill the vacancy caused by the appointment of Frank J. Denny, formerly assistant to the general manager, to the position of director of publicity. Mr. Nolan was formerly an assistant auditor for the municipal railway.

Jurisdiction of Officers of Atlanta Company Widened

F. L. Butler, vice-president and manager of the railway department of the Georgia Railway & Power Company, Atlanta, Ga., will have general charge and supervision of the operation, maintenance and construction of the railway properties of the Athens Railway & Electric Company and the Rome Railway & Light Company.

W. P. Hammond, assistant chief engineer of the Georgia Railway & Power Company, has been placed in general charge and supervision of all electrical engineering and construction outside the seven-mile zone for the Georgia Railway & Power Company, Atlanta; Athens Railway & Electric Company, Georgia-Southern Power Company, Rome Railway & Light Company, the Georgia Utilities Company and Mutual Light & Water Company.

C. E. Bennett, manager of the electrical department of the Georgia Railway & Power Company, has been placed in general charge of all electrical operation, maintenance, engineering and construction within the seven-mile zone. He will also have general charge and supervision of all operation and maintenance of the electric transmission and distribution system of the Georgia Railway & Power Company outside the seven-mile zone, and in addition the electric transmission and distribution systems of the Athens Railway & Electric Company and other utilities in the group.

C. A. Collier, general sales manager of the Georgia Railway & Power Company, has been placed in charge of all

sales activities of the Athens Railway & Electric Company, the Athens Gas, Light & Fuel Company, the Georgia-Southern Power Company, the Rome Railway & Light Company, the Georgia Utilities Company and the Mutual Light & Water Company.

These changes are all apparently made in consonance with the deal under which the Georgia Power Company, acting for the Southeastern Power & Light Company, has acquired the Georgia Railway & Power Company, the Athens Railway & Electric Company, the Rome Railway & Light Company, the East Georgia Power Company and other properties.

Clarence E. Mitten Goes to Buffalo

Clarence E. Mitten has been appointed passenger traffic manager of the International Railway, Buffalo, N. Y. He will handle both electric and bus transportation and will report direct to President Yungbluth. Mr.



C. E. Mitten

Mitten's appointment was announced by President Yungbluth.

Mr. Mitten goes to the International Railway organization from the Chicago & Eastern Illinois Railroad, where he has had twenty years' experience. His latest position in that organization was assistant superintendent of transportation. The new passenger traffic manager will make his headquarters in Buffalo.

P. H. Gadsden Nominated for Chamber of Commerce

Philip H. Gadsden, a vice-president of the United Gas Improvement Company, Philadelphia, and former president of the American Electric Railway Association, has again been nominated for election as a director of the United States Chamber of Commerce. Mr. Gadsden is a candidate to represent the second election district on the board. For some years Mr. Gadsden has been prominently identified with the national chamber, having been elected as a director in 1920. In addition, he became a director of the Philadelphia Chamber of Commerce in that same year, subsequently being elected vice-president, and early last year president. He has

also served as a director of the Pennsylvania State Chamber of Commerce.

During the war Mr. Gadsden served as chairman of the National Committee on Public Utility Conditions, representing the interests of the electric railway and gas companies in connection with their war problems. A native of South Carolina and a lawyer by profession, Mr. Gadsden retired from the active practice of law to manage and direct local public utilities. It was in 1918 that he was elected to a vice-presidency in the United Gas Improvement Company in charge of its department of public relations.

W. J. Harvie with Albany Company

William J. Harvie, formerly general manager of the Auburn & Syracuse Electric Railroad, Syracuse, N. Y., has been made assistant general manager of the United Traction Company, Albany, N. Y., and its associated electric railway properties. Mr. Harvie's duties in this position will have to do particularly with the supervision of matters relating to safety, claims and the personnel. Beginning Jan. 1, 1927, the United Traction Company resumed its direct liability for claims, which for some years past had been covered by an accident insurance policy, and decided to place primary responsibility for the reduction of accidents and its allied problems, such as personnel and the engagement of platform men, directly upon one official. This decision accounted largely for the appointment of Mr. Harvie, whose extended experience in railway operation well fits him for this work.

Pierre Mariage a Visitor to United States

Pierre Mariage, who is associated with the Paris street railway and omnibus system and is manager of its allied car building company, la Société de Construction et d'Entretien de Matériel Industriel et Agricole, has been spending a few weeks in this country inspecting electric railway and bus systems. Mr. Mariage was one of the official delegates from France attending the third World Motor Transport Congress held in New York Jan. 10 to 12. Later he visited various American cities, including Chicago, Detroit, Philadelphia, and Newark, N. J., studying car and bus design and operation. He sailed for Paris on Jan. 29. Mr. Mariage is the son of A. Mariage, chairman of the board of the Société des Transports en Commun de la Région Parisienne, which operates all of the tram lines and bus lines in Paris.

Henry W. Smith has been appointed general passenger and freight agent of the Chicago, South Bend & Northern Indiana Railway and Southern Michigan Railway, both of South Bend, Ind. He succeeds in this capacity the late John S. Moore. Following his graduation from Hanover College Mr. Smith spent a year and a half with the Snell Manufacturing Company, but left that concern to accept an appointment with the Chicago, South Bend & Northern

Indiana Railway in 1910. During that time he secured a broad experience in the electric railway freight and passenger business, as he started in the

freight department and worked his way up to the position of assistant auditor. The latter position he has held continuously since 1918.

OBITUARY

Anson W. Burchard

Vice-Chairman of Board of the General Electric Company Succumbs in New York at the Age of 61—Constructive Force in Industry—Sketch of His Business Career

ANSON WOOD BURCHARD, vice-chairman of the board of directors and chairman of the executive committee of the General Electric Company and chairman of the board of directors of the International General Electric Company, died on Saturday afternoon, Jan. 22, of acute indigestion, at the home in New York City of Mortimer L. Schiff, with whom he was lunching.



A. W. Burchard

Mr. Burchard was regarded by his associates as a man with a superior degree of executive ability. His contributions to industry progress, particularly progress in the light and power field, were great and lasting. His activities in welding together corporations and manufacturing organizations made the work of standardization and simplification that much easier, and from it therefore not only the electrical industry but the purchasers of electric lamps and apparatus derived advantage. Toward the establishment of an ideal business and manufacturing enterprise in which the seller and buyer both gain Mr. Burchard's contributions were priceless. He was especially skilled as an organizer, and his abilities were recognized abroad as well as at home. In the domain of corporate finance he was most versatile, and he was better known in the offices of the holding companies and large corporations than among the rank and file of utility operators. His counsel was sought by numerous interests outside the immediate sphere of his activity.

Men associated with Mr. Burchard in business and others who had come to

know him, even those whose contacts with him were not so close as were those of his fellow officers, all were unstinted in their praise of Mr. Burchard as a man and of him as a constructive force in industry.

In co-operation with the late Charles A. Coffin, founder of the General Electric Company, he laid out a policy of development of the financial resources of electric public utilities, enabling them to arrange credits and buy more easily, and thereby stimulated the expansion of the industry. He was also active twenty years ago in the consolidation of the many manufacturing units of the General Electric Company, such as the Stanley Electric Company, the Fort Wayne Electric Company, the General Incandescent Arc Lighting Company, the Northern Electric Company and the Sprague Electric Company.

Mr. Burchard was born at Hoosick Falls, N. Y., on April 21, 1865. After graduation from the high school there, he entered Stevens Institute of Technology, where he was graduated in 1885 with the degree of mechanical engineer. He entered business with the J. M. Ives Company, a steam and general factory engineering firm at Danbury, Conn. In 1891 he became treasurer and manager of the T. & B. Tool Company of Danbury, where he remained until 1900, when he became vice-president of the Cananea Consolidated Copper Company, operating mines at Cananea, in the State of Sonora, Mexico.

WITH THE GENERAL ELECTRIC COMPANY
NEARLY TWENTY-FIVE YEARS

After filling this post for two years, Mr. Burchard in 1902 joined the General Electric Company. Until 1904 he was comptroller, with headquarters at Schenectady. In that year he was named assistant to the president, in 1912 he was elected vice-president, and in 1917 he was made a member of the board of directors. In May, 1922, he was elected vice-chairman of the board, and in June of the same year he was elected president and chairman of the board of directors of the International General Electric Company. About a year ago he was relieved of the duties of president but continued as chairman of the board. During the war he acted as assistant to Benedict Crowell, director of munitions.

Mr. Burchard was a director of several utility and electrical companies and a member of many electrical and power clubs and organizations including the A.I.E.E. and the A.S.M.E.

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

South Shore Starts Big Improvement Program

An extensive equipment and building program has recently been undertaken by the Chicago, South Shore & South Bend Railroad. Twenty new passenger cars have been ordered by the company from the Pullman Car & Manufacturing Corporation. Ten will be equipped as motor cars and the rest will be used as trailers. In addition plans were announced for a new two-story passenger station at Michigan City, Ind., to be used jointly by the Chicago, South Shore & South Bend Railroad and the Shore Line Motor Coach Company.

The new cars will be equipped with bucket type seats, upholstered in gray mohair velvet, both automatic electric and circulating hot water systems, walnut finish interior woodwork, electric fans, battleship linoleum flooring, dome lighting, adequate toilet facilities and an inclosed smoking compartment similar to those in Pullman cars. Motor and other electrical and mechanical equipment will be the same as on the cars now in use. Two dining cars and two parlor observation cars will be placed in service in February, and with the delivery of the new cars in the early summer will bring the total cost of passenger equipment placed in service since the present management began operation, to \$2,069,000.

The cars will be 1 ft. longer than the present equipment and will have vestibules, with diaphragms between cars providing protection for passengers passing through the train.

Cost of the passenger station is estimated at approximately \$200,000, and construction work, it is said, will be begun at once. The Michigan City station is an important transfer point, as motor coach passengers traveling between Chicago and western Michigan have the option of riding between Chicago and Michigan City on the first electric train of the South Shore line, thus saving at least an hour of travel.

A site for the improvement has been secured across the street from the present South Shore station, where a large parking and loading space for motor coaches will be provided directly north of the structure.

The rapid growth in passenger traffic, and the even greater increase indicated for the coming months, makes the purchase of the additional equipment necessary according to Charles H. Jones, general manager.

"On several occasions," Mr. Jones states, "during the fall and winter, when travel has been exceptionally heavy, nearly every car owned by the company has been placed in service for the traffic. This is a very good demonstration of the popularity of our service in the growing territory served."

"Basing our judgment of the future

on this past popularity, the new equipment is being purchased in order that South Shore Line service will remain on a plane of equality with that of any other railroad in the country."

Market Street Railways Places Large Order for Seats

Market Street Railway, San Francisco, Cal., recently set in motion its 1927 improvement program by placing an order for 1,278 spring cushion seats with Hale & Kilburn of Philadelphia. Of the lot, 730 covered with genuine green leather are to be installed in the inclosed sections of 73 cars. The remaining 548 seats of the cane-covered type will be used in open car sections. Announcement also has been made that the 37 cars now in service will be rehabilitated, which with the cost of the new seats, estimated at \$35,000, will bring expenditures for 1927 up to \$53,000. When finished, the cars are to serve the Mission and Sunset districts.

50 De Luxe Cars Ordered by Eastern Massachusetts Railway

Eastern Massachusetts Street Railway has authorized the remodeling of 50 cars along lines similar to the de luxe cars now operating on its suburban routes. Orders also have been placed for 50 additional, double-truck light-weight de luxe cars to be delivered early this year. These cars will be provided with de luxe seats and Pullman type of rubber floor covering. This will have an interior finish of genuine mahogany and are to be lighted with five Pullman type dome fixtures, each fixture containing a 94-watt compensated lamp. When delivered, the company will have 100 cars of the de luxe type, which it is understood will take care of the larger portion of the so-called suburban service and will replace 50 of the old style, heavy double-truck type.

General Electric Saves Customers \$12,000,000

General Electric Company for the year ending Dec. 31, 1926, reports orders totaling \$327,400,207, an increase of 8 per cent, or nearly \$25,000,000 over 1925. President Gerard Swope states that this is the biggest volume of orders in the company's history, the previous high mark, achieved in 1920, being \$318,470,000, or about \$10,000,000 below the new record. "On the basis of the 1926 volume of sales, price reductions during the year have resulted in an annual saving to the company's customers of upward of \$12,000,000," said Mr. Swope. "This is a result of improved design, better methods of manufacture, numerous suggestions from the

workmen which have reduced costs, reflected in lower selling prices to customers."

United Traction Company Orders Twenty Mack Buses

United Traction Company of Albany, N. Y., has just ordered twenty new Mack six-cylinder gas-electric buses of the 29 passenger standard city type. The new equipment will have General Electric generators, model DT-1115, 190-volt, 200-amp., 1,140 r.p.m. and the motors will be GE single 115-120-volt, 240-amp., 1,880 r.p.m. These buses will be operated by the Capital District Transportation Company, a subsidiary of the United Traction Company.

St. Louis, Troy & Eastern Lets \$1,000,000 Bridge Contract

General contract for the construction of a 7,400-ft. elevated steel and trestle railroad approach to the McKinley Bridge at Venice, Ill., was awarded recently to the Fruin-Colmon Contracting Company of St. Louis by the Illinois Power & Light Corporation, for its subsidiary company, the St. Louis, Troy & Eastern Railroad. The project will cost approximately one million dollars, and will enable the St. Louis, Troy & Eastern to avoid numerous grade crossings with other railroads in Madison and Venice, Ill. When the McKinley Bridge was constructed provision was made for the installation of such an elevated approach from the Illinois side, and this approach will be used for limited passenger and freight traffic by the Illinois Traction system. Construction work will start in the early spring.

\$400,000 Plant for Georgia Railway & Power Company

Georgia Railway & Power Company, Atlanta, Ga., will start work early in February on its Cherokee storage plant which will include carhouses, shop buildings, a welding plant, a storehouse, and an athletic field for employees. An appropriation of \$400,000 has been set aside for this work, exclusive of the cost of the land. A 41-acre tract on the Atlanta-West Point line between Green Street and South Boulevard has been chosen as the site of the new project, said to be one of the largest undertaken by a Southern utility.

Ten Modern Cars Ordered by Gary Railways

An order for nine new light-weight, one-man, double-truck safety cars for service on city lines in Gary and an additional interurban car for the Hammond division was placed on Jan. 22 by the Gary Railways. The new cars will be built by the Cummings Car & Coach Company at Paris, Ill., at an estimated cost of \$166,000.

Specifications for the city type equipment call for an attractive streamline car weighing only 36,000 lb., equipped with four 35-hp. General Electric motors, deep-spring plush seats, pneu-

matic sliding doors and rear exit treadles, and capable of seating 56 passengers. The single new 46-passenger interurban will be similar in dimension and weight to the seven modern safety cars placed in twenty-

minute service early this month between Gary and Hammond. Material savings in power, maintenance and platform expense are anticipated from the operation of both types of rolling stock.

Fare boxesCleveland
 FendersRoot
 FinishPratt & Lambert enamel
 Gears and pinions.....Tool Steel Gear & Pinion Company
 Hand brakesPeacock staffless
 Heater equipmentConsolidated
 HeadlightsOhio Brass Gold Ray
 Journal bearings..A.E.R.A. type 3 1/2 in. x 6 in.
 Journal boxesSymington
 Lightning arresterAluminum cell
 Motors...Four Westinghouse 510-A, inside hung
 Safety devices.....Safety Car Devices Co.
 SandersOsgood-Bradley
 Sash fixturesO. M. Edwards Co.
 SeatsHeywood-Wakefield Co.
 Seating materialLeather
 Slack adjusterOsgood-Bradley
 Springs.....Fort Pitt and Railway Steel Spring Co.
 Step treadsKass
 Trolley catchersEarll
 Trolley basesOhio Brass
 Trolley wheelsJones
 Trucks.....Osgood-Bradley OBC-48-66-G
 Ventilators.....Garland C-1 Jr.
 Wheels.....Steel Car Forge, 26 in. dia.

Twelve New One-Man Cars Added to Scranton Railway

New Equipment Puts Fitkin Interests One Step Nearer the Goal of One-Man Operation—Management Sees Bright Outlook for 1927—Business Normal After Revenue Decrease During 1925 Strike

DELIVERY of twelve new interurban cars to the Scranton Railway during December marks another step toward 100 per cent one-man operation on this important property of the Fitkin interests.

The new rolling stock, which is of the one-man, two-man type, was built by the Osgood-Bradley Company, which late in 1925 made delivery of a number of cars of a somewhat similar design to the Scranton Railway, Altoona & Logan Valley Electric Railway and Youngstown & Suburban Railway. Details of these units were covered in *ELECTRIC RAILWAY JOURNAL* of Aug. 14, 1925, at which time it was announced that they had replaced single-truck wooden cars and double-truck heavy units.

In over-all length, height and width the units delivered last month are slightly different from standards set by the A.E.R.A., and there is also provision for seating four more passengers than have been specified by the association for this type of car. The bodies are of semi-steel construction with arch type roofs, the interior trim being of mahogany. The power equipment consists of four Westinghouse 510A motors. The units are for city service. Complete specifications of the car are as follows:

Seating capacity44
 Weight:
 Body equipped20,000 lb.
 Trucks with motors.....15,800 lb.
 Total35,800 lb.
 Bolster centers, length.....21 ft. 4 1/2 in.
 Length over all.....41 ft. 10 in.
 Truck wheelbase5 ft. 6 in.
 Width over all.....8 ft. 5 in.
 Height rail to trolley base.....11 ft. 1 1/2 in.



Typical Interior of the Twelve Cars Recently Delivered to the Scranton Railways by the Osgood-Bradley Car Company for City Service

BodySemi-steel
 Interior trimMahogany
 HeadliningAgasote
 RoofArch
 Air brakesWestinghouse Traction Brake Co.
 Armature bearingsPlain
 AxlesA.E.R.A. standard E-2
 BumpersOsgood-Bradley standard
 Car signal system.....Faraday
 Center and side bearings..Osgood-Bradley
 CompressorsWestinghouse DH-16
 Conduit and Junction boxes..Osgood-Bradley
 ControlWestinghouse K-35
 CouplersOsgood-Bradley
 Curtain fixturesMorton Mfg. Co.
 Curtain materialPantasote
 Destination signsHunter
 Door operating mechanism.....National Pneumatic

Although too early to compile figures showing savings in operation effected by these cars, officials of the Fitkin management have some interesting data on which to back their faith in one-man operation.

NEW CARS PRODUCE \$198,000 ADDED REVENUE

In connection with the cars purchased in 1925, some of which were put in service on the Greenridge, Peoples and Dunmore suburban lines, there was an expense decrease and an operating revenue increase, resulting in an annual revenue increase of \$198,000 as of Nov. 1, 1926. Incidentally, the operation of the cars of the new type have shown 13 per cent increase in passengers carried as of April, 1926, based on a mileage of 150 miles a day and an eighteen-hour operation.

According to officials of the company, the coal strike of 1925 afforded some valuable tests in the way of proving the efficiency of one-man operation. When the strike commenced, in Sept. 1, 1925, steps were taken to cut operating expenses, which resulted in the immediate rehabilitation of rolling stock to the one-man car design, these cars being equipped with all safety appliances. With the new cars operating 500,000 hours during the period from Sept. 1, 1925, to Feb. 1, 1926, when the strike was terminated, there was a saving of \$158,000 in labor and platform expense, the saving in plat-



Exterior of Interurban Cars Recently Built by the Osgood-Bradley Company for the Scranton Railway and Placed in Service Last Month

form expense being estimated at approximately 30 cents an hour.

Some idea of the value of this saving may be gained when it is known that for the year ended Aug. 31, 1926, the Scranton Railway, due to the strike and general unrest preceding it, showed a decrease in earnings of nearly 9 per cent as compared with the preceding year. For the specific duration of the strike the decrease was \$150,000.

In spite of this the Fitkin interests spent more than \$600,000 for new equipment, etc., during 1926, this figure being divided as follows: Equipment, \$225,000; track and roadway, \$335,000; overhead, \$20,000; miscellaneous, \$10,000. As mentioned in the JOURNAL for Dec. 18, 1926, the company built ten new car bodies in its own shops last year. Ten additional bodies will be constructed during 1927. Due to a favorable wage agreement recently effected with the miners, the officials see a prosperous year ahead for their properties in the region contingent to the mining district. Figures as to the possible expenditures for equipment and improvements for 1927 are now being compiled and it is understood will be announced in the near future.

Westinghouse's Orders for Last Quarter 1926 Nearly \$50,000,000

Orders booked by the Westinghouse Electric & Manufacturing Company in the three months ending Dec. 31, with December orders estimated at \$16,390,000, were approximately \$49,825,000, it was announced recently. Of this total \$16,193,654 represented orders from the electric railway and allied fields. The total order figure as compared with \$39,770,000 in the corresponding quarter of the preceding year, shows an advance of more than 26 per cent.

Rolling Stock

Georgia Railway & Power Company, Atlanta, Ga., has assigned safety cars to its River and Soldiers' Home-English Avenue lines, which brings the number of Atlanta lines on which the new cars are in operation to eleven. This means that all of the 100 safety cars bought during the past two years are now in service.

Northern Ohio Power & Light Company, Akron, Ohio, is reconstructing 46 cars of the type known as "600." They will be made into a type similar to the Peter Witt car. At the same time the Peter Witt cars on the property are being equipped with all known safety devices.

Boston Elevated Railway has purchased a Mack gas-electric bus of the standard 29-passenger city type. The bus will make 24 daily trips on the route between Howard Square and Union Square. This is the 88th Mack bus purchased by the company, but the first of the gas-electric type.

Lincoln Traction Company, Lincoln, Neb., has purchased six 25-passenger Mack city type buses for operation on various routes in the city. The new equipment will be placed on routes

Metal, Coal and Material Prices

Metals—New York		Jan. 25, 1927
Copper, electrolytic, cents per lb.	13	00
Copper wire, cents per lb.	15	25
Lead, cents per lb.	7	40
Zinc, cents per lb.	6	72
Tin, Straits, cents per lb.	64	875
Bituminous coal, f.o.b. Mines		
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons.	\$5	325
Somerset mine run, Boston, net tons.	2	575
Pittsburgh mine run, Pittsburgh, net tons.	1	95
Franklin, Ill., screenings, Chicago, net tons.	1	875
Central, Ill., screenings, Chicago, net tons.	1	425
Kansas screenings, Kansas City, net tons.	2	35
Materials		
Rubber-covered wire, N. Y., No. 14, per 1,000 ft.	\$5	50
Weatherproof wire base, N. Y., cents per lb.	17	00
Cement, Chicago net prices, without bags.	2	10
Linseed oil (5-bbl. lots), N. Y., cents per lb.	11	00
White lead in oil (100-lb. keg), N. Y., cents per lb.	14	50
Turpentine (bbl. lots), N. Y., per gal.	\$0	81

known locally as Lancaster Agriculture College and University Place.

Fageol Company, Kent, Ohio, reports the delivery of four auto buses to the Scranton Railway and six buses to the Department of Street Railways, City of Detroit, between Dec. 1 and 15.

Fageol Motors Company of California delivered fourteen buses to the Key System Transit Company and three buses to the Los Angeles Railway during December, 1926. All were of the six-cylinder street car type.

Tri-City Railway Company of Iowa has purchased a 29-passenger bus from the Mack Corporation for operation on the Fejvary Park and LeClaire Street route.

Track and Line

Philadelphia Rapid Transit Company, Philadelphia, Pa., is requested by Councilmen Daly, Crossan and McKinley to extend its Front Street railway from Tioga Street to Rising Sun Avenue. This will provide better facilities for Fox Chase residents who wish a more direct route to the Frankford Elevated station at Front and York Streets.

Philadelphia Rapid Transit Company, Philadelphia, Pa., will extend the Erie Avenue line to the Frankford elevated system. The work is to be completed and ready for operation in October. This two-track extension on Erie Avenue was approved in 1923.

Shops and Buildings

Georgia Railway & Power Company, Atlanta, Ga., is now constructing a three-unit brick and steel garage, at an estimated cost of \$110,000. The new structure, known as the Gilmer Street garage, will consist of a main building 115x250 ft., divided into two sections by a fire wall. Each section will contain approximately 14,000 sq.ft. and can accommodate 35 large coaches when parked parallel to the side of the building, or 45 medium-sized trucks parked at 45 deg. Gasoline and oil service stations, water and air lines and an inspection pit are to be included in the main structure. A 40-ft. square paint shop and a storeroom 24x85 ft. will complete the layout.

Chicago Rapid Transit Company has commenced work on a new \$250,000

terminal to be located at Wells and Quincy Streets. It will accommodate a certain portion of the West Side elevated trains and form the Chicago terminal of the Chicago, Aurora & Elgin Railroad. The old station on the same site will be torn down, but train service will be continued during the construction period.

Trade Notes

L. W. Grave, treasurer and general manager of the Cleveland Pneumatic Tool Company, Cleveland, Ohio, announces the merger of his company with the Westinghouse Air Spring Company of New Haven, Conn. The Westinghouse Company was patentee of the first shock absorbing equipment of the air controlled type, and the pneumatic tool concern manufactures and sells the Gruss air spring.

William J. McIntyre has been appointed sales representative for the Chassis Lubricating Company, in the Detroit-Toledo district, with offices at 4-159 General Motors Building.

B. H. Lytle has been appointed manager central sales division of Hyatt Roller Bearing Company, with headquarters at 806 Fulton Building, Pittsburgh, Pa. After being graduated from Carnegie Tech, Mr. Lytle entered the service of the Westinghouse Electric & Manufacturing Company, where he remained until his recent connection with the Hyatt Company. His new position places him in charge of the sales of Hyatt roller bearings for all applications in the central division, except automotive.

Edwin Desuden has joined the sales organization of the National Railway Appliance Company in the capacity of special representative, with headquarters at 452 Lexington Avenue, New York City. Mr. Desuden was for many years sales manager of the Jewett Car Company and later served as manager of the railway department, Chicago Varnish Company.

Root Spring Scraper Company, Kalamazoo, Mich., furnished the scraper equipment for the new Williamsport one-man cars, which were described in the JOURNAL of Jan. 8.

Public Service Transportation Company recently ordered 450 type J Johnson electrically operated automatic fare boxes for buses, which means that the company will soon have 807 buses fully equipped with this apparatus. The type J Johnson fare box registers every fare electrically, instantaneously and audibly, by means of the coin itself which the passenger places in the box. The last order brings the total installation of these boxes in buses and street cars to 2,207.

New Advertising Literature

Alexander Milburn Company is now describing its welding and coupling apparatus in a handy pocket brochure. Among other things the new publication contains price lists on Milburn outfits, regulators, gages, manifolds, etc.

*In any type
of service—*



“Peacock” Staffless Brakes!

Reg. U. S. Pat. Off.

Regardless of type of equipment—light-weight interurbans,—one man cars—one-man-two-man cars—city cars—interurban cars—articulated cars—de luxe cars—parlor, chair, dining cars, etc.—Peacock Staffless Brakes are found to be an essential part of the equipment.

They have many advantages which adapt them to modern cars—little platform space occupation—three times the braking capacity of ordinary hand brakes—almost unlimited chain winding capacity—twelve feet, if necessary—low installation and maintenance cost,—simplicity of operation, etc.

Get facts and figures of what they have done for others and what they will do for your cars.



The
Peacock
Staffless

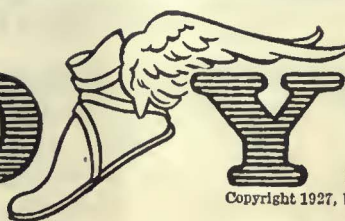
National Brake Company, Inc.
890 Ellicott Square Buffalo, N. Y.

Canadian Representative:
Lyman Tube & Supply Co., Ltd., Montreal, Can.



One of the Goodyear-equipped fleet of buses operated by the Yosemite Park and Curry Co.

GOODYEAR



GOODYEAR

Copyright 1927, by The Goodyear Tire & Rubber Co., Inc.

The new all-weather road to Yosemite

That queen of the national parks—Yosemite—no longer is hidden away a part of the year, but in all seasons now stands forth in the full glory of mountain crown and Bridal Veil falls, giant sequoias, jeweled lakes and bright shawls of wildflowers.

The completion of the all-weather route makes this superb public playground accessible the year around.

And the official public motor travel over this all-weather route—the swift, luxurious touring buses of the Yosemite Park and Curry Co.—is insured dependable, secure and economical tire service at all times by Goodyear Pneumatic Bus Tires.

* * *

During summer months these buses equipped with Goodyear All-Weather Treads penetrate daily the high Sierras beyond Yosemite Valley. Grades reach as high a pitch as 24%, and the cars top an elevation of 10,000 feet.

Dirt road, and some of it hard to negotiate, this is a route that calls for real tires—tires with tractive power, hold-fast and hang-on grip, stout carcasses.

It's the kind of duty that best is served by the Goodyear All-Weather Tread Tire.

President D. B. Tresidder, of the Yosemite Park and Curry Co., reports that already their Goodyear Tires have established their mastery of the Yosemite roads. With all of them delivering a high average mileage much in excess of any previous tire performance, some of them have run as much as 24,000 miles in this exacting duty.

“Our Goodyear Tires,” says Mr. Tresidder, “are delivering us the kind of tire service that fits in with our every equipment provision for making this park a genuine all-year public playground. Come out this Winter, and see how easily, safely and pleasantly you can go in a few hours from California's main traveled highways into the heart of the greatest winter-sports land and scenery in all the world.”

* * *

Goodyear Pneumatic Bus Tires are made with SUPERTWIST, the extra-elastic, extra-enduring fabric developed by Goodyear for Goodyear Tires. They are made with the famous All-Weather Tread, famous for traction, for skidless travel, and for wear. They are durable. They cushion. And they cost less per tire-mile.

Only Goodyear Tires are made with SUPERTWIST—yet they cost you no more.

*More people ride on Goodyear Tires
than on any other kind*

BUS TIRES

Made with SUPERTWIST



The largest Bus operating company in the United States purchases 450 additional Johnson Fare Boxes

The Public Service Transportation Co.—the bus subsidiary of the Public Service Co. of Newark, New Jersey—operates more buses than any other company in the United States, and now will have 807 buses equipped with Johnson Electric Fare Boxes.

In addition, this company has operated 1400 Johnson Electric Fare Boxes on their trolley cars for 2 years with such success that they also placed them on 807 buses.

Type J Electric Fare Boxes for buses are designed and built to accurately register instantly, audibly, and visibly all the fares collected. Type J Equipment connects right to the twelve-volt battery already on the bus. The drain on the battery is insignificant; in fact, fares can be registered accurately even after the battery has reached the stage where the headlights will no longer function. The use of elbow clamps permits this equipment to be installed in an hour's time.

This Type J Equipment is expressly made for a five and ten-cent fare, or ten-cent fare and one size metal token. A Bell for every passenger means accuracy. The Fare Box at no time is under the direct control of the operator, and the last fare paid is always visible for inspection. We are now ready to make immediate deliveries and installations. This Equipment on your buses will pay for itself every ninety days, and with ordinary maintenance will last ten years. This Box carries the Johnson Standard Guarantee and Guarantee with us means that our devices make good, or we will.



Electro-magnet type of fare box—NOT motor driven; no drain on battery.

JOHNSON FARE BOX CO.

CHICAGO, ILL.
4619 Ravenswood Ave.

NEW YORK, N. Y.
2 W. 61st St.

SOUTHERN INDIANA Gas & Electric, Evansville, Indiana Installs New, Modern Interurbans



NEW LIGHTWEIGHT INTERURBAN CARS NOW BEING DELIVERED TO EVANSVILLE, IND.

THE APPEARANCE of these lightweight single end interurban cars is greatly enhanced by the attractive stream line painting; the body color is dark blue with a red belt rail continuing around the entire car. The posts are cream colored, and all striping, lettering and numbering is in gold. The interior finish is mahogany, and the comfortable upholstered St. Louis Car Co. seats are covered with a pleasing shade of Spanish leather. The car is arranged with a smoking compartment and toilets. The luggage compartment is in the rear vestibule.

The cars are mounted on St. Louis Car Co. E.I.B. 64 Trucks equipped with quadruple 35 hp. motors and safety devices. Back up device assures safe movement when necessary to reverse car, as operator must go to the rear of car to accomplish this.

St. Louis Car Company
St. Louis, Mo.

"The Birthplace of the Safety Car"



Illustration shows International Poles in service of the Louisiana Electric Co. (Stone & Webster)

Long Life Makes Low Cost

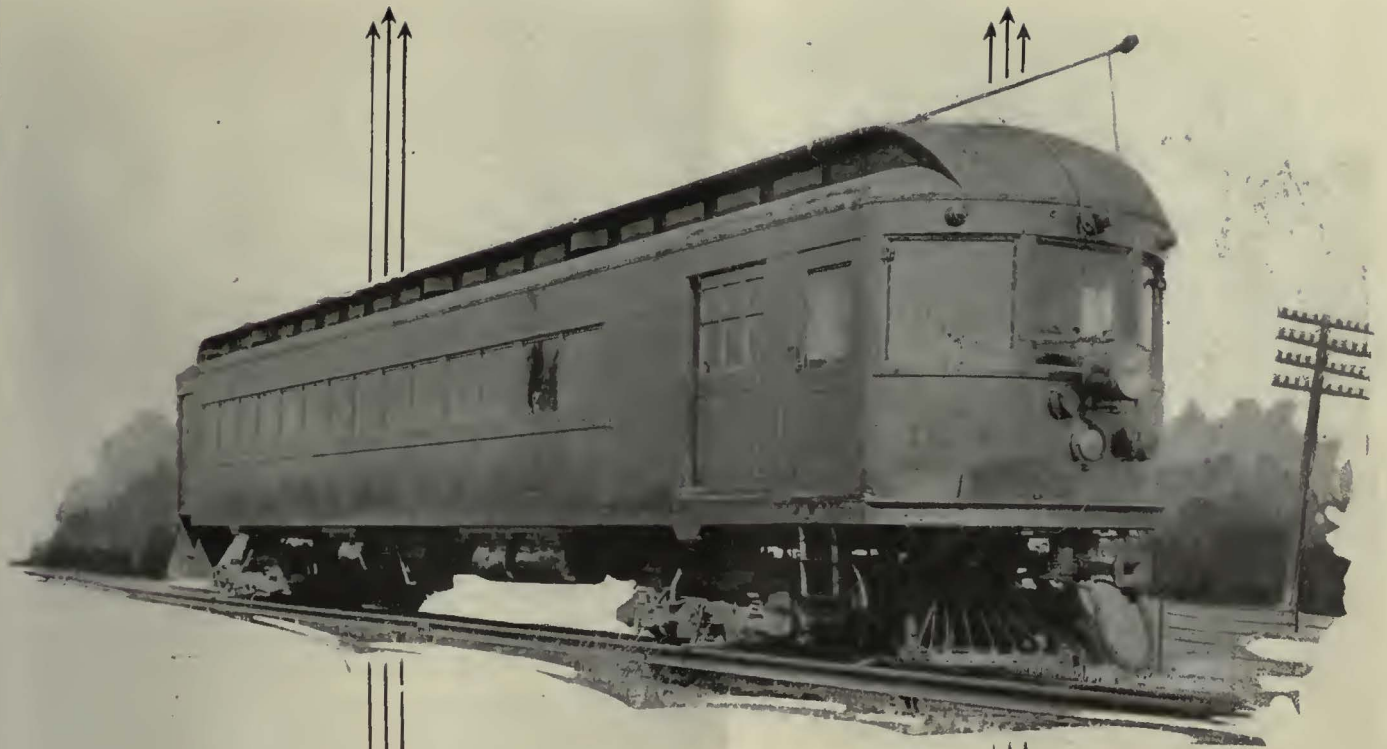
THE FIRST COST of Creosoted Pine Poles, all sizes and lengths, compares favorably with other poles. But, on the basis of annual cost, the real economy becomes strikingly apparent. Creosoted Pine Poles are strongest and have longest life. When the initial investment is distributed over their 35 to 40 years of service, the very low annual cost proves that the pole that lasts longest is least expensive.

Other marked economies are due to the fact that the Creosoted Pine Pole is so far superior in strength and durability that standard construction prescribes that smaller poles or fewer poles per mile be used in Creosoted Pine construction than when other woods are used.

International Creosoting & Construction Co.
Galveston—Texarkana—Beaumont



International Creosoted Yellow Pine Poles



AN interurban car
 on the Scioto Val-
 ley Railway & Power
 Company System,
 equipped with
 "STANDARD"
 Rolled Steel Wheels.



Rolled Steel Wheels
 Quenched and Tempered
 Carbon Steel Axles
 Coil and Elliptic Springs
 Armature Shafts

STANDARD STEEL

WORKS COMPANY

PHILADELPHIA, PA.

BRANCH OFFICES:

CHICAGO
 ST. LOUIS
 NEW YORK

HOUSTON, TEXAS
 PORTLAND, ORE.
 RICHMOND, VA.

SAN FRANCISCO
 ST. PAUL, MINN.
 PITTSBURGH, PA.

WORKS: BURNHAM, PA.



INDIA Balloons
(Patented Construction)
Comfort and long wear—
ideally combined



INDIA Heavy Service
"The most favorably talked
about heavy service tire
in America today."



INDIA True-Blue
(HEAT PROOF) Inner Tube
The first to successfully overcome pre-
mature aging caused by high heat
of present low-pressure, high-
speed running conditions.



TIRES ARE JUST TIRES— UNTIL YOU TRY AN INDIA

Tires are tires! Yet one holds under grinding wear and punishing heat. Another blows out. Why the difference?

Because the tire that stands the grind—in addition to rubber and fabric and skilled workmanship—has built into it an ideal. No other ingredient counts so much in mileage.

The India business was founded on an ideal—"to Make the Best Tire it is Possible to Make." No effort has been spared to do this. Consequently, the India line has exclusive features—easily demonstrated advantages—which put India tires years ahead of the tires with which most bus and truck owners are familiar.

The Gum-Weld Cushion reduces friction (heat), overcomes "tread separation" and cushions road shocks more softly over the entire carcass of the tire.

The patented construction of India Balloons and Bus Balloons combines complete flexibility of sidewalls with long wear and freedom from punctures.

The India True-Blue (HEAT-PROOF) inner tube is the first to successfully overcome "burning-up" of tubes from the high heat of present low pressure, high speed running conditions.

So no matter how many tires you use—or in what kind of service—India tires and tubes will save you money.

INDIA TIRES

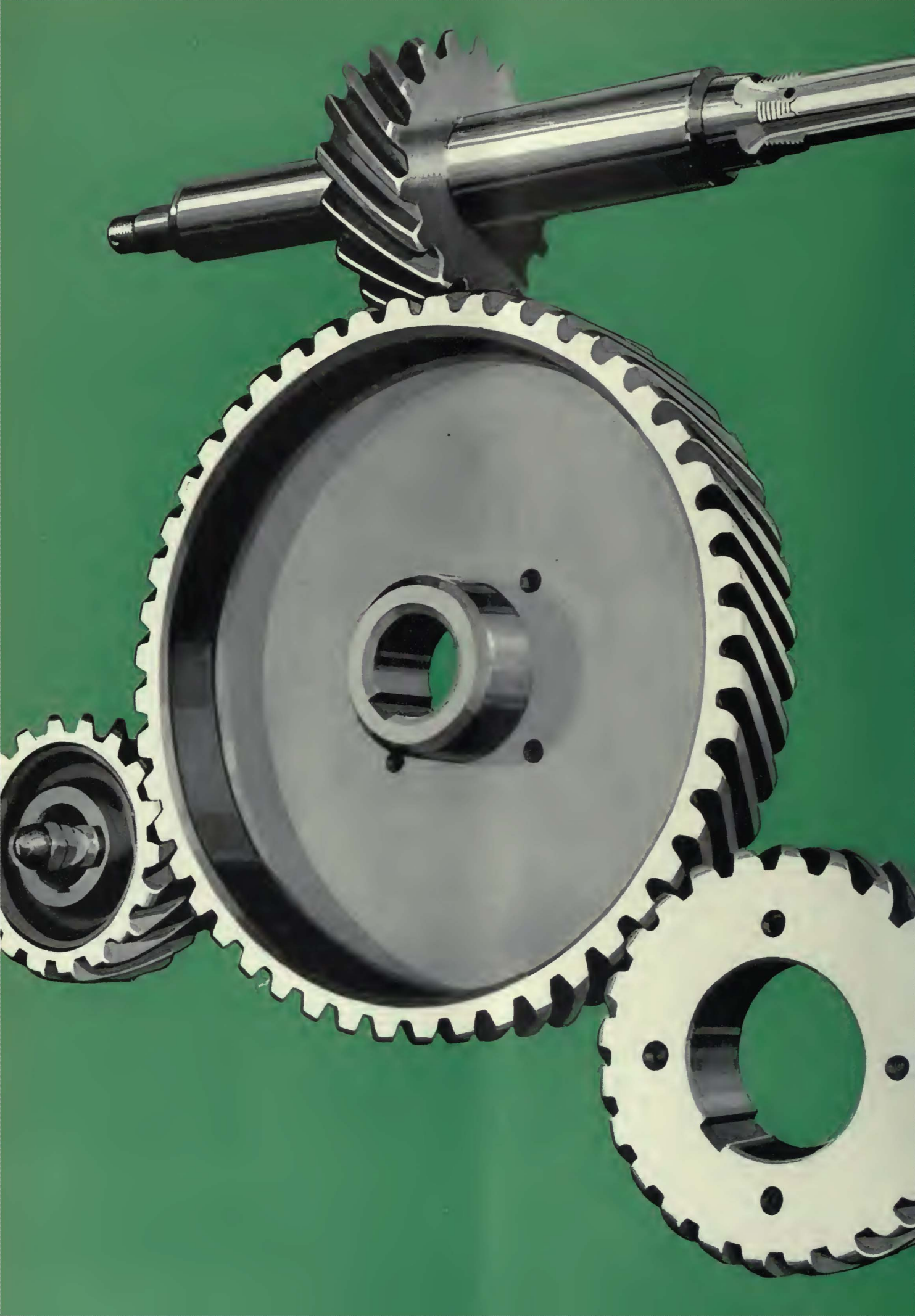


INDIA TIRE & RUBBER CO. AKRON, O.

Everlastingly Quiet

**Timing gears must be
silent, accurate, durable.**

**To get two of these qual-
ities at the sacrifice of
one is not difficult. The
real problem is to com-
bine all three.**



Quietness in timing gears is one thing. Durability and accuracy are another matter. Ordinary timing gears are made quiet at the expense of long life and correct timing. The combination of durability, accuracy and silence has baffled motor manufacturers for a generation.

Cast iron gears, non-metallic gears and silent chains are all quiet, but none of them are durable. When wear takes place, inaccurate timing results and that means irregular running and loss of engine power. Replacements are troublesome and expensive.

Ordinary steel gears are relatively long lived and accurate; but incurably noisy.

The perfect timing drive is none of these! It is made of steel end-grained upset drop-forgings. The teeth are cut helical and case-hardened. That means everlasting durability and unvarying accuracy. Finally, the teeth are generator ground and as a result roll silently.

These features are combined in Mack timing gears alone. There can be no imitators because Mack not only designed, patented and built the machine which will generator grind helical teeth, but uses them exclusively.



The Lincoln Traction of Lincoln, Nebraska, Use Mack Buses to Supplement their Street Car Service

Repeat Orders Prove Satisfaction

Especially is this true when an operator has had experience enabling him to compare. Most Mack owners have—and continue to choose Macks.

In one operation, over a given time, Macks operated 310,000 miles per bus, whereas the next best record of any other make of bus in the fleet showed a mileage of only 235,000. No Mack engine was out more than once—on the other makes, at least four times and in some cases seven. Hours in the repair shop are not profitable hours—Mack hours are road hours.

Many wasted shop hours are spent on timing gear adjustments and replacements—but not on Macks.

Mack operators realize it is better to pay the price than the penalty—better to buy Macks—and get security.

Mack Trucks, Inc.
International Motor Company
25 Broadway, New York City



The
Same Sauce
for
GOOSE
and
GANDER

Nine-cylinder, 15,000-hp. Diesel engine in a generating station at Hamburg, Germany. A De Laval Oil Purifier protects this engine with clean lubricating oil.

You remember the age old proverb. It applies directly to the solution of the basic problem of lubricating the modern bus engine and the world's largest Diesel engine. "Keep a *clean* film of oil between the shaft and the journal." Let that oil film be destroyed—let it be diluted with gasoline or water—let it be a carrier of sludge and metallic particles—and bearing death follows. Just like ground glass in your food.

Bus operators who know costs, treat their engines

with the respect they deserve. To them the hood is the door to an *engine room*.

The De Laval Crankcase Oil Reclaiming Outfit removes impurities from used crankcase oil, making it equal and in some respects better than new oil. It restores its viscosity—its power to lubricate—its ability to resist heat—enables you to change oil more frequently, and saves thousands of gallons of oil at small cost.

Get the latest De Laval publication on crankcase oil, being sure to ask for Bulletin No. 108-R.

The DeLaval Separator Company

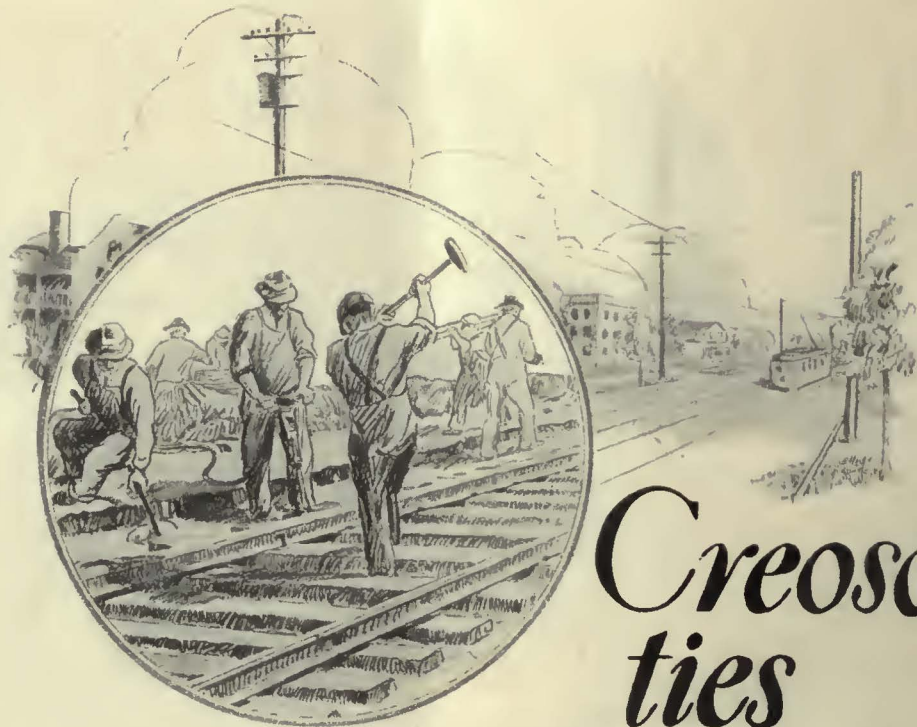
165 Broadway, New York

DE LAVAL PACIFIC COMPANY
San Francisco

600 Jackson Blvd., Chicago

DE LAVAL

*Crankcase Oil Reclaiming Outfit
Gas Turbine Oil Reclaiming Equipment—Transformer Oil Purifiers*



Creosoted ties

postpone expensive track repairs

THERE is a more urgent need for creosoted ties in closed than in open track. It costs more to tear up pavement and renew decayed ties than it does to relay them in ordinary open ballasted track. The more expensive the pavement, the greater the average annual saving when the period between tie renewals is increased through the use of treated ties. One road reports that creosoted ties in open track effect an average annual saving of \$290.40 per mile. The same road finds a saving of \$528 per mile per year in closed track with pavement costing \$1.00 per square yard and \$1,188 per mile per year under pavement costing \$3.50 per square yard.

The old fallacy that most any tie under pavement would last as long as the rail has been thoroughly disposed of by experience. There is plenty of moisture in a closed track to promote the decay of a wooden tie. The way to forestall such decay is to use Amcreco creosoted ties made of the best selected timber and treated to the highest standards known in the industry. These ties have stood the test of time on many of the country's largest railroads. This company operates 17 plants today to supply the demand for Amcreco products.

Information and quotations on ties, timber, piling and poles are available from our nearest sales office.

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AMERICAN CREOSOTING COMPANY

INCORPORATED

COLONIAL
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AMCRECO
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ER11-29(Gray)

ARCON RAIL BONDS

TRADE MARK REG.



Arcon A Bond and Application

To apply the Arcon "F" bond, hammer it onto the rail base and proceed to weld. The pointed hook holds the bond securely in place and will fit between tie and rail. An unusual amount of space is left to insure ease of welding.

Arcon bonds make positive the welding of bonds with copper electrodes.

All unnecessary retaining walls have been omitted from these bonds. There are no box shaped metal pockets to interfere with directing the arc.

The open shape of the Arcon "A" terminal is especially desirable since the arc can be directed freely at the junction of the terminal and the rail.

Prices and descriptive literature sent on request.



Arcon "F" Bond

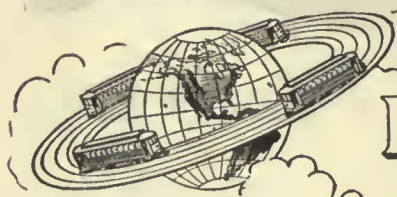
AMERICAN STEEL & WIRE COMPANY

Sales Offices

Chicago New York Boston Cleveland Worcester Philadelphia Pittsburgh Buffalo Detroit Cincinnati Baltimore
Wilkes-Barre St. Louis Kansas City St. Paul Oklahoma City Birmingham Memphis Duluth Atlanta Denver Salt Lake City
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Creating and protecting our mutual interest is a costly item.



Barron G. Collier

INCORPORATED
CANDLER BLDG. NEW YORK



Interior, Round House, Stockton, Calif.



Interior, Machine Shop, Stockton, Calif.



Oil House, all precast concrete units, except platform, Sacramento, Calif.



Interior of Oil House, Sacramento, Calif.



Lowering roof slab unit, Round House, Stockton, Calif.



Placing wall slab, with window frame and sash, machine shop, Stockton, Calif.

All of the structures illustrated are composed of precast concrete units. Built for the Western Pacific R. R., by W. A. Bechtel, Contractor and Designer, San Francisco, Calif.

Precast Concrete Units

for railway structures which are duplicated at various locations, offer important economies. Factory principles of production and control of quality are applied to the manufacture of the concrete units. Thus the owner secures the reliability and durability of a fire safe concrete structure with complete flexibility of arrangement and size.

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Concrete for Permanence

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Engineers
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CINCINNATI, Traction Building
ATLANTA, Candler Building
PHOENIX, ARIZ., Heard Building
DALLAS, TEX., 2001 Magnolia Building
HONOLULU, H. T., Castle & Cooke Building
PORTLAND, ORE., 805 Gasco Building

WORKS
Bayonne, N. J.
Barberton, Ohio

BRANCH OFFICES

DETROIT, Ford Building
NEW ORLEANS, 344 Camp Street
HOUSTON, TEXAS, 1011-13 Electric Building
DENVER, 44 Seventeenth Street
SALT LAKE CITY, 405-6 Kearns Building
SAN FRANCISCO, Sheldon Building
LOS ANGELES, 404-6 Central Building
SEATTLE, L. C. Smith Building
HAVANA, CUBA, Calle de Aguilar 104
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Made in single and double types to meet requirements of service. For hand or foot, mechanical or electric operation. Counters, car fittings, conductors' punches.

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Black and Yellow
Varnished Silk, Varnished Cambric, Varnished Paper
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THE P. EDWARD WISH SERVICE

50 Church St. NEW YORK Street Railway Inspection DETECTIVES 191 State St. BOSTON

When writing the advertiser for information or prices, a mention of the Electric Railway Journal would be appreciated.

Commercial Co-ordination of Transportation

A. B. Cole

Commercial Consultant

500 Shelbourne Ave., Wilkesburg, Pa. (Pittsburgh)

Transmission Line and Special Crossing Structures, Catenary Bridges

WRITE FOR OUR NEW DESCRIPTIVE CATALOG

ARCHBOLD-BRADY CO.

Engineers and Contractors SYRACUSE, N. Y.

Our advertisement in the issue of January 15 showed how
HASKELITE and PLYMETL
are being regularly used to improve old equipment.

Another ad will appear February 5.

HASKELITE MANUFACTURING CORPORATION
133 W. Washington St., Chicago, Ill.



INDUSTRIAL GASES

OXYGEN ACETYLENE **I.O.C. SYSTEM** HYDROGEN NITROGEN

Quick shipment and low prices also on cylinders, valves, torches, regulators and supplies.

International Oxygen Co., Main Offices: Newark, N. J.
Branches: New York Pittsburgh Toledo



CHILLINGWORTH

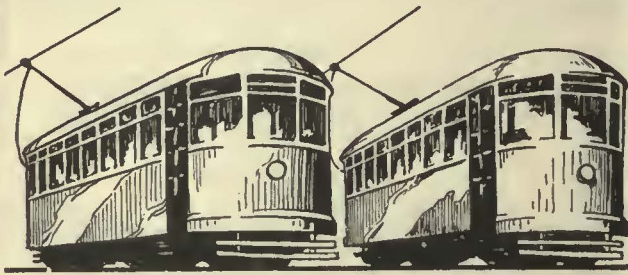
One-Piece Gear Cases

Seamless—Rivetless—Light Weight
Best for Service—Durability and
Economy. Write Us.

Chillingworth Mfg. Co.
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M-J Armature Babbitt



No less than twenty-five different grades of Babbitt have been successfully perfected in the More-Jones line, designed for various services and at varying prices. "Armature" for electric railways is the recognized standard. *Let us quote you.*

More-Jones Brass & Metal Co.
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National Railway Appliance Co.

Grand Central Terminal, 452 Lexington Ave., Cor. 45th St., New York
BRANCH OFFICES

Munsey Bldg., Washington, D. C. 100 Boylston St., Boston, Mass.
Hegeman-Castle Corporation, Railway Exchange Building, Chicago, Ill.

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Dunham Hopper Door Device	"Topeseald" Lamps
Garland Ventilators	Bus Lighting Equipment
Walter Tractor Snow Plows	
Feasible Drop Brake Staffs	



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.

Sales Offices:

Atlanta Chicago Cleveland New York
Philadelphia Pittsburgh Dallas

Pacific Coast Representative:

United States Steel Products Company
Los Angeles Portland San Francisco Seattle

Export Representative:

United States Steel Products Company, New York, N. Y.

Bethlehem Products for Electric Railways

Tee and Girder Rails; Machine Fitted Joints; Splice Bars; Hard Center Frogs; Hard Center Mates; Rolled Alloy Steel Crossings; Abbott and Center Rib Base Plates; Rolled Steel Wheels and Forged Axles; Tie Rods; Bolts; Tie Plates and Pole Line Material.

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BETHLEHEM

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BOXES for BUSES

Let us tell you of this especially designed box for this class of service.



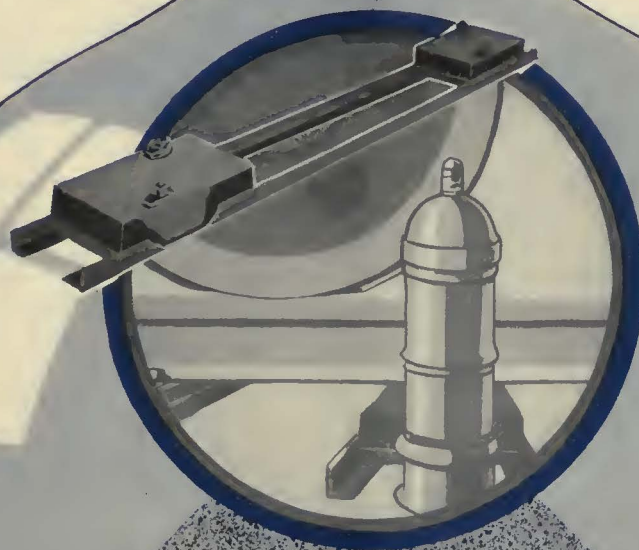
The Cleveland Fare Box Co.
4900 Lexington Ave., Cleveland, O.

Canadian Cleveland Fare Box Co., Ltd.
Preston, Ontario

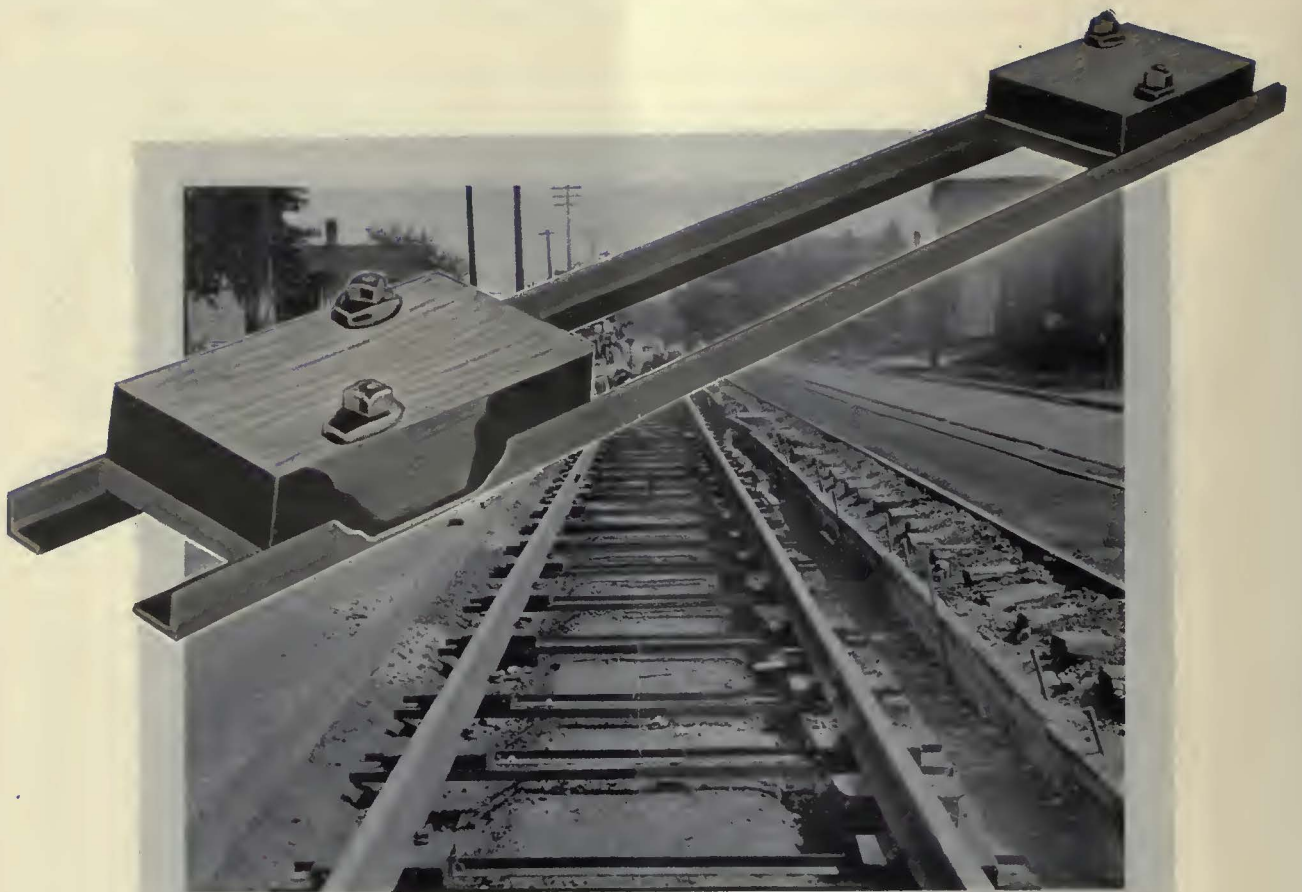
COIN COUNTING And Sorting Machines CHANGES CARRIERS Tokens

**We don't know how
long Dayton "Shock
Absorber" Track
will last—**

**We've
only been
in business
fifteen years**



**The Dayton Mechanical Tie Co.,
Dayton, Ohio.**



In the fifteen years we have been making and selling Dayton Resilient Ties, no track laid on them has worn out.

"Shock Absorber" track on the first ties we made is still in such excellent condition, after fifteen years of heavy traffic, that experts predict it will last ten years more. A "sleeper" that will last twenty-five years beats Rip Van Winkle.

Whether the experts are too enthusiastic or not, we do not know. But we do know that tracks laid on Dayton resilient ties—"Shock Absorber" tracks—will last and stay smooth plenty long enough to reduce track costs amazingly. Permanent smoothness also holds down rolling stock costs, and attracts more patronage.

More than 100 cities have Dayton "Shock Absorber" tracks. More than 80% of Dayton Customers repeat. Surely this indicates that Dayton Ties have something that is worth your thorough investigation—write today for literature and prices.

**The Dayton Mechanical Tie Co.,
Dayton, Ohio.**



Cold Dinners

for your passengers?

Not if you use

AJAX

BABBITT for ARMATURES

keeps the rolling stock rolling



The Ajax Metal Company

Established 1880

PHILADELPHIA

NEW YORK CHICAGO BOSTON CLEVELAND



AXLES

MORE than sixty years of experience in the manufacture of axles, coupled with every facility for correct heat treatment and accurate testing, insure the meeting of the specification in the finished product.

Prompt deliveries of Car and Tender Axles, Engine Truck and Driving Axles, Electric Motor and Street Car Axles, Miscellaneous Forgings.

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Where performance counts

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Le Carbone Carbon Brushes

They talk for themselves

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Seat and Curtain Materials

There is no substitute for Pantasote

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Roofing—Headlining—Wainscoting

The only homogeneous panel board

*standard
for electric railway cars
and motor buses*

The PANTASOTE COMPANY Inc.

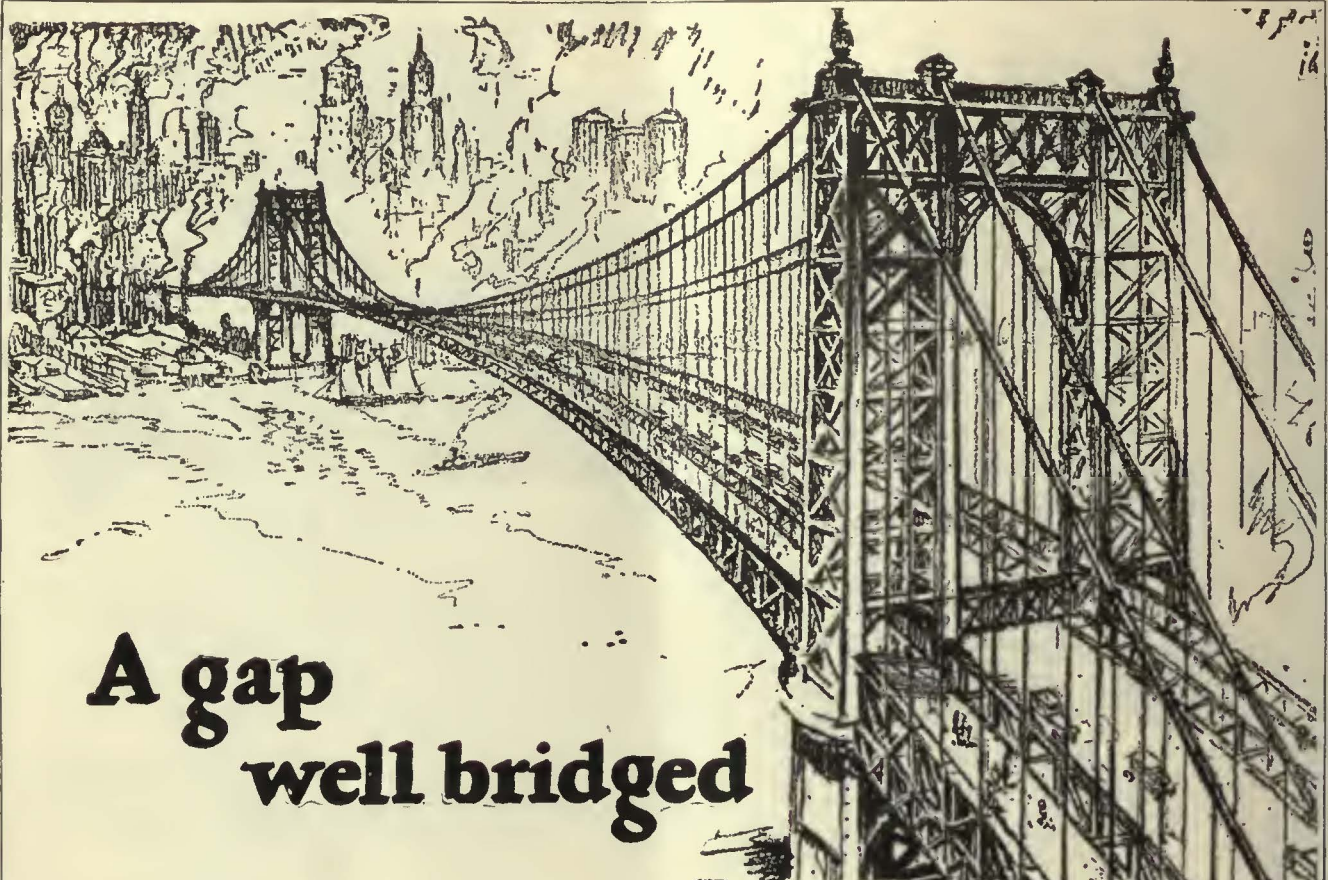
At 46th 250 Park Avenue Street

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Pantasote Products
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ELECTRIC RAILWAYS
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A gap well bridged

Suspended high over rivers and canyons, highways of steel and stone successfully overcome great natural obstacles—gaps that hinder progress from one center to another. They are built when the demand for rapid, positive communication becomes imperative.

This paper is a bridge on the highway of business, created by insistant demand for news and ideas. It establishes a direct route—a positive means for the intercommunication of ideas between the scattered branches of your industry.

Being direct, it assures rapid distribution of ideas, a means for keeping abreast of developments. Being a member of the A. B. P., it guarantees you the best, most reliable information both editorially and in the advertisements which it carries.

Take the shortest and best route to up-to-the-minute news. This A. B. P. paper leaves no gap in supplying information which is helpful to you in the conduct of your business.

THE ASSOCIATED BUSINESS PAPERS, Inc.
Executive Offices: 220 West 42nd St., New York, N. Y.

A. B. P.

An association of none but qualified publications reaching the principal fields of trade and industry.

The Electric Railway Journal is a member of The A. B. P.

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- [9] Electric Railway Journal
- [10] Engineering and Mining Journal
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WELDING foreman for thermit and electric welding, grinding, and cutting on city and interurban track work. To handle gang of six or eight men. Straight time position. Start at \$125 per month. Headquarters in large Middle Western city. Give age, education, previous experience and how soon you can report for work. P-963, Electric Railway Journal, 7 So. Dearborn St., Chicago, Ill.

POSITIONS WANTED

OPERATING man; capable of taking charge of transportation department of electric railway. Practical experience in each of its branches. Highest references. PW-944, Electric Railway Journal, 7 So. Dearborn St., Chicago, Ill.

SUPERINTENDENT of rolling stock, 24 years' experience, open for position. PW-960, Electric Railway Journal, Tenth Ave. at 36th St., New York.

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LET ME put on your preferred stock customer ownership sale. Can successfully conduct campaign of any size and handle both sales and accounting details. Wide experience. Highest of references. SA-964, Electric Railway Journal, 7 So. Dearborn Street, Chicago, Ill.

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Rail and Ties

100 tons new Trolley Girder Rail, Lorain Sec. 103 with Splice Bars.
1000 new oak Trolley Ties, 8 ft. long.
LOW PRICE

TACONY HOUSING ASSOCIATION
Tacony, Philadelphia

FOR SALE

15 BIRNEY SAFETY CARS

Brill Built
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Cars Complete—Low Price—Fine Condition
ELECTRIC EQUIPMENT CO.
Commonwealth Bldg., Philadelphia, Pa.

AIR COMPRESSORS

12 General Electric CP-27.
6 General Electric CP-28.
16 Westinghouse DH-16.
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1750 Broadway, New York City
Specialists in street cars or any part of a street car.
Illustrated bulletin supplied on request.

12 miles 70-lb. ASCE Relayers.
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practically as good as new. Also 12 miles 4/0 figure 8 Copper Wire practically new.

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All in first class operating condition

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- 1—Westinghouse Automatic Compound Engine, 350 hp., direct connected to Westinghouse 150 kw. D.C. Generator, 550 volt.
- 5—Feeder and Distribution Panels, Blue Vermont Marble, with Ammeters, Voltmeters, Circuit Breakers, Switches, etc. for above apparatus.
- 1—Rotary Converter, made by General Electric Company, 300 kw., 600 volts, 500 ampe. D. C., A.C. side 60 cycle, 6 phase.
- 1—Commutator for Rotary Converter (New).
- 3—110 kw. Transformers 13,200/11,860 Primary, Secondary 430/286/143, together with Panels, Starting Switch and Reactance, Circuit Breaker, Ammeter, Voltmeter, Rheostat, etc.

Peekskill Lighting & Railroad Co.
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in good condition, suitable for city and interurban work.

W-965, Electric Railway Journal
Tenth Ave. at 36th St., New York City

WANTED

Rotary Snow Plow

for electric railway. Address

MR. S. C. CHASE
411 Coal Exchange Bldg., Wilkes-Barre, Pa.

TO HELP YOU

LOCATE BUSINESS OPPORTUNITIES

“Searchlight” Advertising

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

Advertising, Street Car Collier, Inc., Barron G.

Air Brakes
Westinghouse Air Brake Co.

Anchors, Guy
Elec. Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Appraisals
American Appraisal Co.

Armature Shop Tools
Columbia Machine Works
Elec. Service Supplies Co.

Automatic Regulators, Voltage, Current & Synchronizing
American Brown-Boveri Corp.

Automatic Return Switch Stands
Ramapo Ajax Corp.

Automatic Safety Switch Stands
Ramapo Ajax Corp.

Axles
Bemis Car Truck Co.
Bethlehem Steel Co.
Brill Co., The J. G.
Cincinnati Car Co.
National Ry., Appliance Co.
St. Louis Car Co.
Standard Steel Works
Westinghouse E. & M. Co.

Axles, Steel
Carnegie Steel Co.

Babbitt Metal
Ajax Metal Co.
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Cincinnati Car Co.
General Electric Co.
More-Jones Brass & Metal Co.
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Westinghouse E. & M. Co.

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Cincinnati Car Co.
Columbia Machine Works
Stuckl Co., A.

Bells and Boxzers
Consolidated Car Heating Co.

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Cincinnati Car Co.
Elec. Service Supplies Co.
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Benders, Rail
Railway Trackwork Co.

Bodies, Bus
Brill Co., The J. G.

Body Material, Haskellite and Plymet
Haskellite Mfg. Corp.

Rollers
Babcock & Wilcox Co.

Bond Testers
American Steel & Wire Co.
Elec. Service Supplies Co.

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American Steel & Wire Co.
Elec. Service Supplies Co.
Ohio Brass Co.
Railway Trackwork Co.
Una Welding & Bonding Co.

Bonds, Rail
American Steel & Wire Co.
Elec. Service Supplies Co.
General Electric Co.
Ohio Brass Co.
Railway Trackwork Co.
Una Welding & Bonding Co.
Westinghouse E. & M. Co.

Braces, Timber
Duff Mfg. Co.

Braces, Trench
Duff Mfg. Co.

Brackets and Cross Arms (See also Poles, Ties, Posts, etc.)
Columbia Machine Works
Elec. Ry. Equipment Co.
Elec. Service Supplies Co.
Hubbard & Co.
Ohio Brass Co.

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

Brake Shoes
American Brake Shoes & Foundry Co.
Bemis Car Truck Co.
Brill Co., The J. G.
St. Louis Car Co.

Brakes, Brake Systems and Brake Parts
Bemis Car Truck Co.
Brill Co., The J. G.
Cincinnati Car Co.
General Electric Co.
National Brake Co.
Safety Car Devices Co.

St. Louis Car Co.
Westinghouse Tr. Br. Co.

Brakes, Magnetic Rail
Cincinnati Car Co.

Brushes, Carbon
General Electric Co.
Jeandron, W. J.
LeCarbons Co.
Westinghouse E. & M. Co.

Brushholders
Columbia Machine Works

Bulkheads
Haskellite Mfg. Corp.

Bus Wheels, Steel
Heywood-Wakefield Co.

Buses
Brill Co., The J. G.
International Motor Co.
Mack Truck Co., Inc.
St. Louis Car Co.

Bushings, Case Hardened and Manganese
Bemis Car Truck Co.
Brill Co., The J. G.
Cincinnati Car Co.
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St. Louis Car Co.

Cables (See Wires and Cables)
Cambrie Tapes, Yellow and Black Varnish
Irvington Varnish & Ins. Co.

Carbon Brushes (See Brushes, Carbon)

Car Lighting Fixtures
Elec. Service Supplies Co.

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Consolidated Car Heating Co.
Westinghouse E. & M. Co.

Car Steps, Safety
Cincinnati Car Co.

Car Wheels, Rolled Steel
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Cars, Dump
Brill Co., The J. G.
Differential Steel Car Co.
St. Louis Car Co.

Cars, Gas-Electric
Brill Co., The J. G.
General Electric Co.
Westinghouse E. & M. Co.

Cars, Gas, Rail
Brill Co., The J. G.
St. Louis Car Co.

Cars, Passenger, Freight, Express, etc.
American Car Co.
Brill Co., The J. G.
Cincinnati Car Co.
Kuhlman Car Co., G. C.
National Ry. Appliance Co.
St. Louis Car Co.
Wason Mfg. Co.

Cars, Second Hand
Electric Equipment Co.

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

Castings, Brass Composition or Copper
Ajax Metal Co.
Cincinnati Car Co.
More-Jones Brass & Metal Co.

Castings, Gray Iron and Steel
American Steel Foundries
Bemis Car Truck Co.
St. Louis Car Co.
Standard Steel Works

Castings, Malleable & Brass
Bemis Car Truck Co.
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Elec. Service Supplies Co.
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Wood Co., Chas. N.

Catenary Construction
Archbold-Brady Co.

Celling Car
Haskellite Mfg. Corp.
Pantasote Co., Inc.

Ceilings, Plywood, Panels
Haskellite Mfg. Corp.

Cement Products
Portland Cement Assn.

Change Carriers
Cleveland Fare Box Co.
Electric Service Supplies Co.

Change Trays
Cincinnati Car Co.

Circuit-Breakers
General Electric Co.
Westinghouse E. & M. Co.

Circuit Breakers, Oil
American Brown-Boveri Corp.

Clamps and Connectors for Wires and Cables
Columbia Machine Works
Elec. Ry. Equipment Co.
Elec. Service Supplies Co.
General Electric Co.
Hubbard & Co.
Westinghouse E. & M. Co.
Ohio Brass Co.

Cleaners and Scrapers Track (See also Snow-Plows, Sweepers and Brooms)
Brill Co., The J. G.
Cincinnati Car Co.
Ohio Brass Co.
St. Louis Car Co.

Clusters and Sockets
General Electric Co.

Coil Banding and Winding Machines
Elec. Service Supplies Co.
Westinghouse E. & M. Co.

Colls, Armature and Field
General Electric Co.
Westinghouse E. & M. Co.

Colls, Choke and Kicking
Elec. Service Supplies Co.
General Electric Co.
Westinghouse E. & M. Co.

Coin Counting Machines
Cleveland Fare Box Co.
International Register Co.
Johnson Fare Box Co.

Coin Sorting Machines
Cleveland Fare Box Co.

Coin Wrappers
Cleveland Fare Box Co.

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

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General Electric Co.

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Cameron Electrical Mfg. Co.
General Electric Co.
Westinghouse E. & M. Co.

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General Electric Co.
Westinghouse Tr. Br. Co.

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

Condensor Papers
Irvington Varnish & Ins. Co.

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Westinghouse E. & M. Co.

Connectors, Traller Car
Columbia Machine Works
Consolidated Car Heating Co.
Elec. Service Supplies Co.
Ohio Brass Co.

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

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Elec. Service Supplies Co.

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

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

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American Steel & Wire Co.
Anaconda Copper Mining Co.

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American Brass Co.
Anaconda Copper Mining Co.
Cord, Bell, Trolley, Register
American Steel & Wire Co.
Brill Co., The J. G.
Elec. Service Supplies Co.
International Register Co.
Roebbling's Sons Co., John A.
St. Louis Car Co.
Samson Cordage Works
Cord Connectors and Couplers
Elec. Service Supplies Co.
Samson Cordage Works
Wood Co., Chas. N.

Couplers, Car
American Steel Foundries
Brill Co., The J. G.
Cincinnati Car Co.
Ohio Brass Co.
St. Louis Car Co.
Westinghouse Tr. Br. Co.

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Electric Service Supplies Co.

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Crossing Foundations
International Steel Tie Co.

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, Trolley (See Track Special Work)
Ohio Brass Co.
Westinghouse E. & M. Co.

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Pantasote Co., Inc.
St. Louis Car Co.

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Electric Equipment Co.
Frank, M. K.
Peekskill Lighting & R. R. Co.
Van Loan Corp., Irving S.

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Derailing Switches
Ramapo Ajax Corp.

Destination Signs
Elec. Service Supplies Co.

Detective Service
Wish-Service, P. Edward

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Cincinnati Car Co.
Consolidated Car Heating Co.
National Pneumatic Co.
Safety Car Devices Co.

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Cincinnati Car Co.
General Electric Co.
Hale-Kilburn Co.
St. Louis Car Co.

Doors, Folding Vestibule
National Pneumatic Co.
Safety Car Devices Co.

Drills, Track
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Elec. Service Supplies Co.
Ohio Brass Co.

Dryers, Sand
Elec. Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

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

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Railway Trackwork Co.
Electric Locomotives
St. Louis Car Co.

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American Steel & Wire Co.
John A. Roebbling's Sons Co.

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Electrodes, Steel
Railway Trackwork Co.
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Bibbins, J. Rowland
Buchanan & Layng Corp.
Cole, A. B.
Day & Zimmermann, Inc.
Ford, Bacon & Davis
Hemphill & Wells
Holst, Engelhardt W.
Jackson, Walter
Keller & DeLew
Kelly-Cook Co.
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Sanderson & Porter
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Ohmer Fare Register Co.

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Cincinnati Car Co.
Consolidated Car Fender Co.
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Star Brass Works
Wood Co., Chas. N.

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Haskellite Mfg. Corp.

Floors
Haskellite Mfg. Corp.

Forgings
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Cincinnati Car Co.
Duff Mfg. Co.
Standard Steel Works

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Bethlehem Steel Co.
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co.

Frogs, Track (See Track Work)

Frogs, Trolley
Electric Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Furnaces, Electric
American Brown-Boveri Corp.

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General Electric Co.
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General Electric Co.

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Westinghouse Tr. Br. Co.

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Cincinnati Car Co.
St. Louis Car Co.

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Ohio Brass Co.

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Standard Steel Works

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Bemis Car Truck Co.
Elec. Service Supplies Co.
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General Electric Co.

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

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Lorain Steel Co.

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Greases (See Lubricants)

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Railway Trackwork Co.
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Elec. Service Supplies Co.
Ohio Brass Co.

Harps, Trolley
Columbia Machine Works
Elec. Service Supplies Co.
More-Jones Brass & Metal Co.

Star Brass Works

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General Electric Co.
Ohio Brass Co.
St. Louis Car Co.

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Haskellite Mfg. Corp.
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Consolidated Car Heating Co.
Gold Car Heat. & Lig. Co.
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(Continued on page 46)



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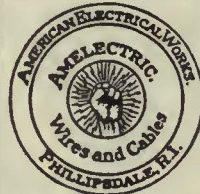
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Duff Mfg. Co.
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Duff Mfg. Co.
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(See Rail Joints)
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Wm. Wharton, Jr. & Co.
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Hale-Kilburn Co.
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Hubbard & Co.
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Brill Co., The J. G.
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Electric Signal Co.
Wood Co., Chas. N.
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Electric Signal Co.
Wood Co., Chas. N.
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Consolidated Car Fender Co.
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J. G. Brill Co.
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St. Louis Car Co.
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Brill Co., The J. G.
St. Louis Car Co.
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Brill Co., The J. G.
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Flows, Sweepers and
Brooms)
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Ramapo-Ajax Corp.
Switches
American Brown-Boveri
Corp.
- Switches and Switchboards
Consolidated Car Heating
Co.
Elec. Service Supplies Co.
General Electric Co.
Westinghouse E. & M. Co.
- Switches, Tee Rail
Ramapo-Ajax Corp.
- Switches, Track (See Track
Special Work)
- Tampers, Tie
Railway Trackwork Co.
- Tapes and Cloths (See Insu-
lating Cloth, Paper and
Tape)
- Tee Rail Special Track Work
Ramapo-Ajax Corp.
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Elec. Service Supplies Co.
- Telephone & Telegraph Wire
American Steel & Wire Co.
- Testing Instruments (See
Instruments, Electrical
Measuring, Testing, etc.)
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Co.
- Gold Car Heating & Light-
ing Co.
Railway Utility Co.
Smith Heater Co., Peter
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- Ohio Brass Co.
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Brill Co., The J. G.
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- Trolley Wheel Bushings
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- Trolley Wheels (See Wheels
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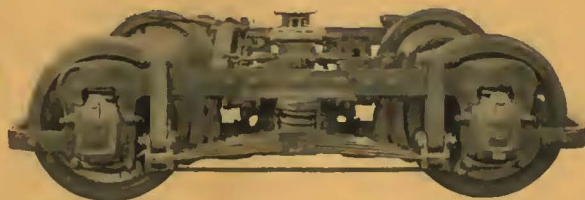
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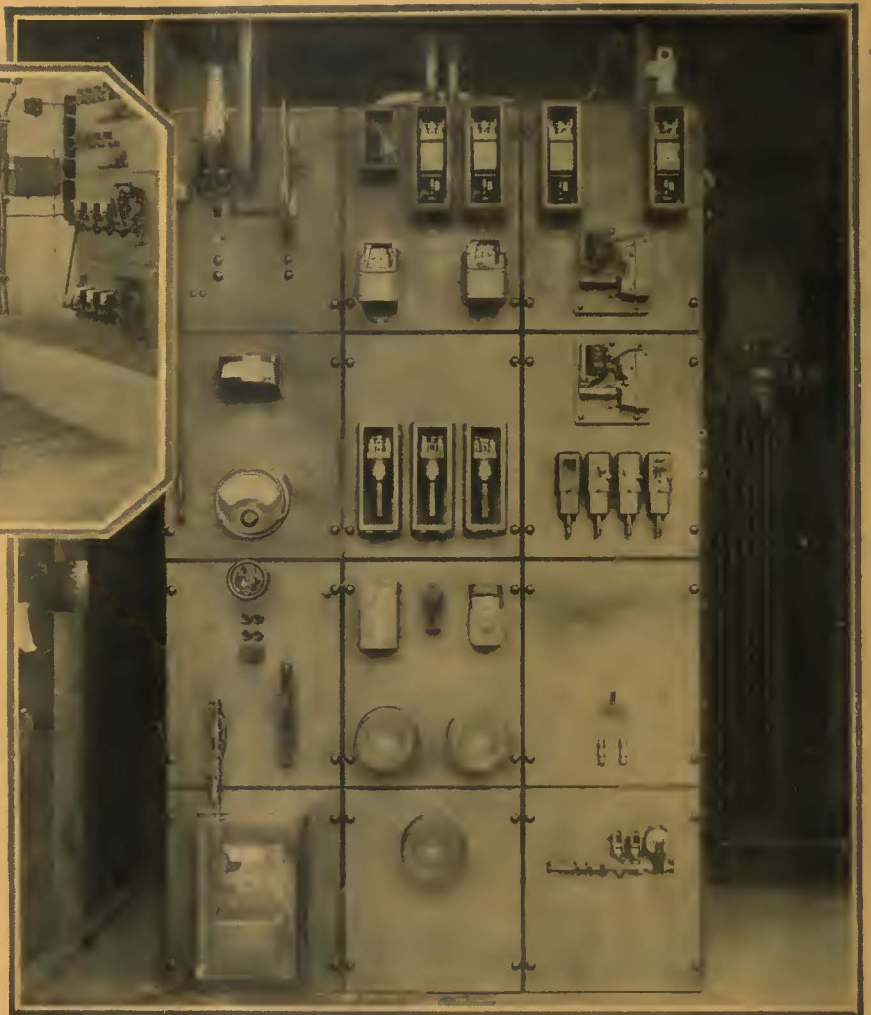
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