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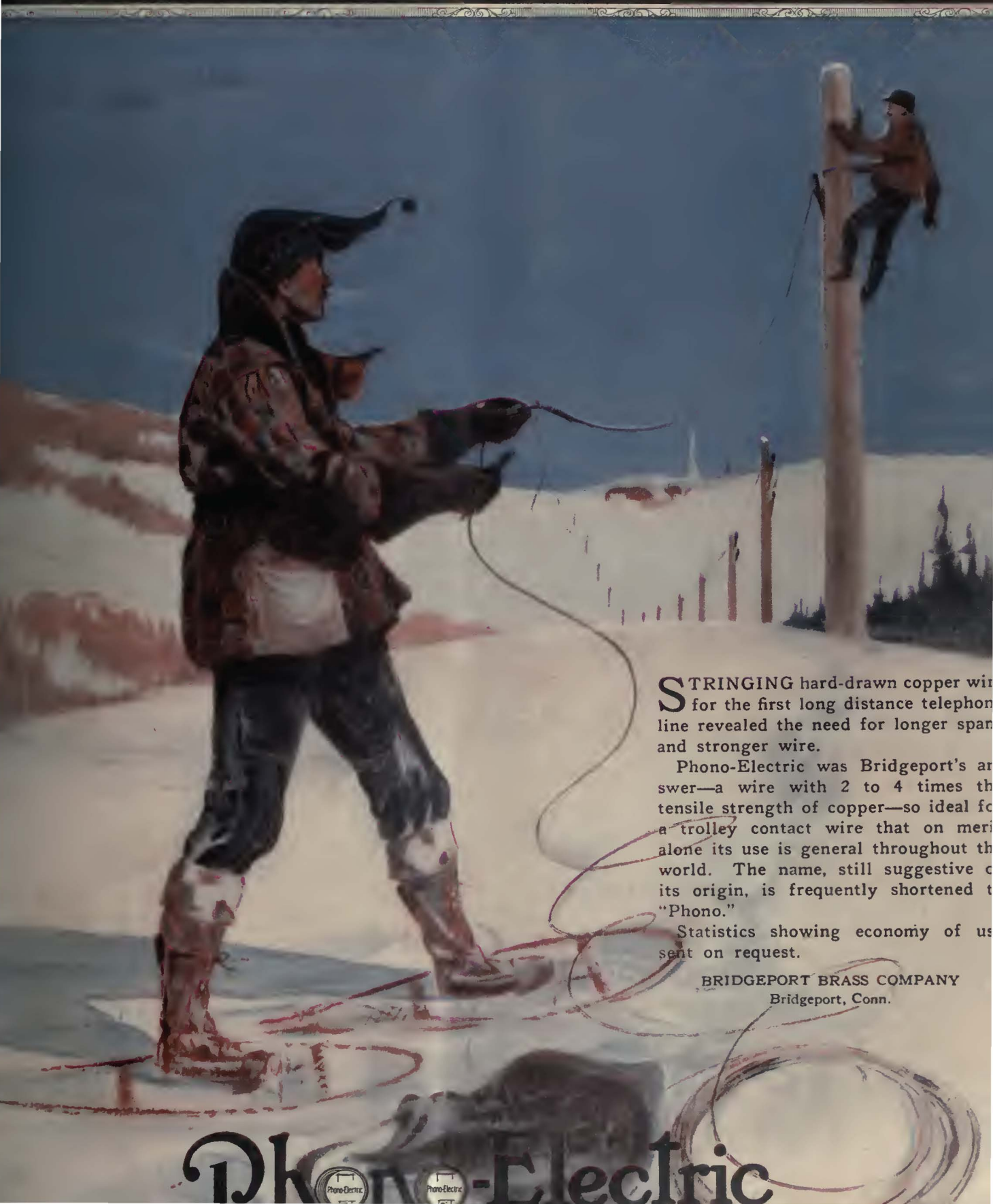
ELECTRIC RAILWAY JOURNAL



STRINGING hard-drawn copper wir for the first long distance telephon line revealed the need for longer span and stronger wire.

Phono-Electric was Bridgeport's an swer—a wire with 2 to 4 times th tensile strength of copper—so ideal fo a trolley contact wire that on meri alone its use is general throughout th world. The name, still suggestive o its origin, is frequently shortened t "Phono."

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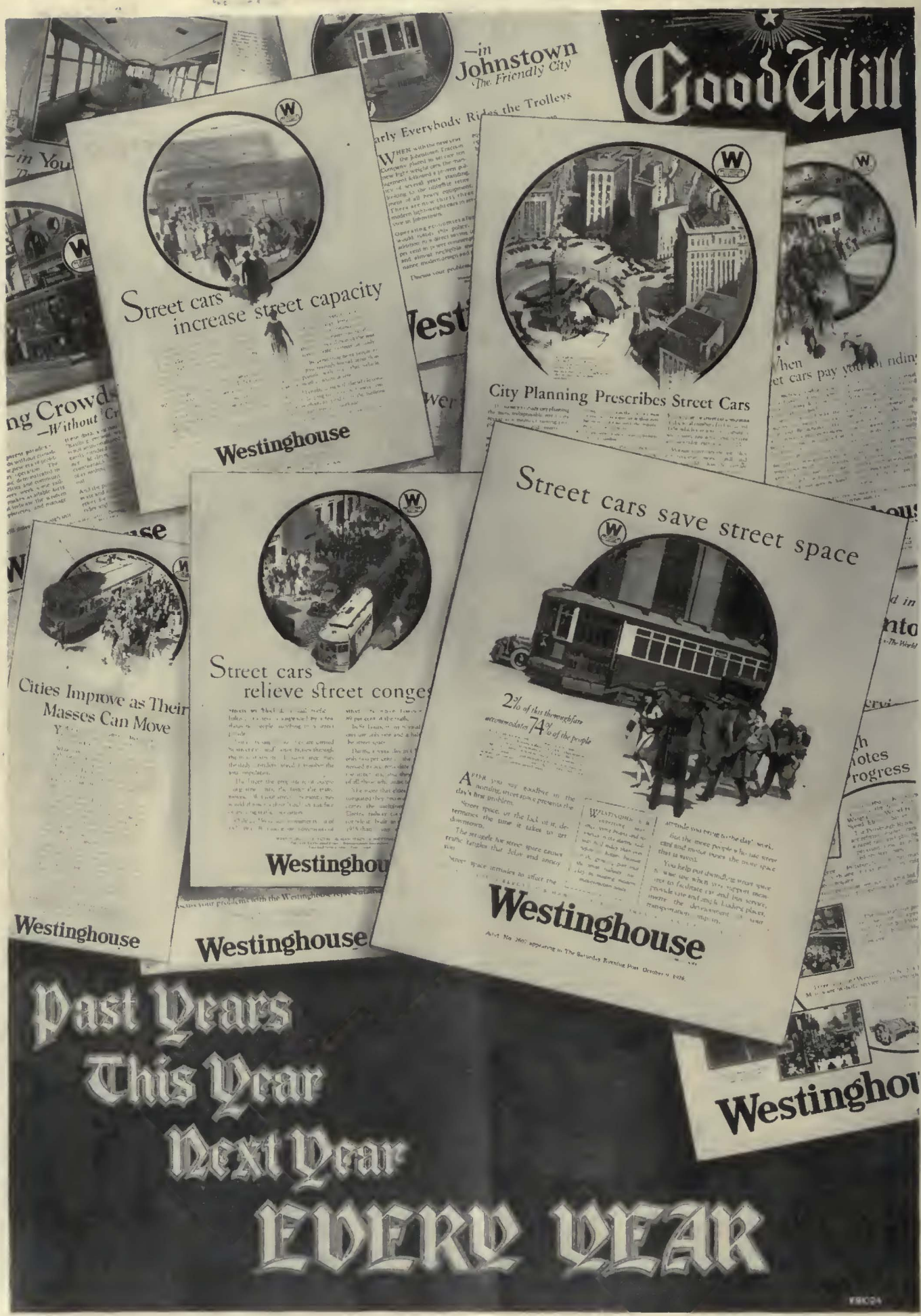
Bridgeport, Conn.

Phono-Electric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Vol. 69
No. 1

CONTENTS

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JANUARY 1, 1927

An Appreciation

WITH the beginning of a new year it is well for an individual or an industry to review the accomplishments of the old year and to lay plans for greater progress during the new. In doing this it is distinctly helpful to have available the record of the past and an outline of the conditions which may be expected in the future.

ELECTRIC RAILWAY JOURNAL devotes the first issue of each year to these purposes. It endeavors to put into the hands of electric railway and manufacturer executives a complete compilation of the industry's material progress and an estimate of what may be expected in the coming year, based on tentative budgets. Although it is something of an accomplishment to prepare these figures so that they include a full year's record in an issue dated Jan. 1, such timeliness would be impossible without the prompt and cordial co-operation of practically every electric railway in the country.

Statistical issues of the JOURNAL are unusual in that they represent responses from such a large percentage of the industry. The returns represent more than 95 per cent of the entire electrically operated mileage of the country. When it is realized that this information must be gathered in a very short period of time, the extent of the co-operation given by the industry and the interest taken in the issue becomes apparent.

The JOURNAL takes this opportunity of thanking those who have helped. It again pledges its faith in the electric railway industry and looks forward with confidence to the future. The entire staff joins in extending to its readers cordial greetings and best wishes for the coming year.

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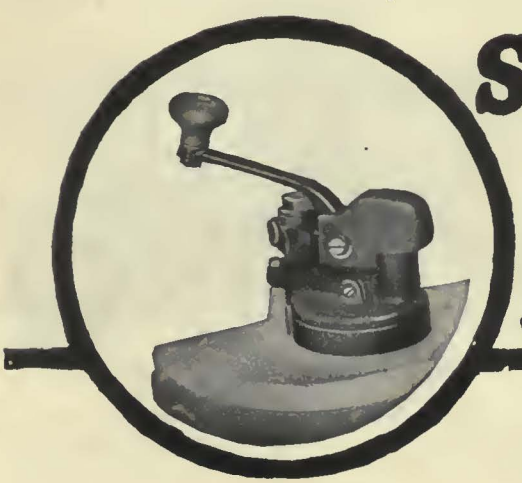

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YEAR by year we grow into a better understanding of safety and a realization of the consequences of human falability.

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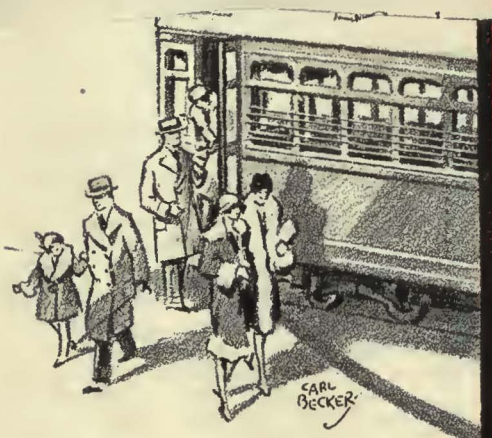

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"One man can readily handle a car of this capacity (seating 64) either with cash box or differential register collection. This is made possible by selective *pneumatic* control of wide double doors in front, and when handling extra heavy loads of the rear door as well."

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NEW JERSEY

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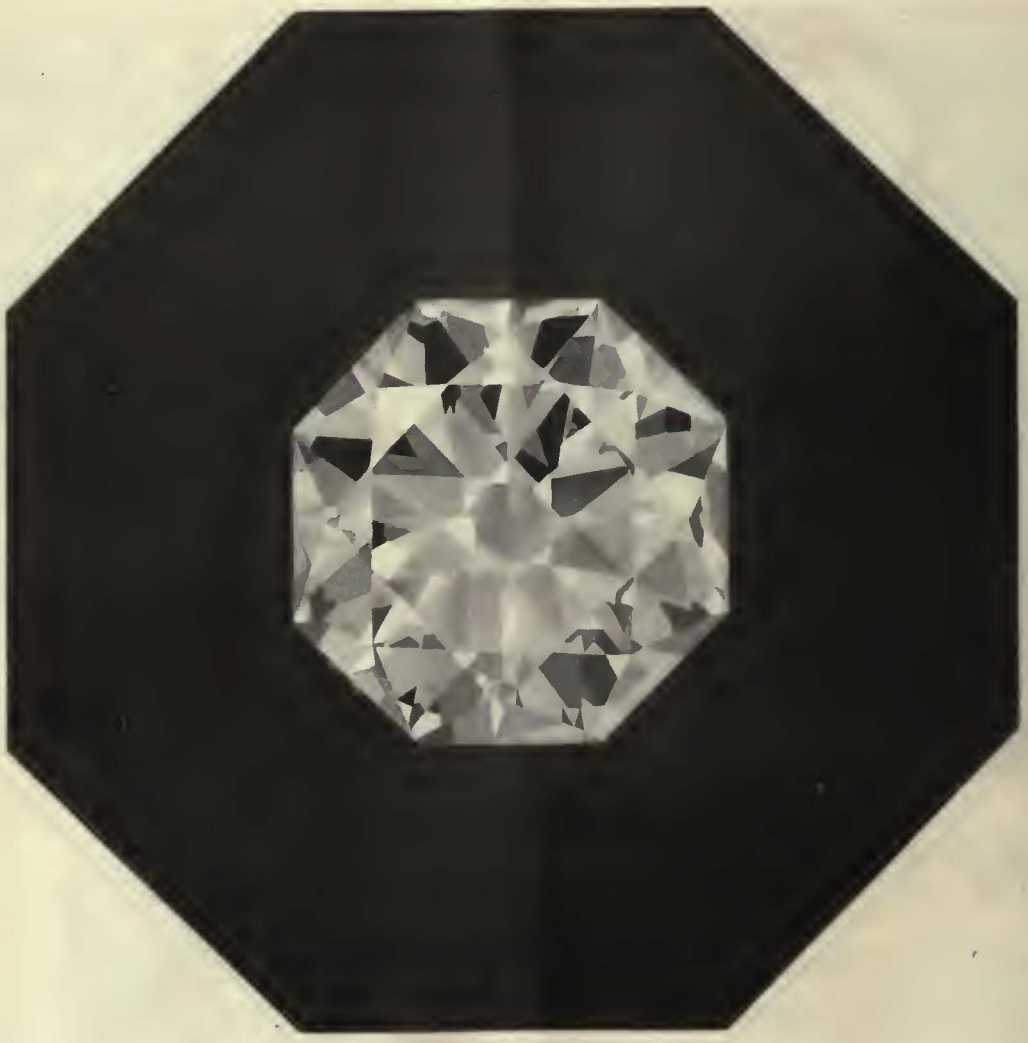

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* * *

Its use is simple. Motormen set down on a report card the meter reading when they take the car and when relieved. They know that every bit of abuse given the controller or brakes, and every needless or inefficient start or stop, will increase their total record. Thus the meter serves continuously as a monitor to stimulate a motorman to operate his car in accordance with the instructions given him. Comparisons of their relative energy consumption stimulate the men to better their records.

* * *

Energy input is the correct measure of the relative efficiency of different men operating under similar conditions. The motorman has faith in a meter because with it he can prove that good operation gives him a good record and poor operation a poor record, in actual energy consumption. This power-saving device actually tells the motormen and the management whether power has been saved or wasted, and how much.

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The ECONOMY "Power-saving" and Car Inspection Meter provides a method that accurately and automatically shows when car inspection is needed. It also shows at a glance how much more work a car can do before inspection is needed, or, in case of a road failure, how much work the car has done previous to the failure. All this without any clerical labor.

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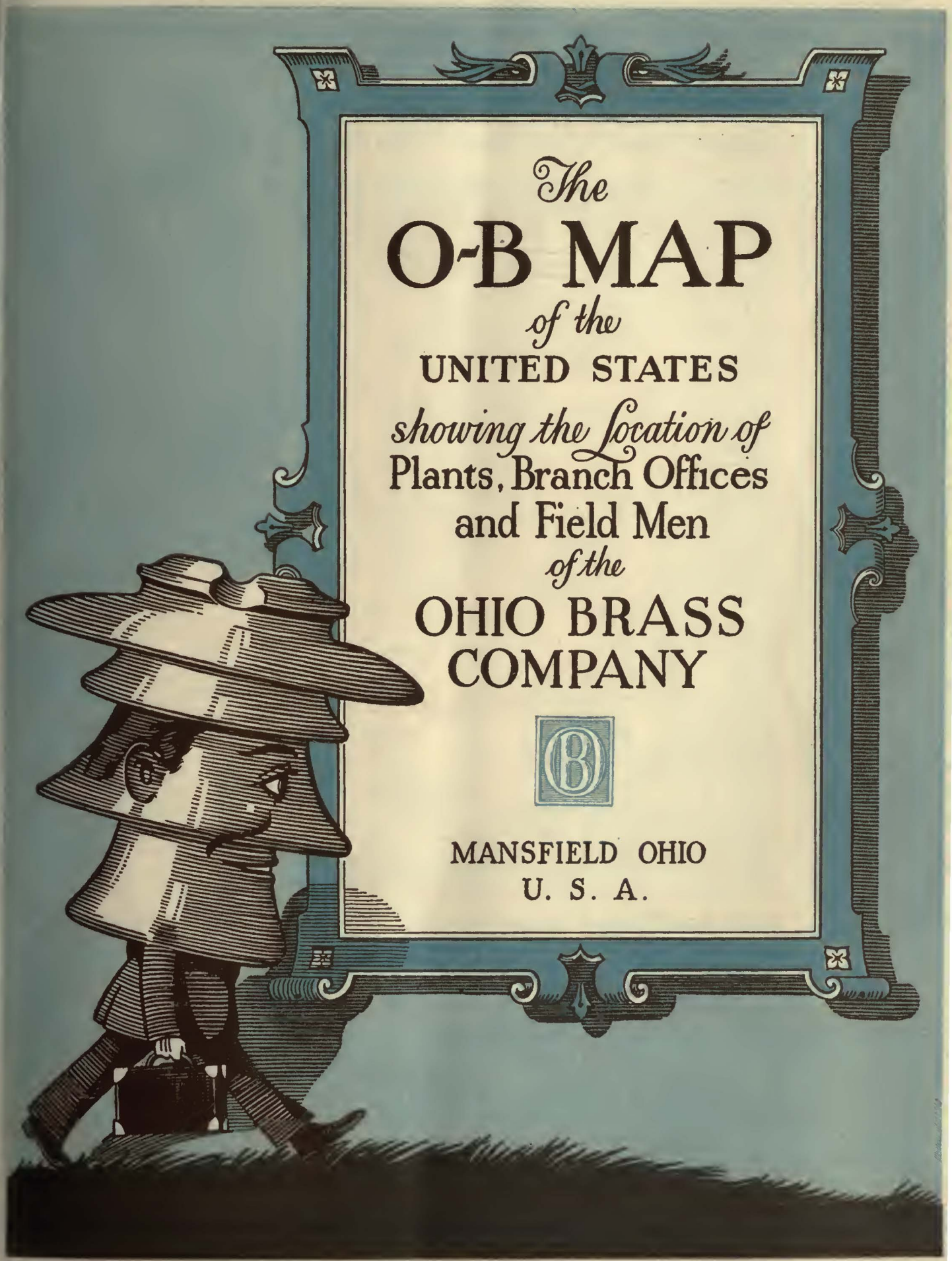
The
O-B MAP
of the
UNITED STATES
showing the Location of
Plants, Branch Offices
and Field Men
of the
OHIO BRASS
COMPANY
MANSFIELD OHIO
U. S. A.


British Columbia
Saskatchewan
Washington
Montana
North Dakota
Oregon
Idaho
Wyoming
South Dakota
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For head, web and base of rail, also for third rail; electric arc-weld, gas weld and mechanically applied.

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Tomlinson automatic car, air and electric couplers for light and heavy traction; trolley catchers and retrievers; air sander equipment; city, suburban and interurban car headlights; trolley wheels and harps; trolley bases.

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Globe-gate-angle-check for steam, hot or cold water, gas, air and special service.

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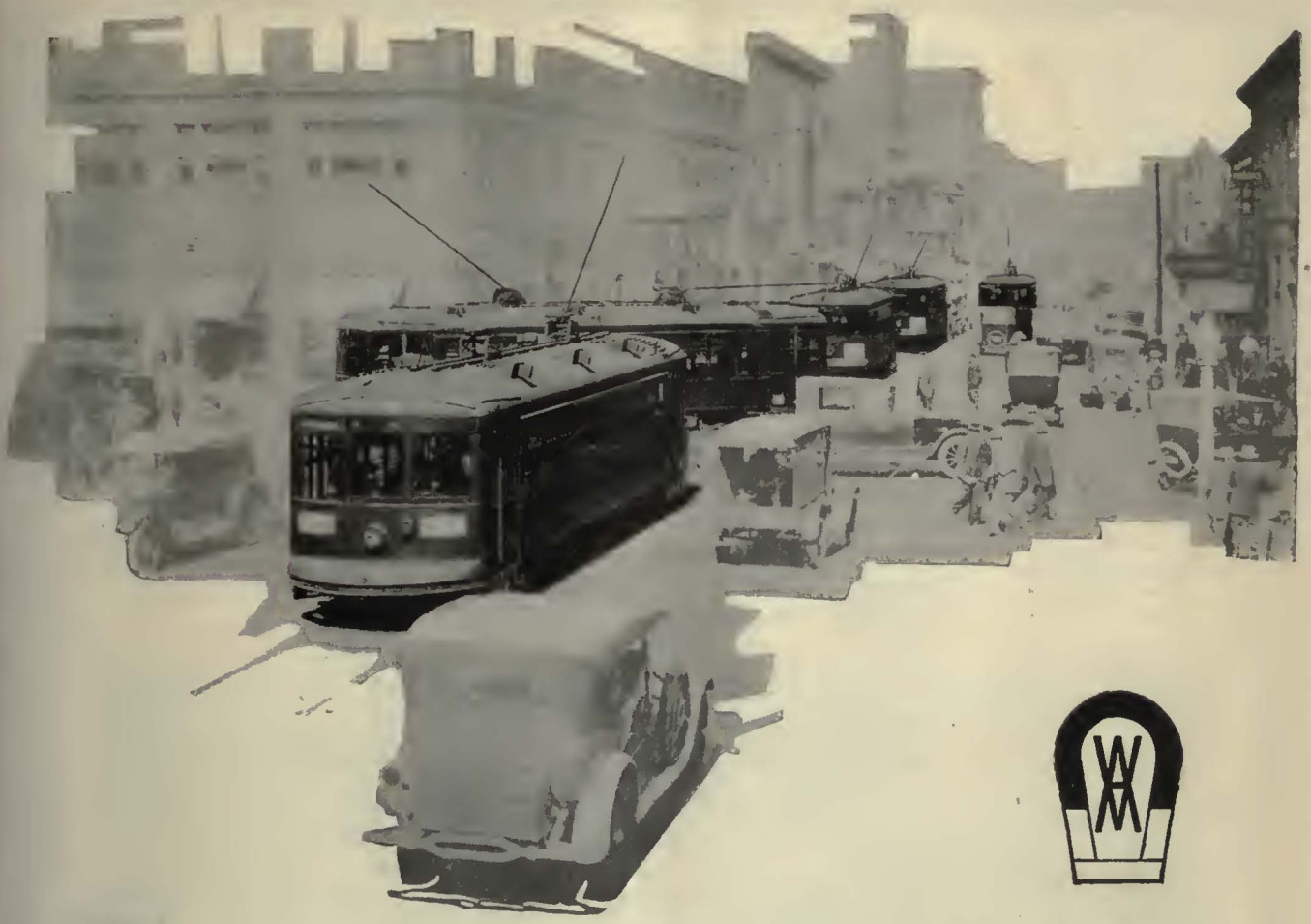
Trolley hangers; clamps; frogs; splicers; cross-overs; section insulators; pole brackets; guy wire fittings; trolley wheels and harps; trolley shoes; locomotive headlights and other miscellaneous electric haulage and power feeder line materials.



We are serving the service

WE appreciate the responsibility a life time of service in the traction field has brought. Our thorough research in solving the problems that have come with each succeeding year, has given us a better understanding of the needs of the field and has endowed us with facilities and the knowledge to fulfill them to the utmost.

Our equipment covers a wide range in utility. Our installations are serving the service, affording a high degree of safety, minimizing physical exertion, and promoting economy in surface, subway, and "L" systems. The stipulation of Westinghouse equipment in your specifications for the new year will give us the opportunity to carry our service to you.

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Their characteristics and advantages are specifically outlined in our descriptive descriptive catalogue T-2045. A copy will be mailed at your request.

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American BROWN BOVERI

Statistics, based on costs, are now written history for the past year.

American Brown Boveri, during this period, was an influence for the first time in the reduction of costs in sub-station practice.

Several installations of American Brown Boveri Mercury-Arc Power Rectifiers were put into service early enough in the year to have their economies show in these statistics.

They will write a greater record in the year to come.

continued—

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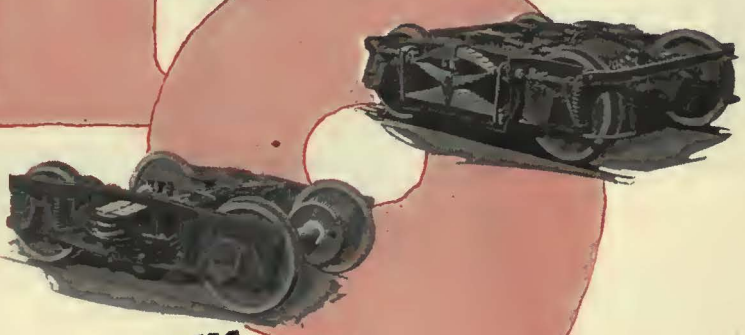
BALANCED
Lightweight **CARS**



BALANCED TRUCKS

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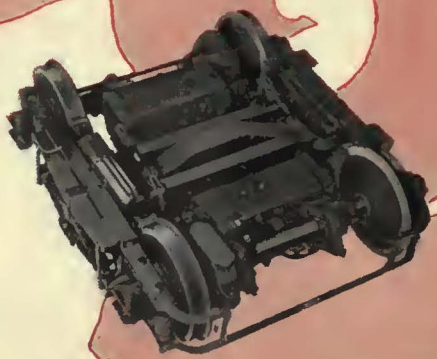

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for Electric Railway
Freight Service

Lightweight DESIGN

A clean cut policy for 1927!

No less than twelve years ago this company went definitely on record as an advocate of light weight cars.

Such an idea was radically new at the time. Its application presented many problems of construction never before encountered. But the fundamental advantages of the lightweight car could not be denied. And its development has never lacked the attention of progressively minded men in all branches of the industry.

Our own experience, as pioneers in this movement, has shown definitely that *lightweight in itself* is not enough. There must be primarily a sound engineering balance of units for the service demanded. Then, when the car is built in accordance with modern ideas of lightweight construction, the result will be a unit in which weight has been reduced even below the average "lightweight" standard, with a perfect balance of the whole for the service conditions to be met, and without sacrificing the service efficiency of any single part.

This in short is the principle of Balanced Design — lightweight car building reduced to a simple, workable formula, and applied with such success that every installation made to date has been a substantial success.

On this basis our policy for 1927 can be stated simply and directly— Modern Cars, built in accordance with the principle of BALANCED DESIGN, *light* in weight, *proved* in performance, *accurately fitted* to service requirements and sold as *complete units, designed and built under one competent control.*

May we discuss the matter with you in greater detail?

THE CINCINNATI CAR COMPANY
CINCINNATI, OHIO

CINCINNATI *New* CARS

A step ahead of the modern trend

they're MODERN *from every point of view....*

In the designing of the St. Louis EIB trucks, small number of parts, concentration on balance, lightness, and quiet, smooth operation with adequate strength has produced a combination of these qualities decidedly in advance of previous attainments in street railway operation, and resulting in improved riding qualities.

On the forty new Milwaukee Cars, ordinary bearings are used, but a feature of this truck is the equalizers which are so arranged as to permit the use of roller bearings at any time by merely changing the journal boxes. This is the first type of truck so constructed and a distinct advance in truck engineering.

DISCRIMINATING Milwaukeeans will be quick to notice and appreciate the unusual features of the new *Modern* cars shipped to their city from the "Quality Shops" of the St. Louis Car Company during December. The outward appearance alone is indicative of the advance in quality represented by these new cars.

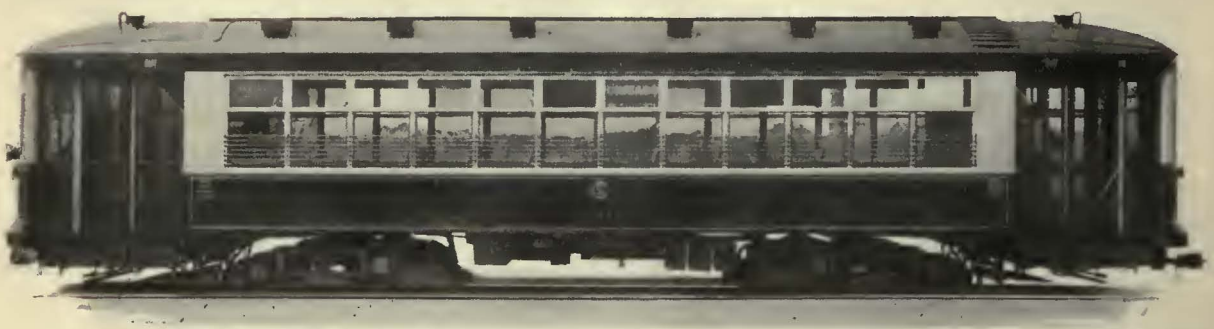
Entering the car, one notices the convenient placing of the doors, the wide aisles, and St. Louis spring seats upholstered in dark grey Kemi-Suede. There are six indirect dome lighting fixtures; and steel panels conceal the air piping and controllers at each end. These cars combine comfort and convenience with attractive appearance to an unusual degree. Double end—one-man operation is a feature of Milwaukee's new car. To the right of the motorman there are double doors, one as an exit and the other as an entrance, which provide easy and rapid loading and unloading. The right hand door at the rear is equipped with a step treadle for use as an additional exit.

Cars are equipped with quadruple 25-horsepower motors.

built by— St. Louis Car Co.

Quality Cars

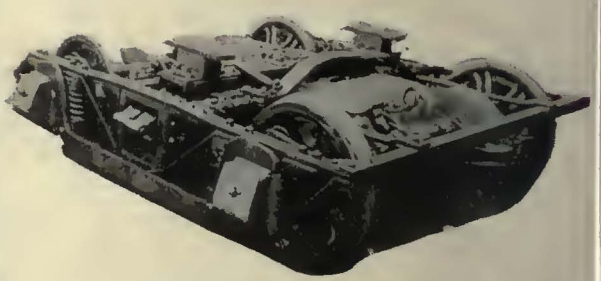
Representative



Chicago Surface Lines latest type one man-two man car.

Chicago and Joliet Electric Railway's lightweight interurban car. One man, single end operation.

Interior of Chicago and Joliet Electric Ry. Car, showing individual plush and leather seats, and smoking compartment.



Cummings No. 62 truck having exceptional easy and quiet riding qualities.

The illustrations show some of the modern cars built during the past year by

Cummings Car

Successor to McGuire-Cummings Manufacturi

Modern Cars

One man, double end cars of the latest type used in Gary, Indiana, on their city, suburban and interurban lines.

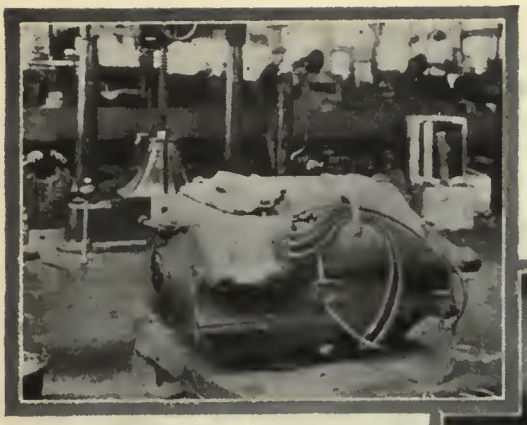
Cars of this type built for the Chicago & West Towns Railway and other properties.

Showing the platform arrangement on the Gary Cars, with all pipes enclosed in cabinet and head lining in vestibule.

The interior of Gary's new cars combine comfort with pleasing appearance.

And Coach Co.

Company, 111 W. Monroe Street, Chicago, Illinois



Super Service stands the gaff in all kinds of weather.

SUPER SERVICE

Super Service Single Conductor Cable can be furnished with a paper separator, without additional cost.

For outside motor leads used in connecting the controller with the motor box.

Flexible Waterproof Tough

The Ideal Cable for outside motor leads

First cost isn't half so important in a motor lead as the ultimate cost. After you've taped and repaired again and again you begin to realize the real value of a good cable for this job.

You need a cable that is flexible enough to stand the bending of the constantly moving trucks, that is absolutely waterproof, and tough enough to stand the daily abuse that open car wires receive.

Super Service Cables fit that description perfectly. They are vulcanized in steel molds under tons of pressure—a patented process that can be used for no other wire. The result is perfectly centered conductors in an outer jacket of rubber that is flexible, water and acid proof, and tougher than you ever thought a cord could be.

If you want to keep motor lead repairs down, get a reel of Super Service today, and renew with Super Service as fast as the old wires wear out.

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CORDS and CABLES
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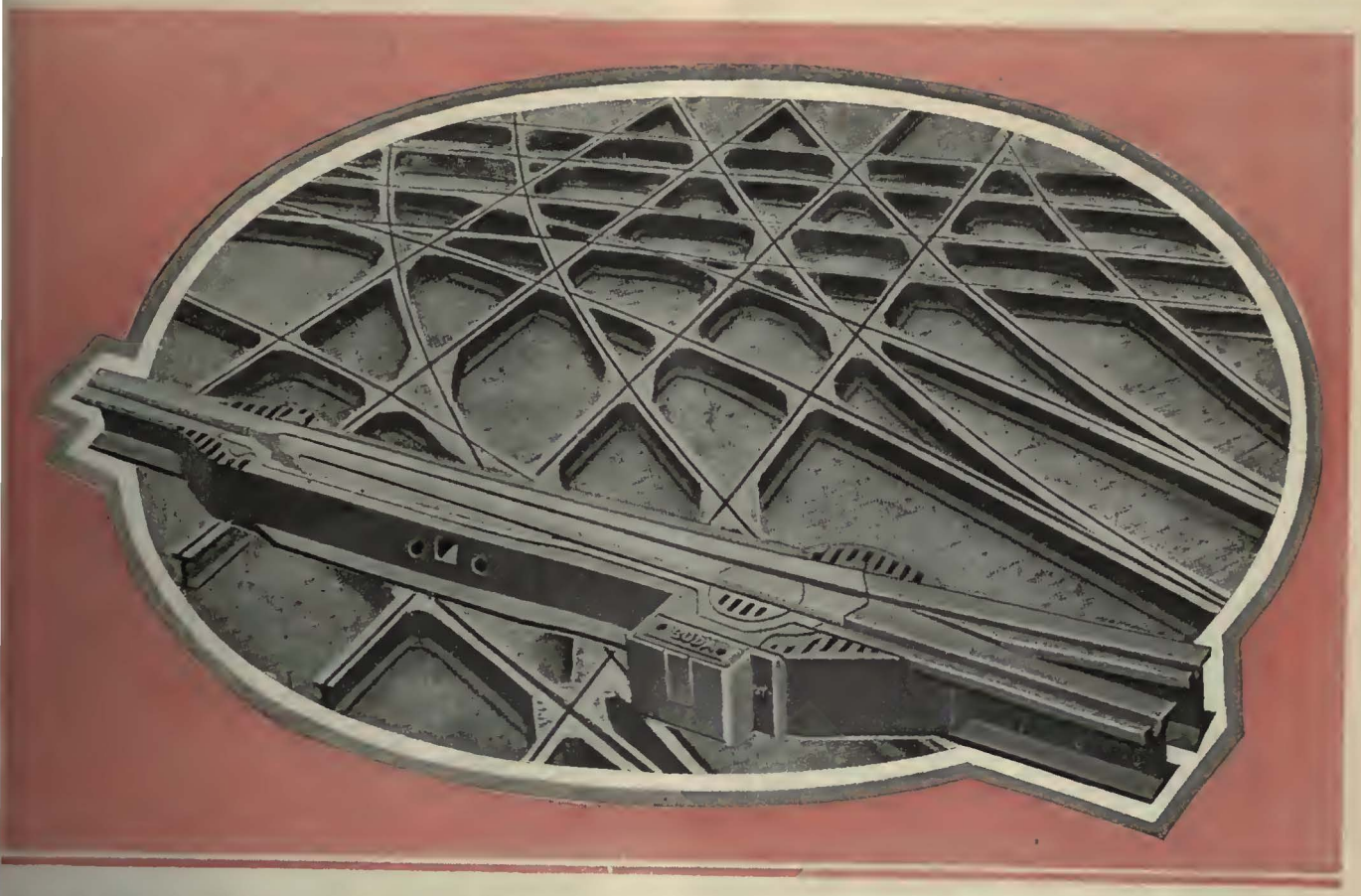

Track and Bonding Drill

Track Jack

Bus Engines

Motor Car

SERVICE is the one unfailing test of quality in trackwork and equipment. Buda trackwork and equipment has been meeting this test for forty-five years—and is meeting it today. Buda is always an assurance of quality and service.

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BUDA
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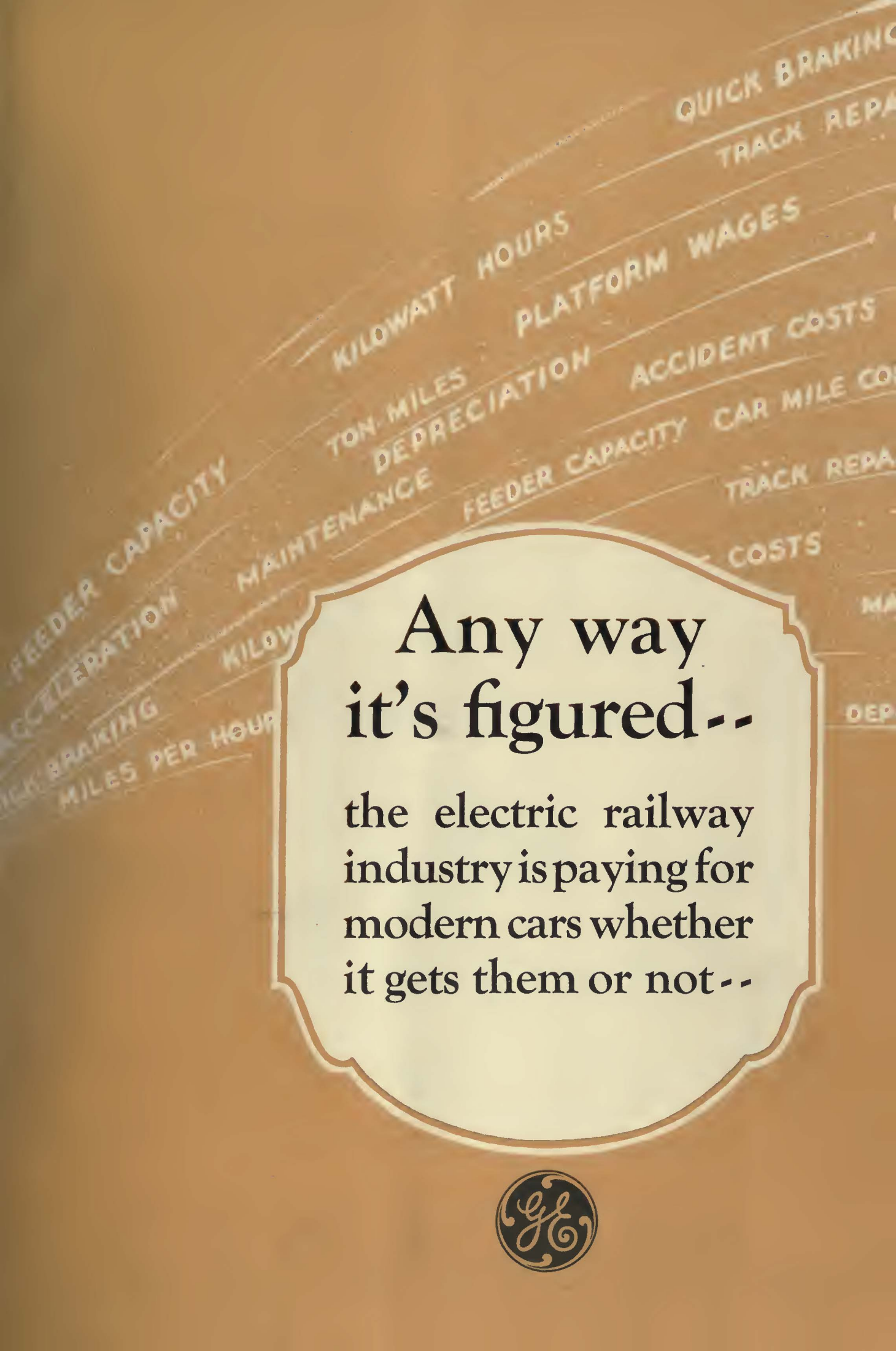
Crossing Gates

Buda Hubron Earth Drill

On the BUDA HUBRON Earth Drill some companies report cutting their pole hole digging to 1/6 their former cost by hand.



Any way it's figured--

the electric railway industry is paying for modern cars whether it gets them or not--

A difference of

10¢

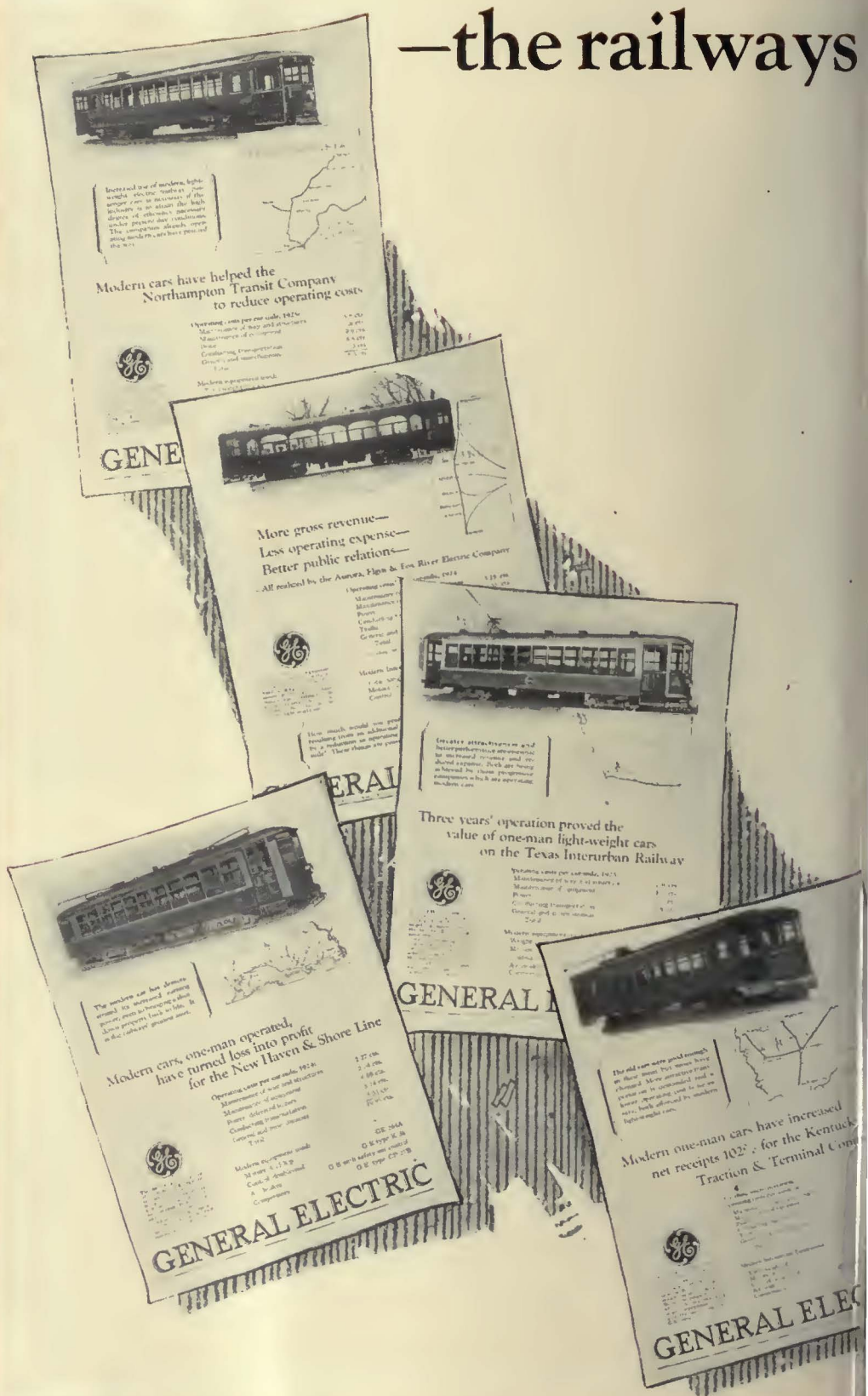
per car mile

operating cost is

$3000

per car per year

—the railways



GENERAL

g modern cars find they do pay!

NO LONGER is the industry asked to accept the value of modernization on faith. Reliable operating data from the records of dozens of companies have proved beyond a shadow of doubt that new car investments yield a gilt-edged return.

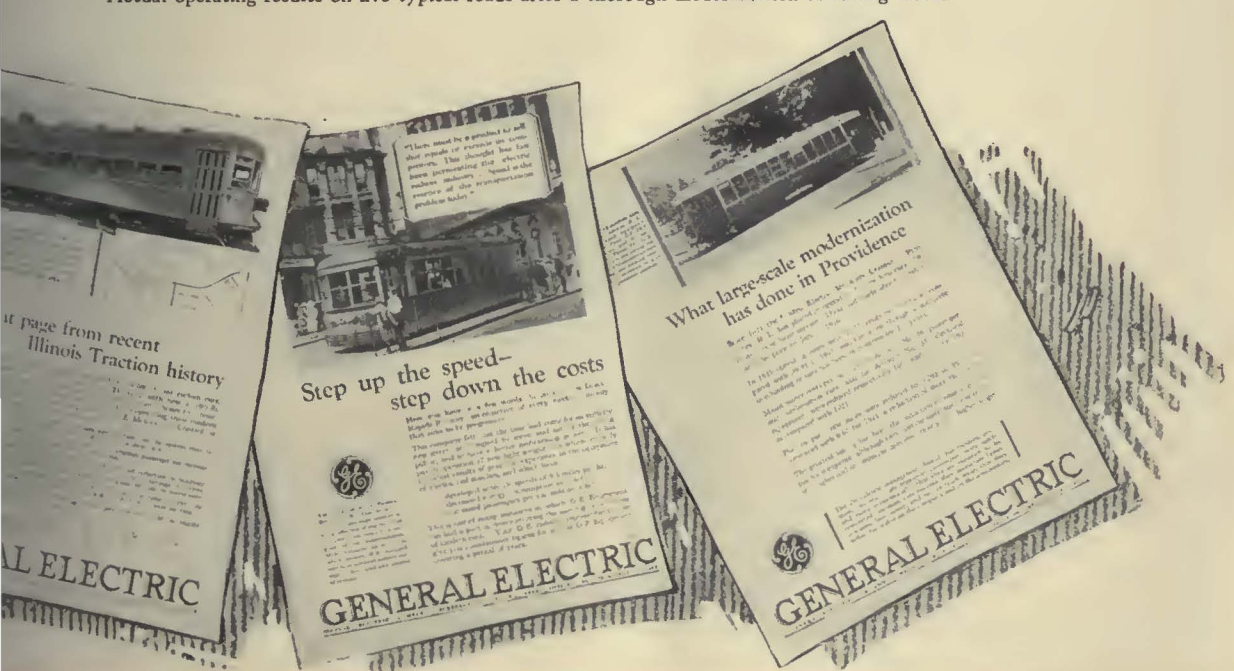
A study of the records of 20 properties operating approximately 5000 cars reveals a saving of at least 10 cents per car mile as a direct result of modernization. In addition, we find such results as a 30% increase in patronage and material increases in schedule speeds.

Figures quoted below show that this anticipated saving of 10 cents per car mile is conservative. Yet it amounts to $3000 per year per car in average operation. And it can be made the *rule* rather than the exception, throughout the industry, with continued efficient use of modern cars—and thoroughly modern car equipment.

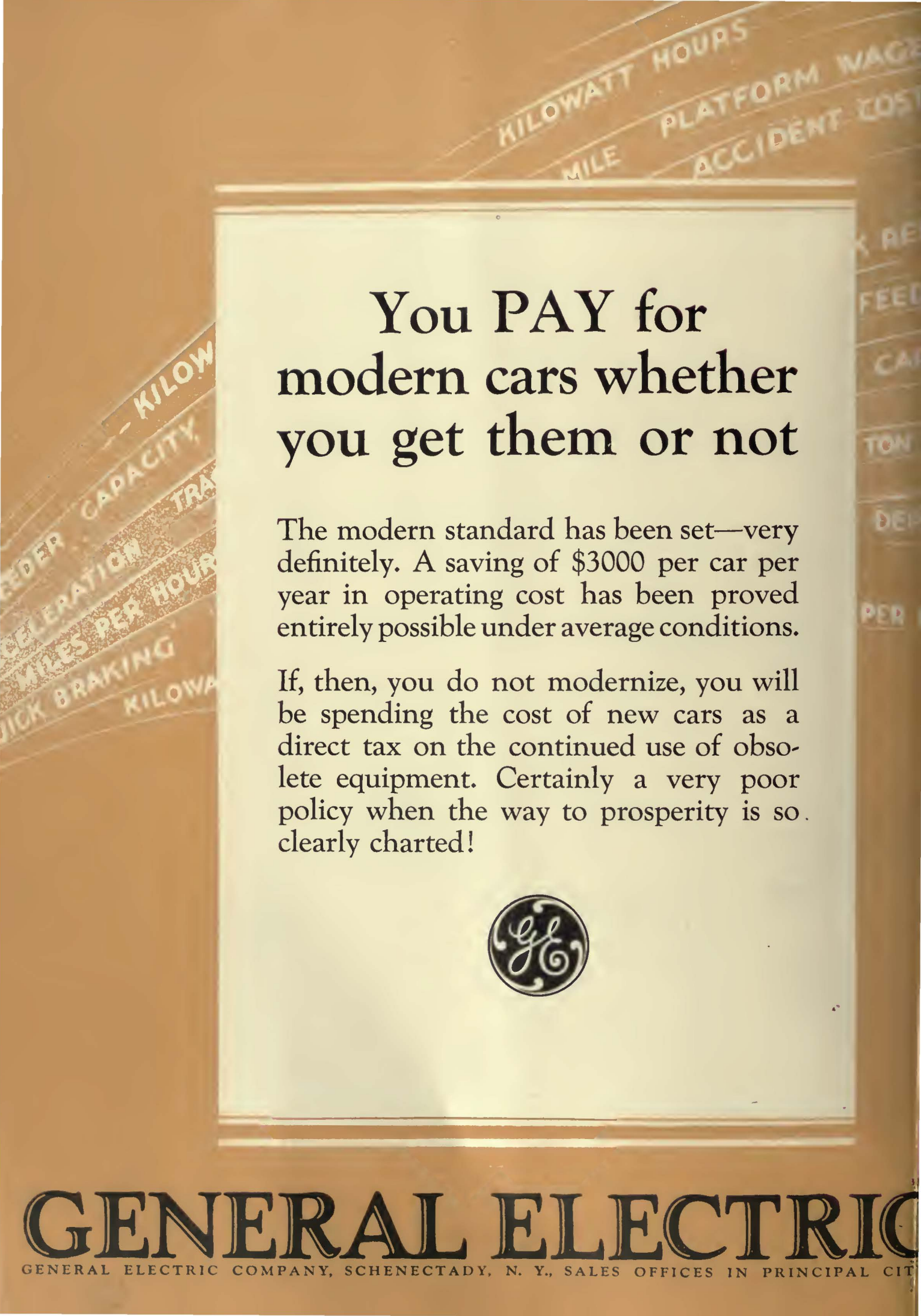
TOTAL OPERATING EXPENSES—CENTS PER CAR MILE

	BEFORE	AFTER
Buffalo & Erie Railway	37.50	28.80
New Haven & Shore Line Railway	43.04	19.48
Aurora, Elgin & Fox River Elect. Co.	42.30	26.61
Interstate Street Railway	37.75	26.10
Kentucky Traction & Terminal Co.	30.50	20.00
Averages	38.22	24.20
Reduction	14.02 Cents	

Actual operating results on five typical roads after a thorough modernization of rolling stock.



ELECTRIC



You PAY for modern cars whether you get them or not

The modern standard has been set—very definitely. A saving of $3000 per car per year in operating cost has been proved entirely possible under average conditions.

If, then, you do not modernize, you will be spending the cost of new cars as a direct tax on the continued use of obsolete equipment. Certainly a very poor policy when the way to prosperity is so clearly charted!

GENERAL ELECTRIC

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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 1, 1927 *Number* 1

The New Year Is Bright with Opportunity

RECORDS of passengers carried, miles of track constructed and reconstructed, cars purchased, buses operated, receiverships lifted and other measuring sticks of the industry's progress all show a successful year during 1926. There is no need here to quote the figures. They are given in detail in the articles printed in this issue. It is in the underlying conditions which have produced the favorable results of 1926 and the tendencies which indicate the prospects for the future that primary interest lies.

Reviewing the developments of the past year, a number of high spots stand out. The electric railway industry has begun to interpret into concrete railway policies the abstract discussion of changed conditions which it is called upon to meet. "Transportation merchandising" has been translated from words into action. "Favorable public relations" has come to be recognized as springing primarily from improvement of the character as well as the adequacy of the service rendered. The attitude of employees toward the company's customers has been found to be a reflection in a large measure of the attitude of the management toward the employees and the attention given to their proper training for the job. All of these things may be grouped as the human or psychological factors affecting the industry's performance. The record would not be complete without pointing out that there has been a continuing tendency for the few faint-hearted and precedent-bound executives who lacked faith in their own business to give way to those with greater vision, courage and enthusiasm.

MODERNIZATION has taken on a more definite meaning. There has developed a widespread conviction that an industry which presents a down at the heels appearance may expect to be treated as a failure and that the public has no interest in its difficulties and problems, unless that interest is won by making the service so attractive as to arouse public enthusiasm. There has been a growing realization that, though a franchise may grant a theoretical monopoly, common-carrier transportation is actually in competition with individually owned vehicles to such an extent as to require the application of all the principles and methods used in any other competitive business. Realization of this has developed a rapidly growing interest in the replacement of obsolete equipment and the rebuilding of rough and poorly aligned track. This has been accompanied by a persistent demand for car improvements and developments designed to make the rail-borne vehicle quieter, more attractive and more economical. Here there is still a wide open opportunity for the exercise of ingenuity by manufacturers.

WHILE there is general agreement among transportation men on the need for co-ordination of transportation service, progress in the application of this principle on a broad basis has been slow. The process of fitting together the bus and the car has been confused to an extent by the tendency to compare the performance of new and modern automotive vehicles with poorly maintained cars that have seen many years of service.

In special party, sightseeing and touring service an attractive field for new bus business has opened up on a basis which offers attractive profit. In the field of scheduled service approximating in comfort and speed the private automobile, and at rates considerably above those charged for mass transportation service, there seem to be almost untouched prospects for profitable application of buses on a large scale.

THERE is progress toward broader thinking on the local transportation problem in large cities. In that transportation men have in the past overlooked the relation between the destiny of any one company and the entire transportation situation in a community, they have not played as active a part in helping to point the way toward sound community policies as they may be expected to do in the future.

All signs point toward continued progress and improvement. The industry's future depends on the imagination, courage and public spirit displayed by those charged with the responsibility of directing the destinies of the various properties. Based on the added experience of 1926, the new year opens bright with promise and opportunity.

National Prosperity Is Reflected in Results of Electric Railway Operations

PROSPERITY for the country at large is linked closely with prosperity in the electric railway industry. Transportation of the working population plays the largest part in the railway gross revenues. Hence the continuation of a high rate of production in the various industrial communities, with corresponding large payrolls, has had a direct effect in swelling the revenues of the transportation companies.

It is too early yet to tell the exact status of operations in 1926, or to make a final comparison with the year previous. Replies to inquiries by this paper received from a number of executives of electric railway properties, large and small, over a wide territorial range are almost unanimous in stating that the results of the past year will equal if not slightly exceed those for 1925. The earlier year was a very good one as regards traffic and revenue. It is quite possible that 1926 will go down in history as the greatest traffic year the industry has known up to this time.

As to 1927, opinion seems to be that conditions which have obtained for the past year will be continued. Many railway operators are planning for increased traffic. Economies are also becoming effective, so that the spread between income and outgo is becoming greater. In this way prosperity in the transportation industry is showing a steady growth.

While a large share of the new business recorded for the past year has come as a result of the general business prosperity, other contributing factors are extensions of service, both by street cars and by buses. But not an inconsiderable portion of the increase in business has been the direct result of salesmanship. Those roads which have given the greatest attention to the provision of better facilities and have made the public conscious of the fact are the ones which have gone ahead most rapidly. Individual expressions show that some managements are keeping in mind all the possibilities for selling service to the public. It is only in so far as the managements have adopted this attitude that the railways have obtained the full measure of success that is possible in this day of almost universal prosperity.

Renewed Activity in Track Construction Reflects Improved Condition of Industry

FOR the third successive year additions to the electrified trackage of the country exceeded by a substantial margin the mileage abandoned. Extensions to city and interurban lines approximated in amount the same as in 1925. Steam railroad mileage electrified during the year was somewhat less than the year before. Abandonments, however, showed a slight decrease. As a result, there was a definite net gain in the total miles of electrically operated track. Coupled with this was a large increase in the amount of track rebuilt. Altogether the mileage of new construction and reconstruction totaled about 12 per cent more than that of the preceding year. This quickened activity in trackwork furnishes encouraging evidence of the sound condition of the electric railway industry.

There was a substantial increase not only in the amount of trackwork done but there was also a corresponding gain in the number of companies reporting track improvements. Particularly significant was the activity of the interurban companies. More new interurban track was built in 1926 than was built the year before and the mileage of reconstructions was more than twice as great. City track reconstruction in 1926 exceeded that done in 1925 by about 100 miles, though city extensions lagged somewhat behind.

Figures for steam railroad electrification scarcely do justice to the situation actually existing. While the mileage of track on which electric operation replaced steam operation during the year was considerably less than in 1925, the number of new electrification projects undertaken was impressive. Included among these are the plans of the Pennsylvania and Great Northern Railroads, totaling several hundred track-miles.

From statistics covering the development of the electric railway industry over a period of many years, it appears that the total of electrified mileage in this country and Canada reached a maximum of about 46,000 in 1920. In that and the following three years the mileage of abandonments exceeded that of additions made, a net loss of some 500 miles of track occurring during this period. In 1924 the losses and gains practically balanced each other. Since that time there has been a distinct upward trend, amounting to about 250 miles net gain, so that today the total electrified mileage remains only slightly below the maximum figure.

Budget Forecast Indicates Constancy of Industry's Purchasing Power

NOTWITHSTANDING 1926 purchases dropped behind those of recent years, the forecast for 1927 promises an increase of nearly $31,000,000 over the year just closed. This estimate and forecast, presented elsewhere in this issue, is based on an extended survey of railway companies that ELECTRIC RAILWAY JOURNAL conducts each year. Questionnaires were sent this year to a much larger list, including properties of all sizes, so that the figures now presented represent returns received from fully 50 per cent of the electric railway mileage in the United States and Canada.

Estimates of new expenditures, principally for betterments, indicate the urge to improve the service. Approximately $55,000,000 is the budget for cars alone, an increase of $15,000,000 over that spent in 1926. Most of this is for new cars and the balance for the modernization of old equipment. Whether or not this healthy increase materializes and whether it will continue in a satisfactory manner in future years depends in no small measure on the ability of the manufacturers of cars to develop equipment sufficiently far advanced to offer a revenue building appeal that will be attractive to the operators.

Some comment may be caused by the slight decrease of bus purchases. It should be borne in mind, however, that the use of this vehicle by railways has had a rapid growth in recent years and it is only natural to expect that the use of the bus will settle down to a normal basis commensurate with its economic usefulness. There seems little reason to doubt that bus purchases will continue to show a general tendency upward, due to an increasing use as well as to replacement. This latter factor will, of course, not make itself evident for several years, as few of the buses recently placed in operation by railways are yet due for retirement.

That the industry has continued to purchase well over $100,000,000 of new track, equipment and power facilities and that this year it plans to spend $145,000,000 are interesting in the light of its poor credit standing. Much of the money has undoubtedly been acquired through channels of joint utility company financing, but no small part has been drawn from transportation earnings. This latter process is only another indication of the inherent strength of the industry.

The railways are making a noteworthy struggle, harassed as they are on one hand by an impaired credit and political bickerings, though encouraged on the other by a growing appreciation of the basic necessity of local transportation. A constancy of expenditures in the light of these facts, all too well known, cannot be taken otherwise than as an encouraging sign.

Financial Factors of 1926 Were Favorable

COMPARISONS often are odious. It is an old statement. Still the desire is irresistible, particularly at this time of the year, to indulge in just this kind of thing. On its face the amount of new financing by the railways seems infinitesimal compared with that done in other industries, but the total of such financing so reported does not tell the whole story, else the expenditure of $233,000,000 by the electric railways in 1926 for maintenance, materials and supplies, including new cars, would be inexplicable. But it isn't. The industry is spending not lavishly, perhaps, but it is spending. Much of this money is coming out of earnings, a tendency that seems automatically to strengthen the financial structures of the companies that resort to this means. One company that comes to mind deliberately withheld dividends from its stockholders for a period of several years rather than to borrow at the prevailing rates, and later capitalized these expenditures and returned the company to a dividend-paying basis after the physical improvements thought to be necessary had been made. These improvements have certainly paid their way.

So it is with the matter of the purchase of new cars. New cars are being bought, not perhaps to the degree that the increased earning power of such equipment would seem to justify, particularly when it has been so firmly established that modern cars will save enough in operation to pay not only their carrying charges, but leave a substantial balance for the amortization of superseded equipment. But new cars are being bought. So are buses. Many of the utility properties include railway, light and even gas in a combination that makes it quite impossible to segregate the amounts of money applied to each of these activities. The JOURNAL account does not contemplate any attempt to summarize the utility total, but the amount of securities placed publicly in 1926 on combined properties reported by *Electrical World* is $1,149,000,000.

Of the financial condition of the railways as a whole there are many signs that are hopeful. If the reader will turn to the diagram of receiverships elsewhere in this issue and follow the black line, he will see at once that the peak of receiverships as regards mileage was reached in 1919, with the 1926 amount lower than in 1925. The improvement has, in short, been progressive. This is likewise true of the record of receivers' sales. The record of receivership for 1926 was unusually propitious. True, the Chicago Railways found it expedient to seek the protection of the courts, but there has never been any question about the earning capacity of the road. Gradually but surely the amount of securities in default is being decreased. That is significant.

Increasing Use of the Bus Shows Satisfaction with Past Performance

MORE and more each year the bus is finding its logical place in the local transportation system. Progress in the development of bus operation by electric railways continued during 1926 at approximately the same rate as during the record-breaking year 1925. The number of buses operated by these companies increased from 5,358 on the first of January a year ago to 7,749 at the present time, a gain of more than 40 per cent. During this period the number of electric railways engaged in bus operation increased from 280 to 333, a gain of approximately 20 per cent.

To a noteworthy extent the development has taken the form of expansion of activities by railways that were operating buses a year ago. This is shown clearly by the fact that the increase in the number of vehicles has been proportionately much greater than the increase in the number of companies operating them. So it would appear that experience has proved the bus to be a valuable addition to the equipment of the electric railways.

Bus route extensions made by the railways during the year just ended were impressive in amount, totaling approximately 2,650 miles, exclusive of sightseeing service. This figure is considerably in excess of that for the record-breaking year 1925. By far the greater part of the new route mileage represents the establishment of additional facilities where none formerly existed. Rail service was superseded by bus service on only some 215 miles of track. From this it appears that the bus is finding its own place in the transportation field. To a slight extent it has replaced the car where it was found to be a more economical vehicle. To a far greater extent, however, it is being used to provide an entirely new service.

Sound Transportation Policies Cannot Be Built on Expediency

NEW YORK and Chicago are the high spots in the country-wide struggle for city transportation readjustment. Their very size and complexity merely magnify the problem encountered on a smaller scale in several other cities. So far, there has been little progress in either city toward a workable plan for providing an adequate transportation system that may grow and expand with the increasing needs of the community. In the meantime, jockeying for position on the part of the several interested parties has resulted in a number of moves which, though they have attracted much attention, are not in the direction of establishing broad principles of transportation settlement. In both cities the difficulty of arriving at a fundamental solution is increased, and the baffling tangle of interests is made even more complicated by injection of the bus into the already complex situation.

In Chicago a boulevard bus system was permitted to grow up during a period when the other transportation companies failed to recognize seriously the possibilities of this new vehicle. In New York the bus system, at one time a part of the existing transportation properties, was permitted to get into other hands. In both cities the present bus line owners are now alert to

protect and promote their own interests in any general transportation program. Few would question their right to discharge this responsibility to their stockholders.

Both in Chicago and New York the situation is complicated by opposing corporate interests, personalities and politics. Since a company with its money invested in operating bus lines is obviously concerned in any city-wide plan, there is occasion for little surprise at moves which are made with the intention of strengthening the bus position in general transportation negotiation. But in the heat of the struggle brought about by the necessities and exigencies of such situations there is danger of creating popular misunderstanding which is unfair to existing transportation units, and dangerous to the entire local transportation industry.

That there is a proper and economic place for rapid transit, surface cars, buses operating as street cars on rubber tires, and buses furnishing a preferred form of service at distinctly higher rates of fare has gradually become the accepted conception of a comprehensive co-ordinated transportation service. Expedient though it may be at the moment, because one particular form of transportation is relatively free of legal restrictions and tax burdens carried by other agencies, it is obviously not in the best interests of the public or the community to abandon the principle that each vehicle should be used in the character of service for which it is best fitted. The full co-operation of all transportation men is needed in advocating and pressing the principles of city-wide co-ordination, flexible franchises and fares, and relief from unfair direct and indirect tax burdens. Whenever a concession is made from this sound industry policy in an attempt to secure an advantage for a particular property, establishment of transportation on a secure business basis receives a setback.

The effort to maneuver into a stronger position led to the purchase of the New York Railways Company by the Fifth Avenue Coach Company. Since this is to be followed by rehabilitation of the major rail lines and substitution of buses only where they are found to be more suitable, the consolidation seems a move in the right direction. But in Chicago, where the situation, though equally complicated, is set up in a slightly different way, the same people recently proposed to substitute buses for all of the cars on what is probably the finest street railway system in the world. As a move in the interest of the existing bus investment this, of course, may be a well-timed stroke to assure adequate consideration of the bus in any proposed general solution. But looking at the proposal from the standpoint of the community's interest and the industry's future it offers at best a mere expedient to circumvent the present need for franchise legislation in Illinois.

The local transportation industry is suffering today from the adoption in the past of just such short-sighted expedients, which though they accomplished the immediate object of their proponents have left the industry and its ultimate security holders buried in a mass of public ill will and self-created operating shackles. Distortion of the transportation picture in the eyes of the public for the immediate profit of a given interested group is not in the best interest of the public itself or the transportation industry as a whole.

There is no question but that the bus will ultimately play an important part in the establishment of a unified and co-ordinated transportation system both in New York and Chicago—and in every other large city as well. But every effort to extend the use of any particular agency beyond the field in which it can give the most economical and efficient service on a basis comparable with other existing agencies leads to confusion of thought and waste of the ultimate rider's money. In the fact that a proposal to substitute buses for all the street railway lines in a city like Chicago presupposes that buses in mass transportation service may remain immune to the burdens carried by other agencies it is short-sighted thinking. In the fact that it creates the impression that buses can be successfully operated as mass transportation vehicles at the present level of street car rates it is dangerous to the future of the bus itself. In that it is based on the contention that a 100-passenger vehicle free to weave about on a pavement creates less congestion than one confined to rails it sows the seed for future difficulty and public ill will. Such a proposal handicaps the formation of a properly-balanced and co-ordinated transportation system—one which may be operated on a basis to provide adequate transportation to the public and a reasonable return to the investor, in the future as well as the present.

Steady Progress Reflected by Car Purchase Statistics

PASSENGER car purchases during 1926 showed an increase of 184 over 1925. This was due entirely to cars bought for city service, as the number of interurban passenger cars was 11 less than for 1925. The gain in purchases of city passenger cars amounted to 195, divided 157 for rapid transit service and 38 for surface transportation. Although the number of interurban passenger cars bought in 1926 was slightly less than that for 1925, still the total number of interurban cars purchased was 33 greater, due to the number of freight cars bought.

A number of points are outstanding from the statistics of car purchases during 1926: The total of cars and electric locomotives was 13½ per cent greater than for the preceding year, although less than half the number for either 1923 or 1924. The number of city surface passenger cars bought is approximately the same as for 1925, while the number of rapid transit motor cars is about double. Interurban passenger cars total nearly the same as in the previous year, while the freight cars are 28 per cent more. Electric locomotives exceeded by 28 per cent the orders for 1925, the number bought being the greatest since 1923.

Cars built for operation by one man or two men are the most popular for city service, as they were the year before, the number of this type being nearly 45 per cent of the total passenger cars. Orders for multiple-body articulated cars were placed by three companies, with a total of 89 units.

Light-weight construction is an essential feature of all the new car designs, and greater attention than ever before has been given to the improvement of appearance and to the provisions for greater comfort and convenience of passengers. With respect to power, four-motor equipments were supplied for the majority of the double-truck cars.

An interesting feature is that the number of cars junked during the year is almost as great as the number purchased, showing the attention that has been given to the replacement of obsolete equipment with modern.

Continued Progress Indicated for 1927

Industry Shows Increased Riding in 1926 Over 1925 Despite a Readjustment in Operating Conditions—Electric Railway Executives in All Sections of the Country Predict Further Development During the Coming Year

FROM all sections of the country comes evidence that there was an improvement in electric railway business last year over 1925. While there are individual instances where there was a recession, they are comparatively few. In general, the revenues of electric railways and their allied bus systems have followed the improvement in business that has been nationwide.

The increase in gross business has resulted from a growth in the number of revenue passengers that has been going on for many months, following the recession of 1924 and 1925. Revenue passengers on cars and buses of 217 companies reporting to the American Electric Railway Association covering the period of the first eleven months of 1926 were 8,787,657,991 as compared with 8,682,740,211 in the corresponding period of 1925. This is an increase of 1.21 per cent. These figures represent somewhat more than one-half of the industry. On this basis the total riding for the twelve months will approach closely, if it does not exceed, the riding for 1923, which was the previous banner year of the electric railway business.

Along with this increase in passenger traffic the fares charged over the country have held up. In fact, there has been a slight but continuous increase in the fare index throughout the year from 151.2 to 153.2, or 1.33 per cent. Thus it would appear that the revenues have been greater than those of 1925 by about 1.6 per cent. The exact figure is subject to minor revision, when final figures for the year become available.

Fluctuations in operating expenses have been somewhat greater than those of passengers and revenues. Some companies have introduced economies that have permitted them to earn an increased net, while others, particularly those faced with wage advances, have not been able to make so good a showing. For the industry as a whole it is unlikely that there has been any material change in the net income from that obtained in 1925.

> YESTERDAY'S problems are waters over the dam. Today's problems are what we are confronted with, and every he-man in the industry, from the humblest employee to the chief executive, must give the best there is in him, not only to hold the ground we have gained for our patrons and our investors but to accomplish even better results in 1927.
>
> Enthusiasm, up and down the line, is what we need more than anything else. Let's have it! Apathy, now that the street railway industry has turned the corner and is again on the high road to prosperity, is unthinkable. Railroading in these days is an entirely different proposition than it was a few years ago. None of us can afford to stand idly by and watch the parade. We must be in it and right up in the front ranks.—*R. B. Stearns.*

GOOD BUSINESS PREDICTED FOR 1927

As regards the future, continued growth in riding and in revenue is forecast by the prospect of continued business prosperity through the coming year. Railway men are in general optimistic about the situation. In this they are in agreement with such industrial leaders as Elbert H. Gary, chairman of the United States Steel Corporation; Charles E. Mitchell, president of the National City Bank of New York; W. C. Teagle, president of the Standard Oil Company of New Jersey; Charles M. Schwab, chairman of the board of directors, Bethlehem Steel Corporation; Alfred P. Sloan, Jr., president of the General Motors Corporation, and many others who are nationally prominent. These men are almost unanimous in predicting that industrially the coming year will be the greatest the country has ever known. While 1926 was a year of comparative stability there was a gradual expansion of business activity, so that the beginning of 1927 finds the country at the peak of prosperity.

Electric railway men all over the country are of the opinion that the new year, while not in any great respect different from the one just closed, will show greater business and increased revenue over 1926. There will be places where the general prosperity will not extend, of course; but in that respect last year was not in any marked degree different. It is in the larger industrial centers that there is and will be the greatest measure of prosperity. In these centers the activity has reached greater heights, and in them the use of individual modes of transportation, such as the private automobile, is more difficult, so that the need for common carriers is the greater. In the small cities the automobile has made serious inroads, so that there has not been a growth in riding on street cars and buses comparable with the population and its activities. Conditions in medium-sized cities are somewhat varied, depending to a considerable extent on the local political situation and the ability of the individual managements to apply business principles to the conduct of their systems.

In order to get definite information relative to the actual conditions existing throughout the industry, ELECTRIC RAILWAY JOURNAL has requested a number of prominent electric railway executives to give their estimates of business done by their companies in 1926

as compared with previous years, and their estimates of what the coming year may be expected to develop. These properties represent large and small systems, both urban and interurban. Some of them operate buses in conjunction with the rails, while others do not. All sections of the United States and Canada are included. With few exceptions the replies indicate that this year is likely to exceed last year by a satisfactory margin.

Even in New England, which has had many industrial difficulties during the year, the street railway business has not suffered. Both of the leading street railway systems in Massachusetts have had increased gross business. Edward Dana, general manager Boston Elevated Railway, reports a gain, both in riders and in revenue. He says:

> THE approximate results of operations of the Penn-Ohio Transportation System, both railway and bus lines, for the year 1926 will show a distinct improvement over similar operations for the year 1925. The combined passenger revenue on railway and bus lines will show an increase of about $125,000, or more than 3½ per cent, while the operating expense will show a reduction of about $10,000, or about 0.3 per cent. Together these will increase the net earnings approximately $135,000, or more than 18 per cent.
>
> The decrease in operating expense has been accomplished with a slight decrease in car mileage but an increase of 250,000 bus-miles, or more than 10 per cent. The operating expenses of the railway lines show savings amounting to about $138,000, due to a great extent to the modern light-weight noiseless cars with which all our lines are now completely equipped.—*R. P. Stevens.*

Our gross income will be approximately $800,000 more in 1926 than in 1925. The total revenue passengers will be approximately 5,000,000 more than in 1925.

Our trustees' fiscal year ends June 30, to which end our operation is directed. The calendar year 1926 will show the cost of service several hundred thousand dollars in excess of receipts, to be overcome before June 30, 1927. There was a slight surplus on June 30, 1926, and we expect to do equally well next June. There is no indication at the present time of other than continued normal conditions.

On the Eastern Massachusetts Street Railway, which operates in a number of the mill towns, such as Lowell, Lawrence and Lynn, conditions have been somewhat less favorable. However, the situation is hopeful, as is indicated by the following statement from R. B. Stearns, vice-president and general manager:

The following is an operating statement of Eastern Massachusetts Street Railway from 1920 to 1926 (eleven months) inclusive:

	Gross Revenue	Operating Net After Taxes	Interest and Rentals	Surplus for Stock
1926 (11 mo.)	$8,605,873	$1,773,972	$1,141,683	$632,290
1925	9,333,250	2,030,143	1,291,820	738,323
1924	9,745,501	2,164,057	1,362,658	801,399
1923	10,712,706	2,276,687	1,398,152	878,535
1922	10,712,663	2,557,749	1,497,956	1,059,792
1921	11,318,264	2,515,410	1,623,021	892,389
1920	13,195,275	927,609	1,588,145	660,535

With the close of the year 1926 another year of business success for the street railway industry has passed into history. No year since the period prior to the World War has been on the whole so satisfactory to this industry as 1926. Evidence has accumulated month after month that the public has at last come to the definite conclusion that electrically propelled street cars are absolutely essential to the welfare of every live community.

We men who are directing the affairs of the street railways appreciate this and intend to strain every nerve during 1927 to show the car riders that we are deserving of their continued confidence. Yesterday's problems are waters over the dam. Today's problems are what we are confronted with, and every he-man in the industry, from the humblest employee to the chief executive, must give the best there is in him, not only to hold the ground we have gained for our patrons and our investors but to accomplish even better results in 1927.

Enthusiasm, up and down the line, is what we need more than anything else. Let's have it! Apathy, now that the street railway industry has turned the corner and is again on the high road to prosperity, is unthinkable. Railroading in these days is an entirely different proposition than it was a few years ago. None of us can afford to stand idly by and watch the parade. We must be in it and right up in the front ranks.

Pittsburgh is the center of an industrial district which has had a different condition during the year from that of New England. Business has been good in the iron and steel industry, and this condition has been reflected in the street railway. It is noteworthy that with the greater traffic handled and larger number of car-miles operated, there has been a reduction in operating expenses. It is expected that this year's business will be even better, as is indicated by this statement of Vice-President Thomas Fitzgerald of the Pittsburgh Railways:

The following is a tabulation of operating statistics of the Pittsburgh Railways for the years 1924, 1925 and 1926, with an estimate for 1927:

	1927 (Estimated)	1926	1925	1924
All passengers carried, including estimated pass rides	410,000,000	400,000,000*	370,412,204	326,673,344
Car-miles operated	41,900,000	41,280,000*	39,688,609	39,593,051
Revenue from street railway operations	$21,870,700	$21,720,000*	$21,813,696	$22,063,777
Operating expenses plus taxes	$17,410,916	$17,233,000*	$17,461,177	$18,028,919

* Eleven months actual, December estimated.

The above estimate for 1927 is based on a continuation of the present industrial and commercial activity in Pittsburgh, which it is believed can reasonably be expected.

CONDITIONS IN CENTRAL TERRITORY

The manner in which the Coffin Prize winner for 1926 has been able to take advantage of good business conditions in the Youngstown district is indicated by the following statement of R. P. Stevens, president Republic Railway & Light Company, the holding organization which controls the Pennsylvania-Ohio lines:

The approximate results of operations of the Penn-Ohio Transportation System, both railway and bus lines, for the year 1926 will show a distinct improvement over similar operations for the year 1925. The combined

passenger revenue on railway and bus lines will show an increase of about $125,000, or more than 3½ per cent, while the operating expense will show a reduction of about $10,000, or about 0.3 per cent. Together these will increase the net earnings approximately $135,000, or more than 18 per cent.

The decrease in operating expense has been accomplished with a slight decrease in car mileage but an increase of 250,000 bus-miles, or more than 10 per cent. The operating expenses of the railway lines show savings amounting to about $138,000, due to a great extent to the modern lightweight noiseless cars with which all our lines are now completely equipped.

From present indications the improvement shown this year should continue throughout 1927. Of course, it is impossible to say now whether the present slackening of business activity is merely a lull before another resumption of our forward progress or suggests a slower pace for the time being. As there is nothing apparent to menace our business situation and all the principal activities in the territory served by the Penn-Ohio system are in a flourishing condition, we have no reason to believe there will be any general let-up of business in the territory we serve, the present easing off being more than offset by results from economies which we are constantly putting into effect.

Considerable interest attaches to the results in Cincinnati, as the system in that city was reorganized only a little more than a year ago. Progress has been made in attracting customers to the cars and buses, as is indicated by this statement by Walter A. Draper, president Cincinnati Street Railway:

The Cincinnati Street Railway, which formerly leased its property to another operating company, resumed operation on Nov. 1, 1925. Consequently it is just completing the first full year of operations. Comparison of revenues with the preceding year would be confusing, due to reduction in rates of fare. The year, however, has shown gratifying increase in riding on street cars, while the operation of motor coaches, begun last spring, has apparently developed a new field without reducing car riding. Operating expenses have increased due to extensive track reconstruction. The new year promises a continued trend toward increase in street car riding and away from automobiles and independent motor coach operations. Indicated improvement in general business conditions, which will be helped by several large undertakings going forward in Cincinnati, also will be reflected in more use of cars and coaches.

Another Ohio city in which important developments have taken place during the year is Cleveland. With the negotiation of a new franchise, and an increase in the rate of fare, the results have not only been good, but the outlook for 1927 is even better. Paul E. Wilson, vice-president and secretary of the Cleveland Railway, summarizes the situation as follows:

The operations of the Cleveland Railway in 1926, on the whole, were satisfactory. While the volume of traffic was less than we could have wished for and have handled, it approximates the volume of the preceding year, which had one more day. In six months of the year we showed an increase in the number of revenue riders and in eight months of the year an increase in the total number of riders. Indeed, the first half of 1926 gave every promise of bettered conditions, and the decrease during the last half, in addition to being spotty, may be due in part to the fact that on Oct. 15 the rate of fare was advanced. Our situation was further complicated by the fact that a new franchise was granted us and became effective on July 1. The year 1926 was also our first full year of operation of motor coaches. To this operation supplementing our existing rail service we credit the fact that the total number of riders on the system was greater this year than last. Our passenger earnings were also greater, due largely to the change in the rate of fare, but in a considerable part to our coach operations. Our expenses likewise were greater, due to a general wage increase effective on May 1. We face 1927 with confidence, believing that relief from traffic congestion is here and that with more rapid running time and regularity of schedules, both of cars and coaches, we shall be favored with a constantly increasing patronage.

Conditions in Indianapolis are somewhat less favorable than in the cities already cited. Private automobiles have made inroads, as have competing buses. The loss in revenue due to these causes has been of minor effect, however, as compared with the increased operating expenses. The Terre Haute, Indianapolis & Eastern Traction Company, the street railway lines operated by the same management, has had an increase in revenue for the year. Expenses, however, have increased more than in proportion, so that the net has gone down slightly. More complete information is included in the following statement by Robert I. Todd, president of the two companies:

THE Cincinnati Street Railway has shown gratifying increase in riding on street cars, while the operation of motor coaches, begun last spring, has apparently developed a new field without reducing car riding. Operating expenses have increased due to extensive track reconstruction. The new year promises a continued trend toward increase in street car riding and away from automobiles and independent motor coach operations. Indicated improvement in general business conditions, which will be helped by several large undertakings going forward in Cincinnati, also will be reflected in more use of cars and coaches.—*W. A. Draper.*

Below are comparative statements of earnings and operating expenses of the Terre Haute, Indianapolis & Eastern Traction Company and Indianapolis Street Railway for the years 1925-1926.

Indianapolis Street Railway

	1925	1926
Gross earnings	$5,536,370	$5,499,908
Operating expenses	4,032,821	4,344,927
Net earnings	$1,503,549	$1,154,981
Taxes	386,624	295,538
Net earnings less taxes	$1,116,924	$859,443
Fixed charges	629,183	629,058
Net income	$487,742	$230,385
Sinking funds	146,567	153,150
Dividends accrued not paid	300,000	300,000
Balance—deficit	.....	$222,765
Balance—surplus	$41,175	.....

Terre Haute, Indianapolis & Eastern Traction Company Income Account, 1925 and 1926

Gross from operating	$5,491,091	$5,674,986
Non-operating income	54,762	53,167
Total	$5,545,853	$5,728,153
Operating expenses and taxes	4,487,672	4,682,797
Gross income	$1,058,181	$1,045,356
Fixed charges	890,448	896,327
Net income	$167,733	$149,029
Sinking fund	227,513	232,393
Deficit	$59,780	$83,364

Note—November and December, 1926, estimated.

The results of operation of the T.H.,I.&E. for the years 1925 and 1926 have been about the same. There is, as you are aware, a proposed merger of the T.H.,I.&E. Traction Company and its subsidiaries with the Indiana Electric Corporation, Central Indiana Power Company and its subsidiaries, which is still being worked out. Until this is completed it will be difficult to estimate the earnings for 1927.

The Indianapolis Street Railway gross earnings for 1926 show a decrease over 1925. This is principally due to the constantly increasing use of privately owned automobiles and independent bus competition. The increase in operating expenses is due largely to the company's being obliged to run a large number of feeder buses, which are operated at a loss. The Indianapolis Street Railway has begun the construction of five new substations in the city of Indianapolis, which will be completed in a few months. It is expected that these will result in a substantial saving in the cost of power.

THE operations of the Cleveland Railway in 1926, on the whole, were satisfactory. The year 1926 was also our first full year of operation of motor coaches. To this operation supplementing our existing rail service we credit the fact that the total number of riders on the system was greater this year than last. Our passenger earnings were also greater, due largely to the change in the rate of fare, but in a considerable part to our coach operations. Our expenses likewise were greater, due to a general wage increase effective on May 1. We face 1927 with confidence, believing that relief from traffic congestion is here and that with more rapid running time and regularity of schedules, both of cars and coaches, we shall be favored with a constantly increasing patronage.—*Paul E. Wilson.*

Another interurban railway operating out of Indianapolis is the Interstate Public Service Company, which runs to Louisville. Favorable results, both for last year and for 1927, are indicated in the following statement by Harry Reid, its president:

The approximate results of our operations for the year 1926, with December estimated, show an increase in passengers carried of 1.6 per cent over the year 1925. The total income shows an increase of 4 per cent. There is a decrease in expenses of 3.8 per cent. The net income for the year 1926 is 93.2 per cent more than for the year 1925.

The prospects for the year 1927 indicate that we should do as much business as we have done this year and with further economies in operation our net showing should be better.

The above figures do not include bus operation.

Still another combination of city and interurban companies is seen at East St. Louis, Ill. Automobile competition has resulted in a decrease in business. It has not been possible to reduce expenses in line with the revenues, so that the showing has not been so favorable as in the case of some of the other properties. The figures for 1925 and 1926, with an estimate for 1927, were furnished by F. L. Reardon, assistant treasurer East St. Louis & Suburban Railway:

We give below the actual and estimated figures for the East St. Louis Railway and the East St. Louis & Suburban Railway:

	1925	1926	1927
East St. Louis Railway:			
Revenue passengers	13,082,576	12,000,000	11,500,000
Operating revenues	$1,094,843	$1,035,000	$1,000,000
Operating expenses	$792,601	$844,000	$850,000
East St. Louis & Suburban Railway:			
Revenue passengers	6,140,000	5,950,000	5,650,000
Operating revenues	$977,432	$1,042,000	$1,000,000
Operating expenses	$883,461	$1,084,000	$1,000,000

Results Favorable in Wisconsin

Two electric railways in Wisconsin have furnished statements, and both of them are favorable. In Milwaukee there has been a gain in revenue the past year, although expenses have kept the net revenue down to the same amount as in 1925. It is, however, estimated that there will be an increase for 1927, according to the following statement by S. B. Way, president the Milwaukee Electric Railway & Light Company.

	Twelve Months Ended Nov. 30 1926	1925
Operating revenue	$10,924,928	$10,586,527
Operating expenses, taxes and depreciation	9,444,766	9,105,922
Net operating revenues	$1,480,162	$1,480,604
Revenue passengers carried	154,685,591	150,500,871
Revenue car-miles	28,032,709	26,563,145
Gross capital expenditures	$2,647,932	$1,904,551
Property retirements	811,167	889,484
Net increase in capital	$1,836,765	$1,015,067

The company estimates an increase in traffic and operating revenues in 1927 of 2¼ per cent over traffic and revenues of 1926.

The advantage of new equipment is shown in the statement of H. L. Geisse, general manager Wisconsin Valley Electric Company, Wausau. While 1926 has been better than 1925, both in gross and net revenue, the replacement of old cars with new, modern ones and the extension of bus service are expected to make a material increase in business. His statement follows:

Following are the statistics of this company for the last two years:

	1925	1926 (Estimated)
Passengers carried	2,772,203	2,981,553
Revenue	$131,410	$151,976
Operating expenses	$96,769	$113,445

The year 1927 bids fair to be a better year for street railway operations than was 1926. We have just replaced two of our older type cars with new double-truck, 52-seat cars built by the American Car Company. It is probable that during 1927 our urban bus operations will be extended. I would look to see the total passengers carried in 1927 run to 3,200,000, or an increase of approximately 7 per cent. A corresponding increase should take place in our revenues, with little if any increase in expense. The reason for this is that our operating expenses this year include a very high per cent of maintenance which was entirely abnormal.

We plan to spend about $30,000 the ensuing year on replacement of track.

In the far West conditions are remarkably steady, as is evidenced by the operations of the Portland Electric Power Company, Portland, Ore. The past year showed a trifle less revenue than 1925, with expenses slightly higher. The outlook for 1927 is that the past year's results will be duplicated, according to Vice-President W. H. Lines:

The following tabulation shows revenues, expenses, passengers carried and mileage for the years 1925 (actual) and 1926 (eleven months actual, one month estimated).

	1925	1926
Operating revenues	$4,835,977	$4,712,000
Operating expenses	3,520,894	3,567,000
Taxes	290,000	325,000
Bridge rentals	98,000	95,500
Revenue passengers	61,772,709	60,300,000
Transfer and free passengers	24,033,796	26,000,000
Car-miles operated	14,750,000	15,000,000

I cannot foresee any change in local conditions which would materially increase or diminish our revenue during the coming year, nor do I anticipate any great variation in expenses. I think, therefore, that it is safe to apply the 1926 figures as a forecast for 1927.

Increased Riding in the South

In the South the industrial activity has not been so pronounced as in other sections of the country. Street railway revenues have shown an increase, however. The following statement by H. H. Flowers, president New Orleans Public Service, Inc., shows not only a healthy growth in riding for 1926, but an equal expansion this year:

Railway earnings for 1925 of the New Orleans Public Service, Inc., were $7,527,444. The estimated earnings for 1926 will be $7,627,092. For 1927 the forecast of earnings is $7,710,197. It is impossible to furnish comparison of expense, as we do not entirely segregate departments.

The Georgia Railway & Power Company, Atlanta, has had an almost equal increase in business. This system, however, segregates railway expenses. It is seen that there has been a large reduction in operating cost so that the net revenue for 1926 has been materially greater than in 1925. This year promises to show even better results, according to the following statement by Frank L. Butler, vice-president and general operating manager:

The result of the 1926 operation of Atlanta railway will show an increase in revenues of slightly more than $110,000, with a decrease in operating expenses of $130,000. We confidently expect 1927 to show conditions even more greatly improved. Our estimates contemplate increased revenue amounting to $81,000, with a further decrease in operating expenses of $48,000.

Properties operated by the Doherty interests cover a wide range of conditions. The largest city included is Toledo, while there are a number of smaller cities in which street car and bus service is furnished. The properties are separated into groups for convenience in comparison. Little change is expected in any of the groups, except that including Durham, N. C., where an expansion of the service, including the installation of bus lines co-ordinated with the car lines, has brought a 20 per cent increase in revenue, with the prospect that the net this year will be practically double that of 1925. Following is a brief review of the situation by R. F. Carbutt, of Henry L. Doherty & Company.

On the Missouri properties the gross for 1926 as compared with 1925 fell off about 4 per cent. It is anticipated that there will be a further recession in business in 1927. The operating expenses were reduced materially, largely on account of wider adoption of the one-man car. This resulted in an increase in the net for 1926 as compared with 1925. A further decrease in operating expenses in 1927 is expected, so that the net revenue will remain approximately the same as in 1926.

In Ohio all of the properties show a decrease in gross business in 1926 as compared with 1925. The operating expenses also decreased slightly, but there was a small decrease in the net. For next year it is anticipated that there will be a material increase in the gross revenue, with a slight further decrease in operating expenses. This will result in a considerable increase in the net income of these properties.

In the North Carolina group Durham is making the best showing, the 1926 gross revenue with a co-ordinated car and bus system being about 20 per cent over the last year's with street cars alone. It is expected that there will be a further gain of about 10 per cent in gross for 1927. Operating expenses increased in 1926, principally as a result of the expansion of the service, and as it is planned to expand further in 1927 the expenses will show an additional increase. Net operating revenue for 1926, however, is materially over that for 1925, and it is expected that in 1927 the net will be practically double that of 1925. While new capital has been added, the increased net is sufficient to provide a satisfactory return on it.

ON THE Toronto Transportation Commission's system, commencing in February of this year, each month has shown an increase over the corresponding month of last year, the improvement increasing each month. The improvement in 1926 will be about 2,500,000 passengers, or $150,000. Our expenses have remained approximately the same as 1925, or 28.5 cents per car-mile exclusive of depreciation. One-man car mileage is 15 per cent of the total. Our operating ratio of 62.8 is the same this year as last.

We believe and hope that business conditions will continue to improve during 1927; given the same improvement in 1927 as in 1926, our traffic will equal that of 1923, which was our peak year.
—D. W. Harvey.

The miscellaneous properties of the company in general show a decrease in gross for 1926 as compared with 1925, and a small reduction in net. Economies are being introduced which will result in an increased net for 1927.

Canadian Roads Also Gain

Operating results obtained by two important systems in Canada indicate that conditions there practically parallel those in the United States. In Toronto the railway system now operated by the city has been established long enough that it reflects the conditions incident to general business rather than the change from private to public management. The decrease in riding which was experienced for a time has not only been checked, but there has been a steady growth in passengers and in revenue for practically a whole year. With the greater business it has been possible to maintain the same operating ratio, so that the net has gone up in proportion. Next year's business bids fair to be even better, according to D. W. Harvey, general manager Toronto Transportation Commission.

This system's traffic decreased slightly each month from July, 1923, to February, 1926—that is, in comparison with the corresponding month of the previous year. The decreases were due primarily to quiet business conditions and secondarily to the increasing use of private motor cars.

Commencing in February of this year each month has shown an increase over the corresponding month of last year, the improvement increasing each month. The im-

provement in 1926 will be about 2,500,000 passengers, or $150,000. Our expenses have remained approximately the same as in 1925, or 28.5 cents per car-mile exclusive of depreciation. One-man car mileage is 15 per cent of the total. Our operating ratio of 62.8 is the same this year as last.

We believe and hope that business conditions will continue to improve during 1927; given the same improvement in 1927 as in 1926, our traffic will equal that of 1923, which was our peak year.

"Motor coach" in this organization means vehicles employed in other than universal fare transportation and includes chartered coaches, sightseeing and school contracts. We operated our first motor coaches in the early spring of 1925; this year our motor coach gross will be more than $300,000, or about double that of 1925.

Good operating results have also been obtained in Montreal. Gross earnings have gone up 2.81 per cent and net earnings 7.08 per cent. With only a slight increase in fixed charges for the year, there was left a balance for the stock 58 per cent ahead of that in 1925. It is expected that the gain will continue throughout this year. This is indicated in the following statement by H. E. Smith, comptroller Montreal Tramways:

Revenue:	1926	1925	Increase 1926 over 1925 Total	Per Cent
Car earnings	$12,573,000	$12,216,000	$357,000	2.92
Miscellaneous earnings	327,000	331,000	—4,000	—1.21
Gross earnings	$12,900,000	$12,547,000	$353,000	2.81
Expenses:				
Operating expenses and taxes	$6,543,000	$6,244,000	$299,000	4.79
Operating profit	55,000	52,000	3,000	5.77
Maintenance and renewals	2,598,000	2,792,000	—194,000	—6.95
Total	$9,196,000	$9,088,000	$108,000	1.19
Net earnings	$3,704,000	$3,459,000	$245,000	7.08
Fixed charges	3,321,000	$3,217,000	$104,000	3.23
Balance	$383,000	$242,000	$141,000	58.22
Revenue passengers	207,829,042	201,503,238	6,325,804	3.14
Mileage passengers	24,917,169	23,657,062	1,260,107	5.33

I am sending you herewith a statement of the approximate results of operations for the year ended Dec. 31, 1926, compared with the previous year. With respect to next year, 1927, we expect a continued improvement of about the same proportions as 1926 over 1925.

Chicago Surface Lines Operates 100% of Equipment

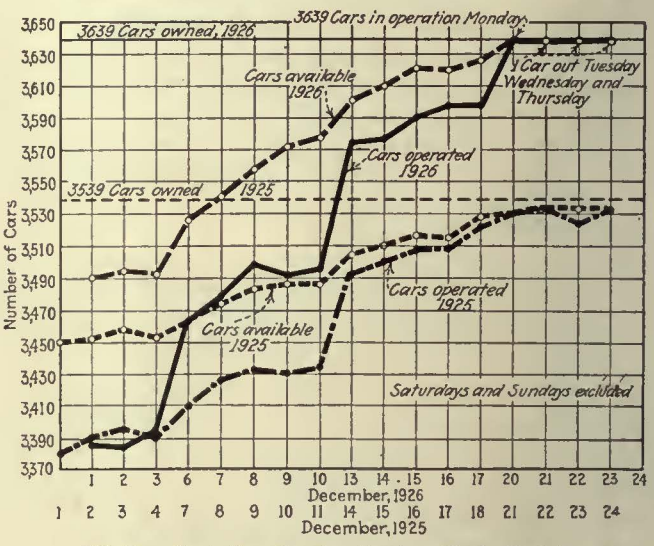
Co-operation Between Equipment and Transportation Department Makes Possible Operation of Every Car Owned by this Largest Street Railway System During Peak Day Before Holidays

A RECORD unique in the performance of electric railway properties in large cities was established by the Chicago Surface Lines during the peak shopping week immediately preceding the Christmas holidays. Riding during this period broke all records in the company's history, and exceeded the heavy volume of the Eucharistic Congress last June, at which time the hundreds of thousands of visitors in the Illinois metropolis threw a heavy load on all of the city's transportation facilities.

Dec. 18 was the biggest day in the history of the system. On that day 5,148,000 riders were carried. On Dec. 20 there were 4,959,686 rides; on the 21st, 4,853,400; on the 22d, 4,851,406, and on the 23d, 4,906,477. Revenue passengers for the year show an increase of 4 per cent over the corresponding period in 1925.

For a number of years, it has been the practice of the Surface Lines management to taper off overhaul work in the shops during the month of December, so as to make available a maximum number of cars during the period of heavy riding immediately preceding the holidays. Each year has marked the establishment of new records for the percentage of equipment made available for service during this period. This has been made possible by close co-operation between the equipment and the transportation departments, and by a continuous program of putting car equipment in first-class condition through regular overhauling and attention to maintenance details.

During a normal period the number of cars held in carhouses on the system for repairs averages 25.2 cars,



100 Per Cent Car Service During Rush Period Was the Record in Chicago

Every car of the 3,639 owned by the Chicago Surface Lines was in service on Monday, Dec. 20, at the height of the Christmas shopping rush. The number of cars available for service each day during December, and the number actually operated, are shown in comparison with the corresponding period in 1925.

or 0.7 per cent of the equipment owned. Cars in the two shops for overhaul and major repairs averages 117, or 3.26 per cent of the cars on the property. This makes an average of 142.2 cars per day held out of service for the mechanical department during a normal period. By arranging the maintenance program so as to make these cars available for service during the week of maximum load, an investment in extra equipment to meet a short annual peak is avoided. On the basis of $15,000 per car, this performance results in putting approximately 140 additional cars in service when they are most needed, at a saving in car investment of approximately $2,100,000.

On the accompanying curves are shown the number of cars available for service and the number actually operated during the month of December, 1926, in comparison with the same period during 1925. Purchase of 100 new cars during the year increased the number on the property from 3,539 to 3,639. On Dec. 20, 1926, every car on the property was in operation carrying the heavy holiday load. On Dec. 21, Dec. 22 and Dec. 23 all cars but one were kept in service. This performance is particularly interesting in the light of the fact that this company operates entirely in city streets, through heavily congested traffic.

The record was made under winter conditions when slippery rails and pavements made traffic accidents particularly troublesome.

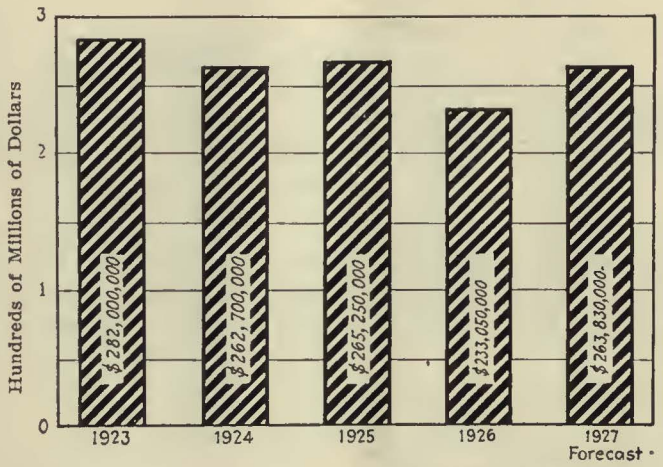
$263,830,000 Estimated for Equipment and Supplies in 1927

Essentiality of the Electric Railways Indicated in Forecast of Purchases for Maintenance and New Equipment for Coming Year—An Increase of 13.2 Per Cent Over 1926 Is Based on Extensive Survey—New Cars and Track Are Featured, While Bus Expansion Is on Slightly Lower Scale

WITH the indication of increased expenditures for the year 1927, based on returns from companies representing half of the industry, it is a safe prediction that the railways will continue next year on a conservative basis. While the year just closed did not measure up to the forecast made a year ago, the replies received indicate considerably better results for 1927.

Actual expenditures for new plant and equipment for 1926 fell behind 1925 by about $7,000,000. The principal setback was apparently in the track accounts. Plans for track rehabilitation and extensions made a year ago have in many cases been delayed and are now estimated for 1927.

New cars will probably reach a total in excess of 3,000 for the coming year according to the compilation made from the returns received. These estimates are for small as well as large city properties. The total estimate for new cars and modern equipment for remodeling old cars is $55,000,000 an increase of nearly 38 per cent over that spent in 1926.



Total Expenditures for New Plant and Maintenance Materials and Supplies Show Industry Is Holding Its Own

A graphical representation of the purchasing power of a six billion dollar industry with a billion dollar annual income.

New electric power facilities show an upward trend. The actual figures for 1926 indicate an increase over the forecast made a year ago and 1927 promises a further increase. This reflects the installation of automatic substations and the continuance of the policy of changing from isolated generation to a basis of power purchased from central stations.

None of the estimates for new equipment or for

PURCHASES PLANNED BY ELECTRIC RAILWAYS FOR 1927, COMPARED WITH ACTUAL ESTIMATES OF PAST YEARS PREPARED BY "ELECTRIC RAILWAY JOURNAL"

New Plant and Equipment—Capital

	1922	1923	1924	1925	1926	Forecast 1927
Way and structures	$85,000,000	$74,000,000	$56,000,000	$52,400,000	$51,200,000	$64,400,000
Equipment — Rail	38,000,000	78,000,000	60,200,000	50,000,000	40,000,000	54,950,000
Equipment — Buses				15,680,000	17,540,000	15,410,000
Power	28,000,000	28,000,000	17,000,000	5,150,000	7,640,000	10,350,000
Total	$151,000,000	$180,000,000	$133,200,000	$123,630,000	$116,380,000	$145,110,000

Maintenance Materials and Supplies—Operating

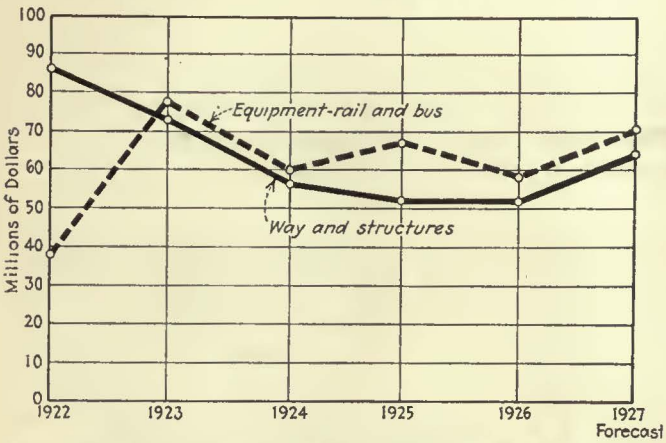
Way and structures	$42,000,000	$57,500,000	$56,900,000	$50,000,000	$51,900,000
Equipment — Rail	44,000,000	54,000,000	54,700,000	47,800,000	48,400,000
Equipment — Buses			7,370,000	7,500,000	8,020,000
Power	16,000,000	18,000,000	22,650,000	11,370,000	10,400,000
Total	$102,000,000	$129,500,000	$141,620,000	$116,670,000	$118,720,000

TOTAL OF NEW PLANT AND MAINTENANCE MATERIALS AND SUPPLIES

Way and structures	$116,000,000	$113,500,000	$109,300,000	$101,200,000	$116,300,000
Equipment — Rail	122,000,000	114,200,000	105,100,000	87,800,000	103,350,000
Equipment — Buses			23,050,000	25,040,000	23,430,000
Power	44,000,000	35,000,000	27,800,000	19,010,000	20,750,000
Grand total	$282,000,000	$262,700,000	$265,250,000	$233,050,000	$263,830,000

maintenance include the cost of purchased power or the cost of fuel of those companies that generate their own electrical energy.

Because of the rising importance of bus operation by electric railways the plan of separating bus equipment and new cars was first established last year and has



New Plant and Equipment Expenditures Show Healthy Condition

Analysis of purchases in the past five years with the JOURNAL's forecast based on a survey of the coming year indicate the stability of the industry and a sound expansion.

been continued this year. It is expected that this item of bus equipment expenditures will be of ever increasing importance because of the relatively short life of rubber-tired vehicles as compared with that of electric cars. This year bus purchases are estimated at $15,410,000, a decrease of 11 per cent over those actually purchased during 1926.

PROPERTIES WELL MAINTAINED

Maintenance accounts are about normal. The total for 1926 is lower than the forecast by the reduction in the power account alone equaling $11,000,000 and the forecast for 1927 shows a further slight reduction in the power group, again reflecting the gradual shift to a purchased power basis.

Bus maintenance shows an increase in 1926 and again in 1927 in proportion to the increase in buses operated by the railways.

FORECAST PREPARED ON A BROADER BASIS

This is the fifth forecast of ELECTRIC RAILWAY JOURNAL based on a survey conducted in December of each year. This year the survey was extended much further, questionnaires having been sent to a larger group of railway companies than heretofore in the United States and Canada. Replies have been received from over 200 companies, large and small, in all representing 50 per cent of the electric railway mileage.

Based on the replies received, the companies' returns for 1927 were totaled and prorated to cover the entire industry in the United States and Canada. In this proration not only car-miles and the number of cars operated are considered, but a study of the individual returns is made in order to eliminate the effect of unusual circumstances.

CONSTRUCTION FINANCED FROM PUBLIC FUNDS EXCLUDED

As usual these expenditures do not include construction or estimated construction of subways or elevated structures that are financed largely out of public funds. It is of interest to remember that enormous expenditures of this nature are now being actively considered or expended in New York, Philadelphia and Chicago. Much of the New York and Philadelphia work has been going on for the past year and it is quite likely that appropriations will soon be made and work begun on the first units of subway construction in Chicago and further extensions in New York. Likewise, expenditures for electrified steam railroads are not included in this forecast. Of greatest interest in this connection has been the completion of the Illinois Central suburban system out of Chicago during the past year. Heavy expenditures on the part of the New York Central Railroad; New York, New Haven & Hartford; the Virginian and the Great Northern were either made or are in progress at the present time.

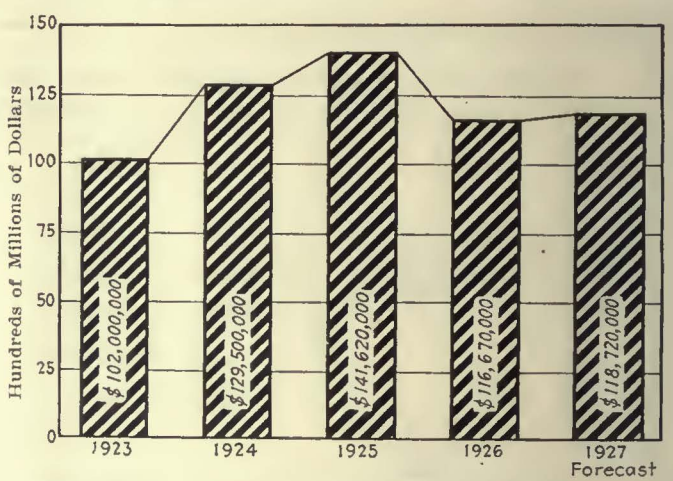
It should be borne in mind that the estimates given are only for the purchase of materials and supplies used in the operation of electric railways, and labor incident to the installation and use of such supplies has been omitted.

GASOLINE AND ELECTRIC POWER ADDITIONAL ITEMS

A factor of ever-increasing importance to gasoline and oil companies is the increasing use of motor fuel for the operation of buses. These figures do not include estimates of gasoline and oil consumption. Such figures, if available, would swell the purchases made by approximately $6,000,000.

About 13,000,000,000 kw.-hr. are used by the electric railways every year, half of which is purchased from light and power companies for the annual sum of $56,000,000. The remaining half that is generated in railway-owned power stations represents additional expenditures for fuel not included in the tabulation and charts presented herewith. It is interesting to note in this connection that the electric railways consume 17 per cent of the total energy generated in all power stations.

Coal purchased by electric railways for the 6,500,000,000 kw.-hr. generated would probably total $13,000,000.

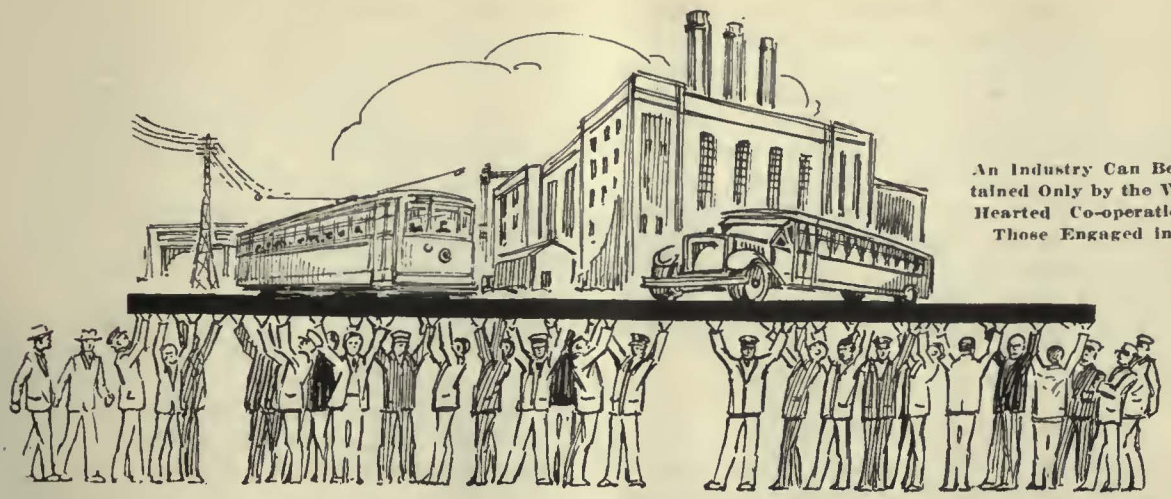


Industry Is Maintaining Its Physical Property

About 12 per cent of the billion dollar income is spent for maintenance materials and supplies, not counting fuel for buses or power houses nor the cost of purchased power.

In all, the money spent for fuel by the industry or for purchased power totals $75,000,000 annually and is in addition to the estimate of materials and supplies shown herewith.

The estimate of expenditures is intended to show the purchasing power of the industry for manufactured equipment and supplies.



An Industry Can Be Sustained Only by the Whole-Hearted Co-operation of Those Engaged in It

With apologies to the Public Service Railway

Some of Us Would Be Homesick in Heaven

Such Are the People Who Could Read This Account and Not Subscribe to the View That Times Change and We Change with Them—The Plastic Age in Transportation Appears to Be at Its Height

By G. J. MacMurray
News Editor ELECTRIC RAILWAY JOURNAL

IT DID NOT escape Ben Franklin that dough begins with do. Neither has that fact escaped the attention of electric railway men. True, some of those who slipped on the banana peel eight or ten years ago are still sitting on the pavement talking of the cause of their fall rather than trying to regain the prestige lost, but the cases are few and far between. The old goods are being put up in new packages just as Mr. DeLamarter did in Grand Rapids and as many others have done and are doing all over the country. We are wooing the public.

It's not so much what you do as the way you dress up what you do that counts. Many of us who even now deplore the passing of the Old Cap. Collier stories haven't yet discovered that the series is still running, but that you have to pay $2 now for the old 10-cent stuff. Despite this, many sound efforts are being made to merchandise the service. We are even sloganizing the service. Why, less than 24 hours after the announcement had been made that the Penn-Ohio Electric Company had won the Coffin award, the cars and buses of that company appeared on the streets with a decalcomania on their sides apprising the public of the achievement of their company, for it is their company since many of them are stockholders. The idea was to catch the public eye. The motivating force was the same that prompted the stocking merchant mentioned by Mr. Wickwire in his inimitable speech to advertise "happiness hose—for contented calves." If a Nickelodian may be permitted, isn't Mr. Wickwire really the witwire of the industry?

The "appeal of appearance" idea has really made great headway. It would be physically impossible within the limits of an article such as this to crowd in mention of everybody deserving of credit for fostering this forward movement. Quoting Mr. Wickwire once again, "Anything can be done if no one cares who gets the credit." Not all has been done that might be done, but the preponderance of evidence is on the side of the industry's accomplishments. Those with the hardihood to do so may run the matter down in detail in the JOURNAL indexes covering the contents of the last two volumes.

It is not a case of being like Ikey's lawyer, who was left out in the cold. Ikey got into trouble and went to his lawyer.

"If I win this case, I will give you a thousand dollars," he said.

"Very well," said the lawyer, "get some witnesses."

Ikey got his witnesses and won his case.

"Well," said the lawyer, "you have won your case. What about my thousand dollars?"

"That's all right," said Ikey, "you get some witnesses."

The witnesses are here galore. Looking for evidence of progressiveness in the electric railway industry is like looking for Pike's Peak in Teller County, Colorado. You can't miss it. Clint Morgan over in Brooklyn, to cite just one instance, when he receives the last of the now impending order of new cars for his company, won't have a trolley in service that antedates 1920. That may not be the record in modernization, but it is

offered as an exhibit for a system of its size. After all, it is the mirror that gets right back at you.

Down in Washington they went in for a new color scheme in cars. Similarly the Detroit United Railway began painting its cars in new colors, with the monogram of the company on the sides of the car in azure blue with a black border. These are merely recorded events. But both Mr. Storrs and Mr. Cobb have not hesitated to discuss frankly some of the basic factors of the electric railway situation. They and others have done the directing and the prescribing. Remember how the husband of the supersensitive wife said to a physician who had just given him a message for the wife:

"Doctor, would you mind telling her yourself?"

Speaking Right Out in Meeting

Men prominent in the electric railway industry haven't minded telling the story themselves. At Cleveland T. A. Kenney, Alfred H. Swayne, E. B. Meissner, Samuel M. Curwen and others all dwelt upon the car as the show window of the industry. It was at this meeting that Thomas Fitzgerald of Pittsburgh said that many obstacles and an expiring franchise, and what the Key System Transit, the Chicago Rapid Transit Company and others did when their representatives went from door to door canvassing their prospective passengers. It's what the Bridgeton & Millville Traction Company, the United Railways of Providence, the Birmingham Electric Company, the Northern Texas Traction Company, the Terre Haute, Indianapolis & Eastern and others did when they erected posters and billboards. The Georgia Railway & Power Company, Atlanta, even used rotogravure copy.

Several electric railways have established parking areas at the end of their lines. An autoist leaves his car while attending to his business in town, rides downtown and back on the trolley cars, and then uses his automobile to reach his home. The railways in Philadelphia, Poughkeepsie, Fort Worth and Grand Rapids are following this plan. Sometimes a combination ticket permitting parking for the day and a round trip on the trolley line is sold. In Milwaukee there was a very successful open house week. So that its patrons might know beyond peradventure that they were not suffering from cold feet

Say It with Figures, by Freddie Dell

Year	Convention City	Convention Registration	Percentage Increase or Decrease	Number of Manufacturer Company Members	Percentage of Increase	Number of Exhibitors at Conventions	Percentage of Increase	Total Space Sold, Square Feet	Perceotage of Increase
1916*	Atlantic City.....	3,271	.....	208	.....	125	.....	57,329	....
1917	New York City....	Conference only	.....	171	(D) 17.8	No exhibit	.....	No exhibit	....
1918	New York City ...	Conference only	.....	171	(D) 17.8	No exhibit	.....	No exhibit	....
1919	Atlantic City.....	3,166	(D) 0.2	206	(D) 0.4	157	25.6	62,219	8.5
1920	Atlantic City.....	3,300	0.9	200	(D) 0.3	136	8.8	59,529	3.8
1921	Atlantic City.....	1,189	(D) 63.7	225	8.1	No exhibit	.....	No exhibit	....
1922	Chicago.....	4,200	28.4	244	17.4	141	12.8	61,895	8.0
1923	Atlantic City.....	4,404	34.5	274	31.6	163	30.4	75,681	32.0
1924	Atlantic City.....	5,804	77.4	330	58.6	192	53.5	86,349	50.5
1925	Atlantic City.....	7,147	118.3	371	78.3	204	63.3	100,030	74.5
1926	Cleveland.....	8,623	163.5	423	103.3	271	116.9	119,007	107.7

*Figured on the basis of 1916 at 100 per cent.

winning the public support was the first step in selling city service, and it was at Cleveland that the Advisory Council outlined the fundamentals of success, the first of which was: "Obtain the friendly co-operation of the public." And by the way, the convention is going back to Cleveland next year. It was a great show, this one of 1926. Freddie Dell, who insists that figures tell the most forceful story, has supplied the final computation.

Freddie is right. Those figures are mighty significant. In business it is buy-buy or by-by. As the vice-president of the General Motors Corporation said at Cleveland, speed in the personal car has modified the desires of the people with respect to service. Electric railways still render the best mass transportation, but people living away from car lines want service brought closer to their doors. And the electric railways are going right up to the front door for it. But correct equipment and facilities are needed if the best results are to be secured.

Find the Job and Do It

It's a new order this, just like the one that came as a shock to the new office boy.

Boss: "Can't you find something to do?"

Office Boy: "Gee whiz! Am I expected to do the work and find it, too?"

That's just what is expected. It's what the Penn-Ohio system did; it's what the Pittsburgh Railways did with its two-bit football tickets; it's what the Chicago Surface Lines did in improving service in the face of the United Railways & Electric Company is now hanging thermometers in its cars. To increase the morale among its men the Pittsburgh Railways and others virtually have valet services. Gentle reader, turn to the issue of Dec. 25, page 1138, if you have any doubts that a trainman can be made the glass of fashion and the mold of form! It was a story without words that the Utah Light & Traction Company told in this connection.

Ad Venture Pays

Slowly but surely it is being borne in on railway men that in all business the man who engages in the most ad ventures is surest to come out best. The Buffalo & Erie Railway, the Detroit United, the Illinois Traction and others are using electric signs at their terminals to advertise their service. The P. R. T., the Third Avenue Railway, the Seattle Municipal Railway and others have been on the air frequently with entertainment and a message. Even Santa Claus was turned to advantage at Christmas parties given by the Louisville Railway, the Beaver Valley and other companies. But no matter how much has been accomplished in the past the industry must look to the future and concentrate on things still to be done. The article "The Utility Powder Puff vs. the Utility Razor" in the JOURNAL for Jan. 6 reflected the sentiment of the flapper that "there are times when a pat on the nose is worth two on the back."

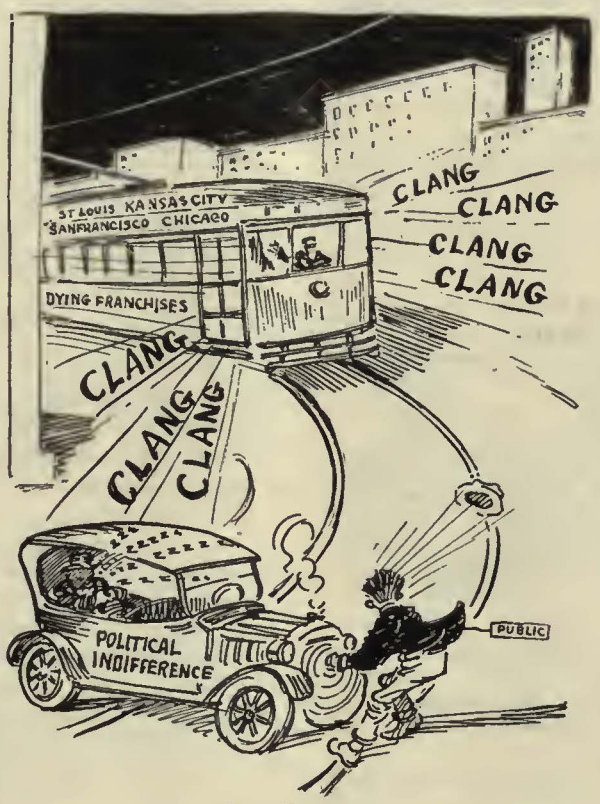
And as one checks up on the advertising campaigns in Chicago, in Baltimore, in Muskegon, the discussions at the conventions, notably the Southwestern

Public Service Association, and recalls the vogue of "A Texas Idea," again to mention just a few, one is reminded that the industry is turning to its own use the sentiments contained in the poem:

I would paint my name on the fences;
I would picture my goods on the sheds;
I would send my cards to the brides-to-be,
And call on the newlyweds!
I would make a list of the grand-dads,
And the dear grandmothers, too;
Of the preachers and painters, the workmen and women,
The poor and the well-to-do,
And I'd deluge them all with letters,
Explaining their need of me!
I would picture my store as a bit of the town
That everyone in it should see!
And when they arrived, I'd extend the glad hand
The moment they entered the door,
With so hearty a greeting that after the meeting
They would buy all the goods at My Store.

YES, IT'S TRUE

And literally, it's true. Why, the Beaver Valley Traction Company entered the world of art and had a master painter picture the spirit of the local industries on the sides of a street car. It was this company's Beaver Valley girls that caused such a commotion at the Cleveland convention. It sounds like the good old days of the '90s when trolley excursions were quite the thing to read about the trolley shopping days in Jacksonville, Toledo, Seattle and other cities. Why, it is even likely that the electric railway will be charged with being a contributing factor to the flapper, for didn't a prominent Alliance lawyer thank the officials of the Stark Electric Railway for the passes? He said that he used the pass four times a day himself and then lets one of his children use it at night. It must have been this incident that inspired the muse to write the poem first published in our Convention Daily, which read:



With apologies to the San Francisco Chronicle.

A Situation Serious for Everybody

Mary's Little Car

Mary had a little car,
She drove to see the show,
And every time she tried to park
The copper made her go.
And every time she tried to go
The traffic made her stop.
She reached the theater just in time
To see the curtain drop.
Now Mary has a little car
That stays within a shed
And Mary goes to shops and shows
In trolley cars instead.

Incidentally that little poem has gone the rounds pretty well, having even been reprinted in the *Wall Street Journal.* In that respect it is like the editorial on the value of the trolley car written by an editor down in Memphis, where they had a modernization parade like the one in Grand Rapids to celebrate the placing in service of 32 de luxe cars. And when rehabilitation is mentioned, don't forget the story of the come-back staged by the Steubenville, East Liverpool & Beaver Valley Traction Company, in which particular attention was paid to modernization of the rolling stock. So far as co-ordination of service goes Mr. Mitten seems to carry off the palm with cars, buses, taxis, airplanes and even a bank. Really the record of progress is astonishing. The late Elbert Hubbard said that if you want to know a subject write a book about it. Of course some one will arise to say that an optimist can always see the bright side of the other fellow's misfortune. Recalling some of the trying situations in this industry we are reminded that it is dangerous to tell a fat girl that she is "all wool and a yard wide." But no harm can come from thinking it just the same.

QUEEN MARIE MISSED A TREAT

Will Rogers had, of course, heard about the new Grand Rapids cars. All he knew about them until he visited Grand Rapids en tour in vaudeville early in December was what he had read in the newspapers. After he had looked them over on the ground he said:

"At that I didn't expect to find 'em quite so ritzy. You see, I couldn't forget those old splay-backed stubby ones they used to have when I was here 'way back before the war and used to do my stuff out to Ramona Theater at DeLamarter Lake. All I got to say is, Marie should'a seen 'em."

Will Rogers wasn't the only one to rub his eyes at the sight of the Grand Rapids cars in actual service. It is customary to cry loudly for a man of vision, and to call him visionary when we get him. The parade and the fanfare in Grand Rapids were more than justified. So were the similar celebrations in Memphis and Chattanooga.

Other instances of the application of new ideas in cars are supplied in the modernization of both interurban equipment and cars used in Akron, in the purchase of new cars by the Fitkin interests for use in Altoona, Scranton and Youngstown. Rolling stock improvements saved the small interurban described in the JOURNAL for Sept. 25, page 549. Similarly the installation of light-weight cars at Gary has been made to pay well. Toronto found modernization to be profitable. In fact, during the work of rehabilitation 490 cars have been scrapped there. Attractive cars put the Buffalo & Erie Railway on a paying basis. This road, which was a losing venture for sixteen years, is rapidly recovering its prestige with the aid of light-weight, one-man, speedy cars designed to attract passengers and reduce costs. Miami, Milwaukee, Chicago, Youngstown

and many other cities went in for new cars on a large scale. A recapitulation of the situation in New York City made early in 1926 showed that the rapid transit lines here spent $9,000,000 in 1925 for car equipment. The Chicago Rapid Transit Company, operating the elevated lines, put on new cars with several features added that are intended to give greater comfort and convenience, although the new equipment is practically a duplicate of that already in service. As Charley Gordon said back in February, modern cars are not a panacea, but they are a step essential to the keeping of present business and the stimulation of riding. John A. Miller, Jr., discussed the value of new cars as proved by the experience of twenty railways in the JOURNAL for Sept. 25.

Still, habit is difficult to overcome. Remember the case of the retired colonel who had seen 40 years of active service who gave his body servant, long his orderly, explicit instructions:

Trainmen Are Becoming the Glass of Fashion and the Mold of Form

"Every morning, at 5 sharp, Sam, you are to wake me up, and say, 'Time for the parade, sir.'

"Then I'll say, 'Damn the parade!' and turn over and go to sleep again."

A lot of us, not only street railway men but many others, do not object to being reminded about life's parade, but we like to turn over and go to sleep again.

IT'S NOT THE QUESTION BUT THE ANSWER THAT'S BOTHERSOME

And it's something like this with the question of co-ordination. Many railway managers are like the boy at the college examination when the professor asked:

"Does my question embarrass you?"

"Not at all," said the boy. "It is quite clear. It is the answer that bothers me."

And it is the answer to co-ordination that bothers many railway men. In this connection good advice was given by B. W. Arnold, assistant general manager of the Chicago, North Shore & Milwaukee Railroad, when he urged the members of the Illinois Electric Railway Association at a meeting on March 17 to operate motor coaches for profit, not loss. He said that a pessimistic attitude toward the possibilities of motor coaches will inevitably result in loss. Too many railways have started bus operation with the thought in mind that the service must necessarily be run at a loss. Cincinnati appears to have tied in the bus effectively with its railway. In Cleveland more than 100 buses were tied in for operation with the lines of the Cleveland Railway in a period of six months. In New Jersey the bus business of the Public Service Transportation Company, affiliated with the Public Service Railway, has grown from 1,952,059 passengers in 1923 to 146,053,237 passengers in 1925. In New York City nearly all the railways are to be found among the more than 100 applicants for bus franchises now pending before the Board of Estimate. The Brooklyn companies alone want to run 77 miles of bus lines on twenty routes on a service-at-cost basis starting at a 5-cent fare. Even the interurban and the bus are being articulated, as R. H. Pinkley of the Milwaukee Electric Railway & Light Company pointed out at the Indianapolis meeting of the C.E.R.A. And so the evidence might be expanded almost at once.

With all due respect to others, no paper or discussion of the bus question during the year was more to the point than was the paper by Lord Ashfield presented at Cleveland. It was his contention, based on experience, mind you, that competition between electric lines and buses is wasteful, and should be abolished. All local service by surface cars, subways, buses and other conveyances, he maintains, should be rendered under single supervision. Some of the things he said are too significant not to be repeated. It will repay everybody concerned to read, mark, learn and inwardly digest this series of facts:

SOMETHING TO THINK ABOUT

"In Greater London the average speed of the underground trains is 18 m.p.h., including stops, or 24 m.p.h. where a limited number of stops only is made. Upon the tramways the average speed is 9.6 m.p.h., but upon the motor omnibuses in the built-up areas only 8.6 m.p.h. The speed of the operation of motor omnibuses has fallen owing to the combined effect of street congestion and restrictive legislation, and it is a matter of importance both to those who provide the streets and those who regulate them that a higher speed of operation should be secured for motor omnibuses straight away.

"The decline in speed tends to increase cost, for many elements of cost are determined on a time basis. It is another form of preventable waste. The average receipt per passenger upon the underground railways is 2.8d; upon the omnibus 1.8d and upon the tramways slightly less than 1.5d, but if the average cost of carrying a passenger is taken, it is found to be, upon the underground railways 2.1d, upon the omnibuses 1.5d and upon the tramways 1.3d, so that the margins, being the net receipts, left in respect of these three forms of transport are, respectively, 7d per passenger upon the underground railways, 2d per passenger upon the motor omnibuses and 0.15d per passenger upon tramways.

"So that their relative net earning capacity, if the railways are taken as 100, is 29 in the case of the omnibuses and 21 in the case of the tramways. If, then, the capital investment involved in the provision of these several forms of transport is investigated, it will be found that this capital represents an investment, per passenger carried in the year, of 34d in the case of underground railways, of 5d in the case of tramways, and of 1.5d in the case of motor omnibuses. Then if the net receipts per passenger are brought into relation to the capital expenditure, per passenger, it will be found that if motor omnibuses may this time be taken as 100, the economic capacity of the tramway is only 21, and of the underground railways, on account of their enormous capital expenditure, only 15."

Of course as an abstract question the laborer is worthy of his hire. But let him get it, some one rejoins. Yes, that's the point. But the railways haven't done so badly. The present average fare is 7.42 cents. Dallas finally came into its own in this respect, the city realizing that an advance in rates to 7 cents was imperative if extensions and improvements were to follow. In that case an arbitrary fare theory was broken and the franchise amended. Louisville also got a 7-cent fare and a new franchise. Fares on the Key System in Oakland were raised last January. An 8-cent fare went into effect in Rochester early in the year. In the JOURNAL for Jan. 23 John A. Dewhurst went over all the ground in the Philadelphia fare case. The fare matter remains unsettled in St. Louis. There the issue is tied in with the question of the new franchise and the reorganization. One of the big accomplishments of the year was the change in the terms of the Tayler franchise in Cleveland. The modified grant there was adopted after extended negotiations. The first important application of the service-at-cost idea was in that city. There was nothing the matter with the principle on which the grant was based, but the ordinance was inflexible. The new grant there runs until 1950 and raises the possible maximum fare to 10 cents instead of 6 cents, and it fixes the rate in contiguous suburbs 1 cent higher than the Cleveland rate. It also increases the barometer fare fund to a lower limit of $500,000 and an upper limit of $1,000,000.

In Kansas City the grant of the Kansas City Public Service Company has been extended another twelve years. Cincinnati began to operate under its new service-at-cost grant late in 1925, but it was not until 1926 that the first figures of results were available. They were favorable. In January Toledo began to talk about a new franchise. It is still talking, just as they are doing in Chicago, New York, Jacksonville, etc. Anyway, there certainly has been a lot more heat than light in the Chicago and New York situations. Mr. Insull blames politics for the Chicago situation. He's right. The same cause is at the root of the trouble in New York and most of the other cities, but lack of a united front on the part of transportation companies is a contributing factor.

As one reviews the political situation and sees the mess into which some of the cities have fallen because of the attitude of opposition and inaction by the governing bodies, one is reminded that some figure hound has said that the average politician's vocabulary consists of about 500 words. A small stock, indeed, but oh! what a turnover. Politicians remind you of Moses. Every time they open their mouths the bull rushes. That may not be elegant, but it is forceful. Indeed, one of these situations is so bad with respect to some of the personalities involved that the story is recalled about the rich man of Depew's acquaintance who went back to his home town for a visit.

"Is it really true," an old chum of his boyhood days inquired, "that you are getting $10,000 a year?"

"Why, yes," said the man addressed, "a good deal more than that."

"Well, b'gosh," said the questioner, "ain't it wonderful what gall and circumstance will do for a man."

For the benefit of those who are interested in the economics of the situation they are reminded that L. R. Nash discussed tendencies in regulation, franchise terms, taxes and rates of fare in the JOURNAL for June 5; that Louis E. Gettle, chairman of the Wisconsin Railroad Commission, discussed Wisconsin's experience with the indeterminate permit in the same issue, and that the Railroad Commissioners in annual convention in Asheville in the fall went on record in favor of this form of grant.

Somewhat akin to these problems was the fixing of the $77,000,000 valuation for the Baltimore property last March. The valuation principles which governed in the presentation of this case were made the subject of a series of articles contributed to the JOURNAL by the late W. H. Maltbie, counsel for the United Railways & Electric Company.

As usual there has been a lot of substitution talk. The most notable instances have been in New York and Chicago. Brief mention has been made before of the

Apologies to the New York World.

Informative Statements Are Helping in New York, Chicago, Seattle and Louisville

New York proposal. It was given a wrong angle by the newspapers, this substitution proposal, so much so that both the association and the JOURNAL urged transportation men to supply the facts to their communities. This was done because the newspaper comment reflected colossal misunderstanding on the part of the press not only of the New York conditions, but of the general transportation question. And speaking about informing the public, isn't that just what such letter writers are doing as Mr. Richardson in Chicago, Mr. Dahl in New York, Mr. Barnes in Louisville and Mr. Henderson in Seattle, each according to his light?

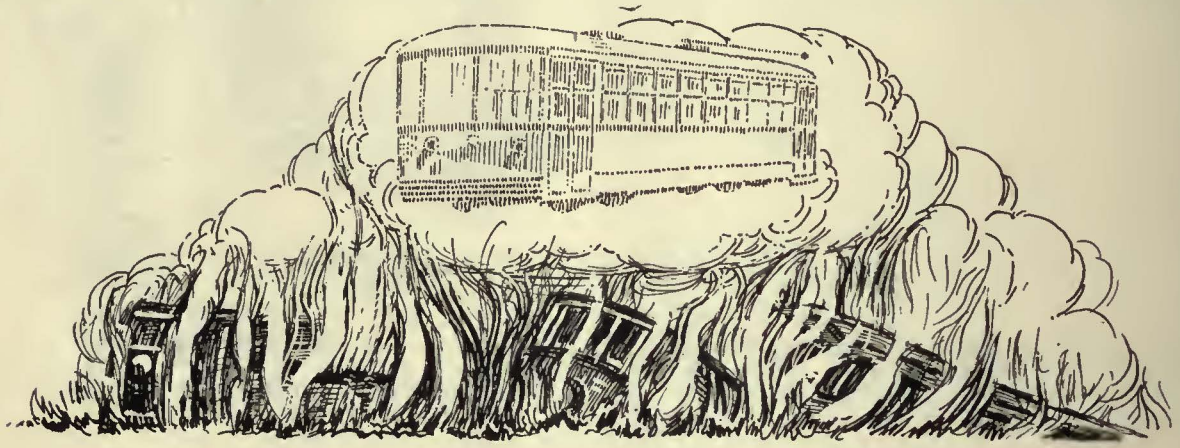
It was at the meeting of the Board of Estimate in New York in June that Mr. Dahl, the Brooklyn-Manhattan chairman, warned New York against scrapping its trolleys and declared that buses on anything but short routes could not be operated profitably for a 5-cent fare.

In London bus service was reduced to relieve congestion and to protect the tramways. Just as in New York, so the Berlin substitution program proved to be greatly magnified. An authoritative article in the JOURNAL at the time spiked this canard. Not only that, but the transportation expert who answered the inquiry said that if buses were substituted for cars in local service in Berlin the fares would have to be doubled.

OPERATING RATIO IS LOWER

Of course, the whole statistical record cannot be told, but it is of interest to reiterate the fact that details of operation from railways representing 90 per cent of the carrying capacity of the industry show an

improvement in the net income. There was a slight decrease in traffic, but this was offset by lower operating costs and increased efficiency. The operating ratio in 1925 was slightly lower than in 1924. Most of the larger city systems did well. Chicago Surface Lines continued to handle record traffic. The Brooklyn-Manhattan Transit System reported record net and gross. This road has made a great financial comeback. It has been improved physically, too. Net for the year ended June 30, 1926, was $5,748,187. The measure of the success of the receivers of the Kansas City Railways in operating that property was shown by the fact that $5,000,000 was turned over to the special master by them at the termination of the receivership. The Chicago, North Shore & Milwaukee Railroad, probably the premier interurban electric railway of the world, reported an increase in net of $79,910. Right here it may not be amiss to mention a particularly outstanding achievement recorded in greater detail elsewhere in this issue. At the beginning of the last week before the Christmas holidays the Chicago Surface Lines succeeded in keeping every one of its 3,639 cars in operation. According to Professor Richey, writing in the JOURNAL for Feb. 13, ten-year statistics show that railways in large and small cities have had increases in revenue and traffic per inhabitant and show more economical use of cars.



Out of the Ashes of the Old Arises the New, Phoenix-Like

SOME SAD THINGS

Of course there were some sad things said during the year. There was Mr. Loree with his remark about the $6,000,000,000 investment in the electric railways being wiped off the books. My! what a stir that caused. Then there was Professor Ripley with his attack on the contents of most annual reports and his warning about holding companies. Apparently the professor holds to the opinion that scrambling the eggs doesn't help much if there is one bad one in the lot. ELECTRIC RAILWAY JOURNAL found itself in the company of the *Wall Street Journal* when it said that to publish a mass of technical and non-correlated facts is not to meet the stockholders' legitimate demands. The investment bankers feel very much the same way about it, as the JOURNAL for Oct. 23, page 776, records. As for the receivership record, that is shown elsewhere in this issue. The receivership of the Chicago Railways was unfortunate, but could hardly have been avoided under the circumstances. There is no default in this instance.

An unusual development in the wage situation of the year was the adoption by the Philadelphia Rapid Transit Company and its employees of a wage dependent on the purchasing power of money. The relations between management and men on the Philadelphia system have been most cordial under Mr. Mitten and on a co-operative basis. Jointly the men own about one-third of the common stock of the company. The wage schedule adopted in March, 1926, provided a reduction in the hourly wage scale, based on a reduced index of the cost of living, from 77 cents to 73½ cents. There were many other amicable adjustments of wage matters during the year, but there was strife in a few instances. The strike in Indianapolis assumed a serious aspect, very serious for the labor leaders who were sent to jail, but the strike in New York petered out quickly, as did the one in Akron.

ACCIDENT REDUCTION WORK GETS RESULTS

A feature of the year in legislation has been the consideration by Congress of a bill to control and regulate interstate bus carriers. A committee of the Interstate Commerce Commission conducted hearings in different parts of the country during the summer to secure evidence in regard to the need for such regulation and the form it should take. In most states where there is regulation of electric railway lines there is also state regulation of bus lines, but it has been held that the power of the state regulatory bodies over interstate bus lines is very limited.

Ever-increasing attention is being given to the matter of accident reduction. A part of this work has been done by safety campaigns among the public, as by posters, safety talks in the public schools and co-operation with state, municipal and civic bodies in the prevention of traffic accidents. Part of the result has come from educating the employees in accident prevention work and in stimulating them to greater efforts along these lines, in some cases by bonuses or other awards for immunity from accidents. The work naturally is one of slow progress, but gradual improvement is being made. Thus the joint committee on accident prevention of the American Electric Railway Transportation & Traffic and the Claims Association reported in October that 172 companies had shown a decrease of 3.25 per cent in the total number of accidents reported in 1925 as compared with 1924, and reduction of 5.42 per cent in total cost of claims, 147 companies reporting. On the basis of the reports of 145 companies, the average ratio of cost of accident to gross earnings fell from 3.12 per cent in 1924 to 3 per cent in 1925. As for the work of the Claims Association, the head for the account of the meeting of that

body in the JOURNAL for Oct. 16 read: "Physicians and Surgeons Discuss Operating Problems." Quite appropriate! Quite appropriate!

SURVEYS OF STREET CONGESTION

Because of their use in the streets electric railways are keenly interested in all movements to reduce the street congestion and expedite the movement of traffic. For this reason steps taken to improve traffic conditions have the hearty co-operation of electric railways. Individually, also, many of them are helping in various ways to solve this problem, by conducting various traffic counts. Among the surveys made through the special assistance of the electric railways have been some to determine the proportion of shoppers at the principal department stores in a city who reach the store by trolley and by other means of transport. Surveys of this kind, it is believed, should be of assistance to the retail merchants of the city in helping them determine the policy as to the extent to which parking by automobiles should be permitted. Perhaps the most extensive survey of this kind conducted during the year was in Cleveland during three days in the early part of June, 1926, and the toll of customers was taken in 22 stores. They were not only the largest in Cleveland but represented a great diversity of goods sold. Each customer was interviewed and given a ballot as she or he entered the store on the day in question, the ticket being so arranged that a person could very easily indicate whether travel to the store by that individual was by bus, street car or private automobile or by water. A similar poll was taken among the employees of these stores, the result being travel by street cars 64.2 per cent, travel by private automobiles 21.8 per cent, travel by buses 10.1 per cent and walking 6.9 per cent.

In connection with the subject of accident reduction, greater attention is being given to the selection, training and periodical physical examination of motormen. Owing to the increasing use of one-man cars, this means that practically all transportation employees are concerned. A few companies give a physical examination to such employees of more than 50 years of age as often as once a year. The examinations of applicants for employment also include more attention to psychological tests than formerly, and at least two companies, those in Milwaukee and Philadelphia, have established extensive tests of this kind to govern the selection of trainmen.

Among the globe trotters of the year were W. H. Sawyer, shortly after his return from Australia elected president of the American Electric Railway Association, and Managing Director Storrs, who combined business with pleasure in a brief visit to Europe. How each of these men felt about it was, of course, duly recorded in the ELECTRIC RAILWAY JOURNAL. Another European observer was James A. Emery, vice-president of Ford, Bacon & Davis. Each of these men had something significant to say. It is certainly apparent that the British are on their toes with respect to improvements in railway rolling stock. More than 675 new cars were included by them in recent orders. Much reconstruction has been done to promote passenger comfort, notably on the London underground. The municipal managers in Great Britain are greatly excited over the inroads on their traffic by unregulated bus lines.

In the field of heavy electric railroading there were several very important events. On Aug. 7 the first train of the electrified suburban service on the Illinois Central Railroad of Chicago was run. The cost up to June 30, 1926, was $52,377,000, and it is expected that, compared with steam traction, about 12 per cent more suburban trains will be run, the passenger-carrying facilities will be increased about 6 per cent and train schedules will be speeded up from 7½ to 30 per cent. While the Staten Island Rapid Transit Company completed the electrification of its lines and began service with electricity as motive power on Dec. 24, the detailed account of the matter appeared in the JOURNAL for Jan. 2. Also in January the Long Island Railroad announced that $12,000,000 would be spent between 1926 and 1929 for electrification. Another significant installation is the application of electricity to 150 miles of the Piedmont & Northern Railroad at a cost of $15,000,000. The Skokie Valley route of the North Shore was completed and placed in service on June 5, one year almost to a day from the date construction was begun. This is a $10,000,000 installation. Similarly the so-called South Shore Line was completely rehabilitated. Construction of the rapid transit system in New York intended to be independently operated continues, but elsewhere, notably in Chicago, Pittsburgh, Cleveland, St. Louis and other cities, not much progress is to be reported with rapid transit projects.

There is nothing much new to recount about the municipal railway systems. Mr. Wallace, the manager of the Detroit system, is leaving on Jan. 1. Mr. Henderson is engaged in defending the local Seattle system from the attacks of a band of local taxpayers led by a Mr. Asia.

TIMES ARE CHANGED

But it is pretty near time to stop. No apologies appear to be needed for any of the things said. It might be well to explain that the journalist who does not interpret events as he sees them fails of his mission. Frequently he is misunderstood and maligned for his pains, but that is part of the price he pays. A natural optimist, he is forced at times to utter truths that estrange him from his contemporaries. A stern believer, he is often under suspicion. He is a prophet, but like the prophet he is often without honor in his own country. He consorts with kings, but is often rebuked for reproving them. He senses the debacle in advance of its coming, but is damned for his admissions. When change becomes a fact, he turns his attention to other things, for he is interested in the past only as it points the way to the future.

The changes of the past in this industry have merely reflected the changes in the outlook of the men responsible for them. Electric railway men of the past were good transportation men, but they saw only the electric car. They were good operators as operators go, but many of them failed quickly to appreciate the place of the bus. They lived in a world largely motivated by advertising, but they failed to appreciate the place that advertising plays in all merchandising. They wanted the best for themselves, but they failed to sense the same desire in others for modernization. They failed in some other ways, but they were not totally lacking in the desire to learn. And in that quality lies the seed of wisdom. Again is it well not to forget the Latin expression: *Tempora mutantur, nos et mutamur in illis.* Times change and we change with them. Never was this truer of an industry than it is today of the electric railway industry.

Increased Purchases Reflect Growing Interest in Car Improvement

Returns for Year Show Cumulative Activity in Purchases of Surface and Rapid Transit Passenger Equipment—Beginning of Comprehensive Replacement Program Evidenced by Increased Scrapping Rate—Buying of Standard Freight Cars Brings Interurban Totals Above Those for 1925

REPORTS of new rolling stock ordered during 1926 show that there has been a substantial increase in the total cars over the purchases in 1925, but the number of new cars still remains below replacement requirements. Cars are being scrapped at an increased rate and the total junked during 1926 about equals the number of new cars purchased. However, when analyzed carefully, the majority of the cars junked were used for city passenger service, so that the number of new cars purchased for this purpose appears to be entirely for replacement.

NEW ROLLING STOCK ORDERED DURING LAST FIVE YEARS

Year	Passenger Cars: City	Passenger Cars: Interurban	Passenger Cars: Total	Express, Freight, Service, Locomotives and Miscellaneous	Grand Total
1922	2,912	187	3,099	439	3,538
1923	2,915	427	3,342	687	4,029
1924	1,985	538	2,523	1,569	4,092
1925	1,054	320	1,374	285	1,659
1926	1,249	309	1,558	324	1,882

The statistics of new rolling stock given in the tables and charts herewith show that a total of 1,882 new cars and electric locomotives were ordered during 1926. This is an increase of 223 cars over the total of 1,659 bought in 1925; but the 1926 total is still less than half of the number purchased during either of the years 1923 or 1924. When analyzed in detail, the 1926 statistics show increases in the purchases of rapid transit cars, city surface passenger cars, freight cars and electric locomotives. There are slight decreases from the 1925 figures in the number of new interurban passenger cars purchased and in the total number of miscellaneous service cars bought..

Interest naturally centers in passenger car purchases. Comparisons for the two years show 932 city surface passenger cars bought during 1926, as compared with 894 in 1925; 317 rapid transit motor cars purchased during 1926 as compared with 160 during 1925; and 309 interurban passenger cars bought during 1926 as compared with 320 in 1925. The total purchases of interurban cars for all classes of service exceeds those of 1925 due to the inclusion of 186 standard freight cars, whereas only 155 freight cars were bought in 1925. Analysis of the number of miscellaneous, service and work cars, not including electric locomotives or freight cars, shows 66 purchased during 1926, as compared with 83 for 1925.

Special comparisons of new cars purchased during 1926 are given in table V. This shows that a total of 108 railways in the United States and Canada purchased new cars. This total is made up of 101 for the United States, one extraterritorial, and six for Canada. Of the cars purchased for city service, 574, or more than 44 per cent, were of the one-man, two-man type. Motor cars purchased for rapid transit service come next in the list with a total of 317, or nearly 25 per cent of the total city cars.

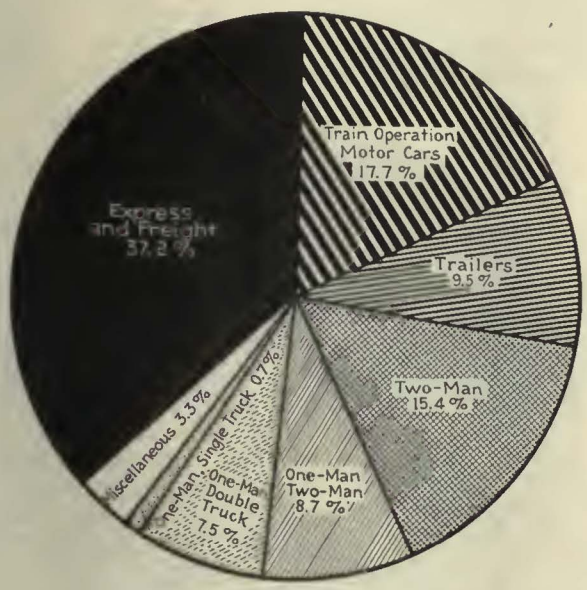
Straight one-man cars of all classes were bought in increased numbers as compared with 1925, there being a total of 210 purchased during 1926. Of these 66 were single-truck cars with 28-ft. bodies, 23 were single-truck cars with bodies longer than 28 ft. and 121 were double-truck cars. The total one-man cars purchased represents approximately 16 per cent of the total cars purchased for city service. One-man, two-man cars for city service total 574. The number of city cars designated as two-man type purchased during 1926 was 139, but of course many of the cars in the one-man, two-man class are used with two men during high peak periods.

Just what types of cars are being bought in greatest proportion, both of city and of interurban types, are shown in graphic form in diagrams on pages 21 and 22. The analysis of interurban cars purchased shows that freight cars are in the lead. Of the interurban passenger cars those purchased for train operation were more numerous, there being 92 motor cars and 49 trailers, or a total of 141 interurban cars of these types. Next in the interurban passenger car classification come 80 of the two-man type. There were 45 one-man, two-man interurban cars and 43 one-man cars. The diagram which shows the proportions of each class indicates that more than 37 per cent of the total interurban cars are for freight service. This large number of freight car orders is due unquestionably to the adoption of the standard design originated by the Central Electric Railway Master Mechanics' Association. Railways in the Central States were in need of added freight equipment and the bringing out of this standard design stimulated sales.

In order to show the rise and fall in popularity of the one-man car a special chart has been prepared. One-man single-truck cars with 28-ft. bodies, the original safety cars, first made their appearance in 1916. This type increased in popularity up to 1920, when a total of 1,699 were purchased. Since that time the number has decreased rapidly. During 1926 only 70 cars of this type were purchased. Single-truck cars with bodies longer than 28 ft. were purchased in greatest numbers in 1922, and since then the number has fallen off and one-man, two-man cars have been increasing in popularity. The total of 574 of the latter

type, which were purchased during 1926 for city service, is greater than for the years 1922 and 1925, but only about half those purchased during 1923 and 1924.

There were 22 electric railways that ordered twenty or more cars during 1926, an increase over 1925, which shows but seventeen such railways. Of these 22 roads the Philadelphia Rapid Transit Company ordered 150 rapid transit motor cars and 50 city double-truck motor cars. The Boston Elevated Railway purchased 100 city rapid transit motor cars, nine work cars and four sweepers. Other large purchases of rapid transit cars included the Brooklyn-Manhattan Transit Cor-



This Shows the Various Types of Interurban Cars Purchased Last Year as a Per Cent of the Total for This Class

poration, which ordered 67 rapid transit articulated cars, each consisting of three bodies on four trucks; twelve freight cars, and a supply car. The Long Island Railroad purchased 60 suburban motor cars and 30 trailers for train service, and the New York, New Haven & Hartford Railroad purchased twelve motor cars and fifteen trailers for suburban electric train operation. The New York, Westchester & Boston Railway and the Pennsylvania Railroad each purchased twenty motor cars for use in suburban passenger train service.

Of the railways to purchase cars for surface city passenger service, the Chicago Surface Lines obtained the greatest number, 100 motor cars. The Georgia Railway & Power Company purchased 60 city motor

Table I—New Rolling Stock Ordered Since 1907

Year	Passenger Cars—City	Passenger Cars—Interurban	Freight and Miscellaneous Cars	Electric Locomotives	Total
1907	3,483	1,327	1,406	(a)	6,216
1908	2,208	727	176	(a)	3,111
1909	2,537	1,245	1,175	(a)	4,957
1910	3,571	990	820	(a)	5,381
1911	2,884	626	505	(a)	4,015
1912	4,531	783	687	(a)	6,001
1913	3,820	547	1,147	(a)	5,514
1914	2,147	384	479	(a)	3,010
1915	2,072	336	374	(a)	2,782
1916	3,046	374	491	31	3,942
1917	1,998	185	223	49	2,455
1918	1,842	255	278	44	2,419
1919	2,129	128	172	18	2,447
1920	2,889	227	465	17	3,598
1921	1,059	129	81	7	1,276
1922	2,912	187	405	34	3,538
1923	2,915	427	595	92	4,029
1924	1,985	538	1,538	31	4,092
1925	1,054	320	238	47	1,659
1926	1,249	309	264	60	1,882

(a) Included in "Freight and Miscellaneous Cars."

cars and ten interurban motor cars. The Montreal Tramways and the Pittsburgh Railways each purchased 50 motor cars for city service.

As regards large purchases of cars, there were three companies that bought 100 or more cars in 1926, while there were six that purchased a total of 100 or more cars in 1925.

Details of rolling stock ordered by individual companies are given in Table VII which follows this article on pages 25, 26 and 27. The arrangement of this table is the same as that used in preceding years. The railways are arranged alphabetically, according to states. The United States is then grouped into five geographical divisions, while the Dominion of Canada and territories outside of continental United States are each grouped separately. In addition to listing the number of cars ordered by companies, the table shows the class of car and type of service. It also gives data as to length, seating capacity, weight and number of motors.

As in past years the states of Pennsylvania, Ohio and New York lead in the total number of cars purchased, there being 326 reported for Pennsylvania, 252 for Ohio and 215 for New York. In Pennsylvania the cars are mostly for city service, there being 291 city cars and but 35 interurban cars. In both Ohio and New York the interurban car totals exceeded those for city service, Ohio having 176 interurban cars and 76 city cars, while New York has 119 interurban cars and 96 city cars.

Multiple-bodied articulated cars are being used in increasing numbers for service where a large number of passengers must be carried. Three companies report the purchase of 89 units of this type. Of these units, 67 purchased by the Brooklyn-Manhattan Corporation

Table II—Special Comparison of New Rolling Stock Ordered by Years

	1926	1925	1924	1923	1922	1921	1920	1919	1918	1917	1916
Number of railways reporting new cars	108	94	119	167	145	94	172	160	140	182	250
City Service											
Number of one-man cars (28-ft. body S. T.)	66	55	103	312	772	565	1,699	1,383	644	280	187
Number of one-man cars other than 28-ft. body	144	74	96	183	227	.....	.....	.....	.....	.....	.....
Number of one-man, two-man cars	574	512	1,224	1,076	471	.....	.....	.....	.....	.....	.....
Number of two-man passenger motor cars*	456	405	537	1,097	1,290	383	847	635	1,068	1,316	2,731
Number of passenger trailers	9	8	25	247	150	111	343	111	130	402	128
Service cars	52	70	44	121	103	47	104	31	(a)	(a)	(a)
Total cars city service	1,301	1,124	2,029	3,036	3,015	1,106	2,993	2,160	1,842	1,998	3,046
Interurban Service											
Number of one-man cars	43	3	61	56	40	.....	.....	.....	.....	.....	.....
Number of one-man, two-man cars	45	70	38	38	9	.....	.....	.....	.....	.....	.....
Number of two-man motor cars*	172	207	435	330	122	103	195	96	200	158	303
Number of passenger trailers	49	40	4	3	16	26	32	32	55	27	71
Number of freight, express and miscellaneous cars	212	168	1,494	474	302	34	361	141	(a)	(a)	(a)
Total cars interurban service	521	488	2,032	901	489	163	588	269	255	185	374
Total number of cars	1,822	1,612	4,061	3,937	3,538	1,269	3,581	2,429	2,375	2,406	3,911
Number of electric locomotives	60	47	31	92	34	7	17	18	44	49	31

* Includes motor and trail cars for subway, elevated and train service. (a) Not available.

Table III—Companies Purchasing 20 or More Passenger Cars

Philadelphia Rapid Transit Co.	150	rapid transit motor cars and 50 city motor cars
Boston Elevated Railway	100	city rapid transit motor cars, 9 work cars and 4 sweepers
Chicago Surface Lines	100	city motor cars
Long Island R.R.	60	interurban motor cars and 30 interurban trailers
Brooklyn - Manhattan Transit Corp.	67	rapid transit articulated cars each with 3 bodies on 4 trucks, 12 freight cars and 1 supply car
Georgia Ry. & Power Co.	60	city motor cars and 10 interurban motor cars
Cincinnati, Hamilton & Dayton Ry.	16	city motor cars, 10 interurban motor cars and 40 freight cars
Montreal Tramways	50	city motor cars
Pittsburgh Railways	50	city motor cars
Ohio Valley Electric Ry.	46	city motor cars
Milwaukee Elec. Ry. & Lt. Co.	40	city motor cars and 4 sweepers
Dallas Ry. & Terminal Co.	30	city motor cars and 2 work cars
Memphis Street Railway	32	city motor cars
Market Street Railway	29	city motor cars and 2 cable cars
Arkansas Power & Lt. Co.	30	city motor cars
Virginia Elec. & Power Co.	30	city motor cars
Chicago, South Shore & South Bend Railroad	25	interurban motor cars, 2 parlor cars and 2 dining cars
New York, New Haven & Hartford Railroad	12	interurban motor cars and 15 trailers for train operation
Hamilton Street Railway	24	city motor cars
Columbus Ry., Pwr. & Lt. Co.	23	city motor cars
N. Y., Westchester & Boston Ry.	20	interurban motor cars
Pennsylvania Railroad	20	interurban motor cars

each consist of three bodies on four trucks; twelve units constructed by the United Railways & Electric Company of Baltimore consist of two bodies on three trucks, and ten units purchased by the Washington, Baltimore & Annapolis Electric Railroad consist of two bodies on three trucks.

Purchases of electric locomotives during 1926 are listed in Table IV. The total number of new electric locomotives is 60 as compared with 47 purchased during 1925. The Pennsylvania Railroad was the largest purchaser, ordering 21 locomotives of 192 tons and two of 150 tons. The remaining 37 electric locomotives purchased were divided among twelve companies.

For convenience in comparing rolling stock purchases during the past twenty years and in order to show at a glance the quantities of cars purchased as divided between city and interurban passenger cars and freight, express, service and miscellaneous cars, Table I gives the total number of cars ordered each year beginning with 1907. Rolling stock purchases are divided into four classes: First, city passenger cars; second, interurban passenger cars; third, freight, express and miscellaneous cars, and fourth, electric locomotives. In this classification cars for electrified steam railroad suburban service are included with interurban cars. The miscellaneous cars include service cars, snow plows, sweepers, work cars, etc.

In addition to this table, the trend of purchases is shown by graphs. Three of these on one diagram show the new cars ordered each year beginning with 1907. One gives the total number of cars and electric locomotives, the second gives passenger cars for city service and the third interurban cars for passenger service. The number of passenger cars bought for city service decreased from 1923 to 1925. The number for 1926

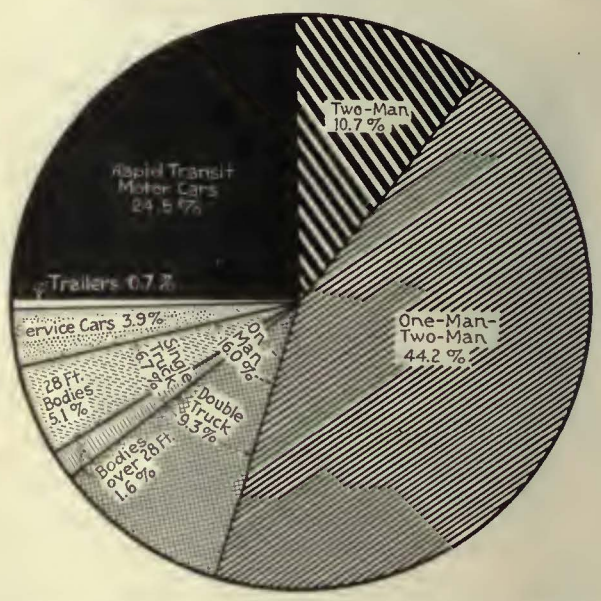


Diagram Showing the Proportion of Total City Cars for Each Type Purchased in 1926

with a total of 1,249 is lower than any other years except 1921 and 1925. Purchases of interurban cars increased from 1921 to 1924. Since then the number has decreased, there being but 320 reported in 1925 and but 309 in 1926.

A special comparison of cars ordered during the past eleven years is given in Table II. Cars are listed separately for city and interurban service and each class divides the various cars according to type. It is interesting to note how the number of safety cars purchased has increased each year from 1916 up to and including 1920 and during the same period how the number of large two-man cars has decreased. One-man, two-man cars first made their appearance in 1922 and since that time this type of car has proved most popular for city service. These changes in types of cars ordered have been discussed in connection with the several classifications.

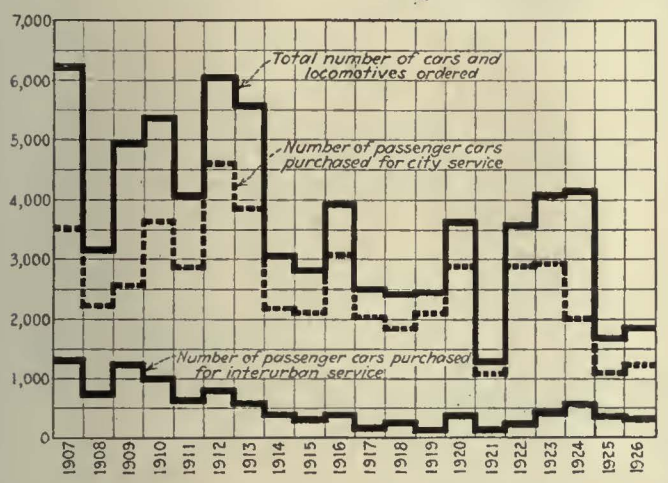
In Table V a recapitulation is given by districts of cars ordered during 1926. This shows that the greatest purchases of rolling stock were in the Eastern and Central States, while the Western States purchased comparatively few. The purchases during 1926 classified by districts follow in the same order as for the year 1925. During 1924 the Western States showed the greatest number of cars purchased, there being eighteen companies in the Western States that reported

Table IV—Electric Locomotives Ordered During 1926

Name of Railway	Number	Weight, Tons	Length Over All, Ft. In.
New England States			
New York, New Haven & Hartford R.R.	5	180.00	68—6
	3	90.00	37—6
Eastern States			
Baltimore & Ohio R.R.	2	120.00	39—6
Long Island R.R.	7	150.00	.....
	1	25.00	.....
New York Central R.R.	1	125.00	43—6
Pennsylvania R.R.	2	150.00	.....
	21	192.00	65—2½
Central States			
Chicago, Aurora & Elgin R.R.	2	50.00	.....
Chicago, South Shore & South Bend R.R.	4	80.00	40—0
Cincinnati, Georgetown & Portsmouth R.R.	1	53.50	40—2½
Great Northern Ry.	2	255.00	73—9
Illinois Traction System	6	80.00	.....
Toledo & Western Ry.	1	60.00	37—4
Extraterritorial			
Havana Central R.R.	1	60.00	37—4
Canada			
Canadian National Ry.	1	68.00	.....
Total	60		

a total of 1,663 cars and locomotives bought for city and interurban service. This is nearly as many as the total number reported for 1926, in all states. Car purchases during 1926, arranged by districts in the order of the number bought, show 669 cars purchased for city and interurban service in the Eastern States, 524 cars in the Central States, 224 cars in the Southern States, 180 in the New England States and 108 cars in the Western States. The Dominion of Canada reported a total of 111 cars, all for city service.

By analyzing the various one-man, two-man cars ordered for city service during 1926, it is seen that they run quite uniform in length, weight and seating capacity. Length varies from 37 ft. 6 in. to 46 ft. 2 in. and weight from 12.35 tons to 19.50 tons. In analyzing the essential details of cars of this class, the 100 multiple-unit cars ordered by the Chicago Surface Lines have



Graphical Analysis of Total Cars and Locomotives and Passenger Cars for City and Interurban Purchased During Past Twenty Years

not been included, since these are primarily for heavy city train service. For that reason they are larger and of heavier capacity than the ordinary one-man, two-man car required for city service. Consequently it is considered that these cars do not represent what can properly be described as a one-man, two-man car in size and weight. The weighted average for all cars of the one-man, two-man type purchased during 1926, exclusive of the Chicago cars, gives a length of 43 ft. 5 in. and a weight of 17.36 tons.

It is interesting to compare these average dimensions with similar ones for the city cars as proposed by the A.E.R.A. committee on essential features of modern cars, published in ELECTRIC RAILWAY JOURNAL for June 26, 1926. This committee gave three sizes of one-man, two-man double-end city cars, identical except for the number of windows included in the body. The ten-window body has a length over bumpers of 39 ft. 7½ in., the eleven-window body a length of 42 ft. 1 in. and the twelve-window body a length of 44 ft. 6½ in. The weighted average of length for cars purchased during 1926, 43 ft. 5 in., falls between that of the eleven and twelve-window cars, which would seem to indicate that cars of these two sizes would meet most conditions. Of the cars reported in the 1926 statistics, there was but one order for cars of a length shorter than the shortest car proposed by the A.E.R.A. committee. This was for 13 cars purchased by the Southern Indiana Gas & Electric Company, the length of

Table V—Recapitulation by Districts of Cars Ordered During 1926

	New England States	Eastern States	Central States	Southern States	Western States	Extraterritorial	Total for United States	Total for Canada	Grand Total
Number of companies reporting purchase of new cars...	12	33	35	14	7	1	102	6	108
City Service									
One-man cars, 28-ft. body....	...	9	16	36	...	..	61	5	66
One-man cars, with bodies longer than 28 ft.									
Single truck.....	...	10	...	13	...	..	23	...	23
Double truck.....	...	46	60	15	...	..	121	...	121
One-man, two-man cars.....	10	138	164	148	40	..	500	74	574
Two-man cars (surface).....	...	62	1	...	46	6	115	24	139
Motor cars for rapid transit lines.....	100	217	...	...	...	..	317	...	317
Trailers.....	...	...	...	...	5	..	5	4	9
Service and miscellaneous cars	15	21	7	2	3	..	48	4	52
Total cars, city service....	125	503	248	214	94	6	1,190	111	1,301
Interurban Service									
One-man, single truck cars..	...	4	...	...	...	..	4	...	4
One-man, double-truck cars.	...	4	35	...	...	..	39	...	39
One-man, two-man cars.....	22	5	8	10	...	..	45	...	45
Two-man cars.....	6	30	40	...	4	..	80	...	80
Trailers.....	15	30	4	...	...	..	49	...	49
Motor cars for train service..	12	80	...	...	...	..	92	...	92
Express and freight cars.....	...	8	187	...	...	..	195	...	195
Miscellaneous cars.....	...	5	2	...	10	..	17	...	17
Total cars interurban service	55	166	276	10	14	..	521	...	521
Electric locomotives.....	8	34	16	...	...	1	59	1	60
Total cars and electric locomotives.....	188	703	540	224	108	7	1,770	112	1,882

these cars being 37 ft. 6 in. and weight 12.35 tons. Of cars longer than the 44 ft. 6½ in. recommended for the longest car by the A.E.R.A. committee, there were fourteen cars purchased which were 45 ft. long; 73 cars which were 45 ft. 4 in. long; two cars which were 45 ft. 8 in. long; 30 cars which were 45 ft. 9 in. long; 32 cars which were 46 ft. 2 in., and ten cars which were 47 ft. long.

In regard to weight, the weighted average for the cars purchased during 1926 is 17.36 tons, which also falls within the weights given for the eleven and twelve-window cars. The recommended weights are respectively 15.6 tons and 18.5 tons. Corresponding weighted averages for cars of the one-man, two-man class purchased during the year 1925 were given in the Jan. 2, 1926, issue of ELECTRIC RAILWAY JOURNAL, the length being 44 ft. 1 in. and weight 18.07 tons. It thus appears that the tendency during 1926 was to use a car for one-man, two-man service slightly smaller in size than those purchased during 1925.

In general design cars of this class have remained about the same for the last three years. Wheels of 26 in. diameter are used most commonly, and platforms are either at the level of the car floor or with a slight ramp. A single intermediate step is used between the roadway and the car platform. Arch-type roof construction is used most generally. All of these charac-

Table VI—Freight Cars Ordered During 1926

Name of Railway	Number
Cincinnati, Hamilton & Dayton Ry.	40
Northern Ohio Power & Light Co.	27
Lake Shore Electric Ry.	20
Union Traction Company of Indiana	20
Indiana, Columbus & Eastern Traction Co.	15
Michigan R.R.	15
Brooklyn-Manhattan Transit Corp.	12
Pennsylvania-Ohio Electric Co.	10
Toledo, Bowling Green & Southern Traction Co.	10
Toledo, Fostoria & Findlay Ry.	10
Western Ohio Ry.	10
Cleveland Southwestern Railway & Light Co.	5
West Penn. Rys.	3
Indiana Service Corp.	1
Total	198

Table VII—Details of Rolling Stock Ordered During 1926

Name of Company	No.	Class	City or Interurban	Motor or Trailer	Single or Double Truck	Length Over All Ft. In.	Total Wt. Light Tons	No. Motors	Seating Capacity	One or Two Man	No. Cars Junked During Year
New England States											
Connecticut											
Connecticut Co.	1	Crane	Constructt.	Motor	Double	42— 0	32.70	4	.....	.....	28 CSM 20 CDM
New York, New Haven & Hartford R.R.	12	Passenger	Interurban	Motor	Double	80— 1½	88.00	4	120	Train	.....
	15	Passenger	Interurban	Trailer	Double	80— 1½	51.80	.....	120	Train	.....
Maine											
Bangor Hydro-Electric Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 IDM
Massachusetts											
Berkshire Street Ry.	12	Passenger	Interurban	Motor	Double	48—10	18.60	4	50	Both	.....
Boston Elevated Ry.	100	Passenger	City	Motor	Double	46— 7½	34.50	2	48	Train	42 CP 12 IS
	9	Work	Constructt.	Motor	Double	40— 0	23.00	4	.....	.....	.....
	4	Sweeper	City	Motor	Double	39— 0	26.00	4	.....	.....	.....
East Taunton Street Ry.	2	Passenger	Interurban	Motor	Double	36—10	13.96	4	44	Both	1 IP
Eastern Massachusetts Street Ry.	1	Snow Plow	Both	Motor	Double	43— 0	25.00	.....	.....	.....	92 CDM 27 CSM 22IDM
Fitchburg & Leominster Street Ry.	4	Passenger	Interurban	Motor	Double	36—10	20.00	4	40	Both	.....
Gardner-Templeton Street Ry.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14 CM
Greenfield-Montague Transp. Area	2	Passenger	Interurban	Motor	Double	39— 1½	.....	4	44	Both	.....
Interstate Street Ry.	2	Passenger	Interurban	Motor	Double	40— 3	16.10	4	44	Both	.....
Plymouth & Brockton Street Ry.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6 CDM
Springfield Street Ry.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 CSM 2 CDM
Rhode Island											
United Electric Rys.	10	Passenger	City	Motor	Double	41— 0	15.50	4	38	Both	.....
Vermont											
Springfield Terminal Ry.	2	Passenger	Interurban	Motor	Double	41— 6	18.00	4	48	Two	2 CP
Vergennes Power Co.	4	Passenger	Interurban	Motor	Double	45— 0	15.00	4	48	Two	4 CSM
Total cars New England States	180										
Eastern States											
District of Columbia											
Capital Traction Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	115 CST 6 CSM
Washington Railway & Electric Co.	15	Passenger	City	Motor	Double	42—3	20.10	4	49	One	25 CDM
	1	Work	Both	Motor	Double	42—11	20.00	4	.....	.....	.....
Washington-Virginia Ry.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6 IDM 5 IDT
Maryland											
Potomac Edison Co.	2	Passenger	City	Motor	Double	40— 0	15.92	4	38	Both	.....
	1	Passenger	City	Motor	Single	28— 0½	8.83	2	32	One	.....
United Railways & Electric Co	12	Passenger	City	Motor	*Three	74—10	33.80	4	87	Two	35 CSM
Washington, Baltimore & Annapolis Elec. R.R.	10	Passenger	Interurban	Motor	*Three	94— 7	59.00	4	94	Two	.....
New Jersey											
Coast Cities Ry.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8 CDM 42 CSDO
Cumberland Traction Co.	2	Passenger	Interurban	Motor	Double	48— 0	20.00	4	44	One	.....
Trenton & Mercer County Traction Corp.	3	Sweepers	City	Motor	Double	.....	.....	4	.....	.....	.....
New York											
Batavia Traction Co.	1	Passenger	City	Motor	Double	.....	.....	2	42	One	.....
Brooklyn City R.R.	1	Crane	Construct	Motor	Double	44—0	33.50	4	.....	.....	.....
Brooklyn-Manhattan Transit Corp.	67*	Passenger	City	Motor	*Four	137—0	.....	4	160	Two	.....
	12	Freight	City	Trailer	.....	.....	.....	.....	.....	.....	71 CM
	1	Supply	City	Motor	Double	48—0	30.00	4	.....	.....	.....
Chautauqua Traction Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11 CDM
Eastern New York Utilities Corp.	2	Passenger	Interurban	Motor	Double	41—3	19.00	4	44	Both	.....
Ithaca Traction Corp.	4	Passenger	City	Motor	Single	29— 8½	.....	2	32	Both	.....
Jamestown Street Ry.	8	Passenger	City	Motor	Single	27— 7	9.50	2	30	One	.....
Long Island R.R.	60	Passenger	Interurban	Motor	Double	.....	57.35	2	78	Train	.....
	30	Passenger	Interurban	Trailer	Double	.....	35.00	.....	80	Train	.....
	5	Caboose	Interurban	Trailer	.....	.....	19.00	.....	.....	.....	.....
New York & Stamford Ry.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24 IDM
New York State Rys.	1	Dump	Construct	Motor	Double	40—0	25.00	4	.....	.....	.....
	1	Dump	Construct	Trailer	Double	40— 0	17.00	.....	.....	.....	.....
New York, Westchester & Boston Ry.	20	Passenger	Interurban	Motor	Double	72— 06	63.45	2	80	Two	.....
Olean, Bradford & Salamanca Ry.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 IDM
Richmond Light & R.R. Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30 CDM
Schenectady Ry.	2	Work	City	Motor	Double	40— 0	25.00	4	.....	.....	.....
Pennsylvania											
Conestoga Traction Co.	6	Passenger	City	Motor	Single	31— 0	9.00	2	30	One	.....
East Taunton Street Rwy.	2	Passenger	Interurban	Motor	Double	38— 0	14.00	4	40	One	.....
Jefferson Traction Co.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 C 2 I
Pennsylvania R.R.	20	Passenger	Interurban	Motor	Double	64— 0	61.50	2	72	Train	.....
Philadelphia Rapid Transit Co.	150	Passenger	City	Motor	Double	.....	.....	2	.....	Train	50 CDM
	50	Passenger	City	Motor	Double	45— 6	18.47	4	48	Two	.....
Pittsburgh Rys.	50	Passenger	City	Motor	Double	45— 4	19.00	4	52	Both	.....
Reading Transit Co.	4	Passenger	City	Motor	Double	45— 0	16.85	4	46	Both	.....
Scranton Ry.	12	Passenger	City	Motor	Double	41—10	18.00	4	44	Both	55 CSM 2 CDM
Sunbury & Selinsgrove Ry.	3	Passenger	Both	Motor	Double	40— 3	14.00	4	50	Both	3 CM
Tarentum, Breckenridge & Butler Street Ry.	4	Passenger	Interurban	Motor	Single	.....	.....	2	28	One	3 ISM
United Traction Street Ry.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4 IM
West Penn Rys.	3	Freight	Interurban	Motor	Double	50— 0	21.00	4	.....	.....	.....
	1	Flat car	Interurban	Trailer	Single	20— 0	4.00	.....	.....	.....	20 CSM
	2	Line cars	Interurban	Motor	Double	45— 0	21.00	4	.....	.....	.....
Westside Electric Street Ry.	3	Passenger	City	Motor	Double	41— 2	17.53	4	46	Both	.....
Williamsport Passenger Ry.	5	Passenger	City	Motor	Double	42— 2	16.00	4	44	Both	.....
	1	Snow plow	Both	Motor	Single	28— 0	.....	2	.....	.....	.....
Wilkes-Barre Ry.	10	Passenger	City	Motor	Double	45— 0	.....	4	.....	Both	.....
Virginia											
Roanoke Ry. & Electric Co.	6	Passenger	City	Motor	Double	41— 4	17.50	4	44	Both	.....
Virginia Electric & Power Co.	30	Passenger	City	Motor	Double	40— 0	16.00	4	44	One	74 CSM
West Virginia											
Ohio Valley Electric Ry.	46	Passenger	City	Motor	Double	44— 0	18.00	4	48	Both	.....
Total cars Eastern States	669										

*Three-section units.

Table VII—Details of Rolling Stock Ordered During 1926—(Continued)

Name of Company	No.	Class	City or Interurban	Motor or Trailer	Single or Double Truck	Length Over All Ft. In.	Total Wt. Light Tons	No. Motors	Seating Capacity	One or Two Man	No. Cars Junked During Year
Central States											
Illinois											
Aurora, Elgin & Fox River Electric Co.	8	Passenger	City	Motor	Single	28— 0½	9.03	2	32	One	
Chicago, North Shore & Milwaukee R.R.	4	Caboose	Interurban	Trailer	Double	34—10	27.00				2 IF 1 IP
Chicago Surface Lines	100	Passenger	City	Motor	Double	48—11	20.65	2	51	Both	
Chicago & Joliet Electric Ry.	4	Passenger	Interurban	Motor	Double	46— 2	19.25	4	48	One	
	6	Passenger	Interurban	Motor	Double	46— 2	19.25	4	52	One	
Illinois Power Co.											4 CSM
Illinois Power & Light Corp.											61 CP
Indiana											
Chicago, South Shore & South Bend R.R.	25	Passenger	Interurban	Motor	Double	60— 0	57.00	4	42	Two	
	2	Parlor	Interurban	Trailer	Double	60— 0					
	2	Dining	Interurban	Trailer	Double	60— 0					
Gary Railways	12	Passenger	Interurban	Motor	Double	44— 0	28.75	4	44	One	
Gary & Hobart Traction Co.	3	Passenger	Interurban	Motor	Double	44— 8½	21.25	4	44	Two	
Indiana Service Corp.	1	Freight	Interurban	Motor	Double	52— 0	32.00	4			
	1	Work	Interurban	Trailer	Double	52— 0	18.00				
Southern Indiana Gas & Electric Co.	4	Passenger	Interurban	Motor	Double	40— 3	17.00	4	44	One	
	13	Passenger	City	Motor	Double	37— 6	12.35	4	44	Both	
Union Traction Company of Indiana	20	Freight	Interurban	Trailer	Double	49— 8	21.25				
Kentucky											
Kentucky Traction & Terminal Co.	1	Passenger	Interurban	Motor	Double	40— 3	14.00	4	44	One	
Louisville Ry											13 CDM 3 CST
Michigan											
Department of Street Rys. (Detroit)											14 CDM
Detroit United Ry.											1 CDM 1 F 1 IDM
Grand Rapids Ry.											6 CDM
Menominee & Marinette Light & Traction Co.											1 CSM
Michigan R.R.	15	Freight	Interurban	Trailer	Double	49— 8	21.50				
Muskegon Traction & Light Co.	2	Passenger	City	Motor	Double		16.50	4		One	
Minnesota											
Mesaba Ry.											2 IDM
Twin City Rapid Transit Co.	1	Crane	Conatruct	Motor	Double	44— 0	35.00	4			
Missouri											
City Light & Traction Co.											1 CP
Missouri Power & Light Co.											1 CP
St. Joseph Light, Heat & Power Co.											36 CM
United Rys. (St. Louis)											18 CDM
Ohio											
Cincinnati, Hamilton & Dayton Ry.	6	Passenger	City	Motor	Single	28— 1½	8.00	2	32	One	
	10	Passenger	City	Motor	Double	39— 8	14.75	4	47	Both	
	7	Passenger	Interurban	Motor	Double	53— 9	28.75	4	50	Two	
	3	Passenger	Interurban	Motor	Double	52— 2	30.00	4	52	Two	
	40	Freight	Interurban	Trailer	Double	49— 8	21.20				
Cincinnati Street Ry.	5	Passenger	City	Motor	Double	39— 8	13.25	4	49	One	23 CSM
Cleveland Ry.	1	Passenger	City	Motor	Double	51— 2	16.40	4	56	Two	59 CDM
	1	Concrete Breaker	City	Motor	Single	24— 0	10.00	1			
Cleveland Southwestern Ry. & Light Co.	5	Freight	Interurban	Trailer	Double	54— 3	40.00				
Columbus, Delaware & Marion Electric Co.	2	Parlor	Interurban	Motor	Double	62— 0	47.50	4	36	Two	
Columbus Railway, Power & Light Co.	23	Passenger	City	Motor	Double	45— 3½	18.31	4	48	Both	
Columbus, Urbana & Western Electric Ry.											3 I
Indiana, Columbus & Eastern Traction Co.	15	Freight	Interurban	Trailer	Double	36— 0	21.20				
Lake Shore Electric Ry.	20	Freight	Interurban	Trailer	Double	36— 0	21.20				
Nelsonville Electric Ry.											1 IDM
Northern Ohio Power & Light Co.	1	Dump	Conatruct	Trailer	Double	40— 0	25.00				30 CDM
	25	Freight	Interurban	Trailer	Double	49— 8	21.50				
	2	Freight	Interurban	Motor	Double	52— 4	35.75				
Pennsylvania-Ohio Electric Co.	10	Freight	Interurban	Trailer	Double	49— 8	21.20				12 IDM
	13	Passenger	City	Motor	Double	49— 0	16.06	4	44	One	
Portsmouth Public Service Co.	3	Passenger	City	Motor	Double	42—11	13.40	4	55	Both	
Stark Electric R.R.	8	Passenger	Interurban	Motor	Double	47— 0	16.00	4	54	One	5 IDM
Steubenville, East Liverpool & Beaver Valley Traction Co.	8	Passenger	Interurban	Motor	Double	48— 0	23.00	4	51	Both	
Toledo, Bowling Green & Southern Traction Co.	10	Freight	Interurban	Trailer	Double	49— 8	21.20				
Toledo Edison Co.	1	Dump	Construct	Trailer	Double	40— 0	17.00				
Toledo, Fostoria & Findlay Ry.	10	Freight	Interurban	Trailer	Double	36— 0	21.20				
Western Ohio Ry.	10	Freight	Interurban	Trailer	Double	49— 8	21.50				
Youngstown Municipal Ry.	13	Passenger	City	Motor	Double	49— 0	16.06	4	44	Both	
Wisconsin											
Milwaukee Electric Railway & Light Co.	40	Passenger	City	Motor	Double	45— 0	17.88	4	54	One	1 CDM
	4	Sweepers	City	Motor	Double	46— 0	36.00	4			
Mississippi Valley Public Service Co.	2	Passenger	City	Motor	Single		8.50	2		One	
Northern States Power Co.											5 CST 1 CDM
Wisconsin Power & Light Co.											2 IDM 3 IDM 1 CDF
Wisconsin Valley Electric Co.	2	Passenger	City	Motor	Double	43— 6	17.00	4	52	Both	1 CDM
Total cars Central States	524										
Southern States											
Alabama											
Alabama Power Co.	3	Passenger	City	Motor	Double	42—10	16.25	4	53	One	16 CM
Birmingham Electric Co.	16	Passenger	City	Motor	Double	49— 7	18.00	4	62	Both	13 CDM
	1	Work	City	Motor	Single	16— 4	14.00	2			
Mobile Light & Railroad Co.	7	Passenger	City	Motor	Single	29— 9	8.75	2	32	One	2 CDM
Arkansas											
Arkansas Power & Light Co.	30	Passenger	City	Motor	Single	28— 6½	9.00	2	33	One	
Fort Smith Light & Traction Co.	6	Passenger	City	Motor	Single	28— 0½	8.00	2	32	One	
Florida											
Key West Electric Co.											9 CSM
Miami Beach Ry.	12	Passenger	City	Motor	Double	45— 9	18.00	4	48	One	
Municipal Ry. of St. Petersburg	8	Passenger	City	Motor	Double	40— 1	15.22	4	46	Both	1 CDMO
Tampa Electric Co.	10	Passenger	City	Motor	Double	47— 0		4	48	Both	

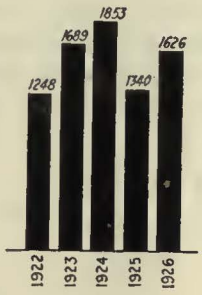
Table VII—Details of Rolling Stock Ordered During 1926—(Concluded)

Name of Company	No.	Class	City or Interurban	Motor or Trailer	Single or Double Truck	Length Over All Ft. In.	Total Wt. Light Tons	No. Motors	Seating Capacity	One or Two Man	No. Cars Junked During Year
Georgia											
Georgia Railway & Power Co.	60	Passenger	City	Motor	Double	46— 4	18.69	4	48	Both	60 CST
	10	Passenger	City	Motor	Double	45— 6	18.12	4	52	Both	34 CDT
											3 IDT
Louisiana											
Shreveport Rys.	2	Passenger	City	Motor	Double	45— 8	17.00	4	52	Both	1 CSM
Mississippi											
Mississippi Power Co., Gulfport											11 IDM
North Carolina											
Carolina Power & Light Co.	6	Passenger	City	Motor	Single	33— 0	11.00	2	40	One	13 CSM
Tidewater Power Co.											2 CDM
Tennessee											
Memphis Street Ry.	32	Passenger	City	Motor	Double	46— 2	19.00	4	56	Both	
Nashville Railway & Light Co.	10	Passenger	City	Motor	Double	40— 0	14.50	4	44	Both	
	1	Work	Construc.	Motor	Double	40— 6	22.50	4			
Tennessee Electric Power Co.	10	Passenger	City	Motor	Double	40— 3	13.75	4	44	Both	10 CDM
Total cars Southern States	224										
Western States											
Arizona											
Tucson Rapid Transit Co.											2 CDM
California											
Bakersfield & Kern Electric Ry.											5 CP
Key System Transit Co.	6	Dump	Construct.	Trailer	Double	42— 0	18.95				10 CDM
	4	Dump	Construct.	Motor	Double	41— 0	27.00	4			
Market Street Ry.	29	Passenger	City	Motor	Double	47— 0	19.55	4	50	Two	24 CDM
	2	Passenger	City	Cable	Double	31— 5	6.35		36	Two	
Municipal Ry. of San Francisco	15	Passenger	City	Motor	Double	47— 1	25.00	4	52	Two	
Pacific Electric Ry.											22 IPM
											19 IS
											51 IF
Colorado											
Colorado Springs & Interurban Ry.											3 CSM
Denver Tramway Corp.											1 CDM
Denver & South Platte Ry.											2 CSM
Nebraska											
Lincoln Traction Co.											20 CSM
											2 CDM
Texas											
Dallas Railway & Terminal Co.	30	Passenger	City	Motor	Double	45— 8½	19.50	4	52	Both	
	2	Dump	Construct.	Motor	Double	40— 0	22.68	4			
Eastern Texas Electric Co.	4	Passenger	Interurban	Motor	Double	44— 4		4	42	Two	5 CDM
El Paso Electric Co.											8 CSM
Houston Electric Co.											3 CDM
San Antonio Public Service Co.											1 CM
Utah											
Utah Light & Traction Co.	10	Passenger	City	Motor	Double	40— 1	16.00	4	40	Both	7 CDM
	5	Passenger	City	Trailer	Double	40— 0	7.50		56	One	
Washington											
Puget Sound Power & Light Co.											2 IF
Spokane United Rys.											36 CDM
Yakima Valley Transportation Co.	1	Service	City	Motor	Single						
Total cars Western States	108										
Extraterritorial											
Porto Rico											
Porto Rico Ry., Light & Power Co.	6	Passenger	City	Motor	Double	45— 6	14.00	4	65	Two	
Total cars Extraterritorial	6										
Dominion of Canada											
British Columbia											
British Columbia Electric Ry	8	Passenger	City	Motor	Double	48— 8	22.45	4	48	Two	3 CDM
	4	Passenger	City	Motor	Double	48— 8	23.15	4	48	Two	2 CSM
	4	Passenger	City	Trailer	Double	48— 8	23.70		55	One	1 IDF
Nova Scotia											
Nova Scotia Tramways & Power Co.	4	Passenger	City	Motor	Single	28— 0½	9.25	2	32	One	19 CSM
Ontario											
Hamilton Street Ry.	24	Passenger	City	Motor	Double	40—11	17.00	4	48	Both	16 CSM
Niagara, St. Catharines & Toronto Ry.	12	Passenger	City	Motor	Double	42— 6	16.39	4	44	Two	
Oshawa Ry.	1	Work									1 C
Quebec											
Montreal Tramways	50	Passenger	City	Motor	Double	41— 2	17.00	4	40	Both	
Newfoundland											
Newfoundland Light, Heat & Power Co.	1	Passenger	City	Motor	Single	28— 0½	11.00	2	30	One	
	3	Sweeper	City	Motor	Single	28— 0	15.00				6 CM
Total cars Canada	111										

C—city cars
CS—city, single truck
CD—city, double truck
CSM—city, single truck, motor
CST—city, single trunk, trailer
CSO—city, single truck, open
CDM—city, double truck, motor
CDT—city, double truck, trailer
CDMO—city, double truck, motor, open
CP—city passenger cars
CM—city motor cars
CDF—city, double truck, flat cars
I—interurban cars
IS—interurban service
ID—Interurban, double truck
IDM—Interurban double truck, motor
ISM—Interurban, single truck, motor
IT—Interurban trailer
IP—Interurban passenger
IM—Interurban motor
IDT—Interurban, double truck, trailer
IDF—Interurban, double truck, freight
IF—Interurban freight
F—freight
PM—passenger motor
S—service cars

teristics agree with those proposed by the A.E.R.A. committee.

The statistics in these tables do not give information of car characteristics such as would show the attention devoted to providing a more pleasing appearance and greater comfort and convenience for passengers. Conclusions can, however, be reached from the large number of descriptive articles which have been published from time to time in ELECTRIC RAILWAY JOURNAL of cars as they were purchased during the year. From these articles it is apparent that car appearance has been given great attention and that the cars now being ordered by the railways and furnished by the manufacturers are of a more attractive design than have ever been produced before.

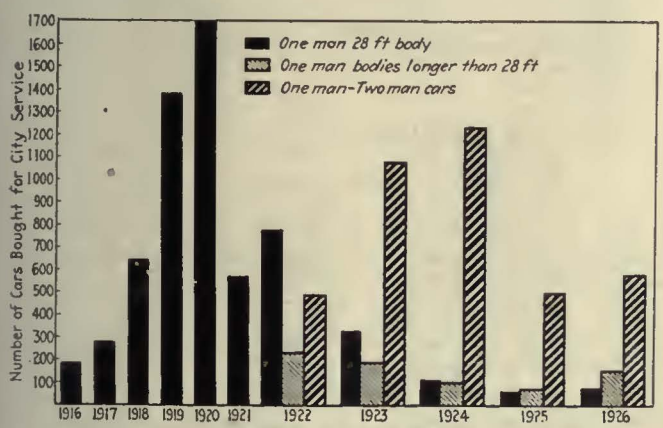


Number of Cars Reported as Junked During Last Five Years

The last column of Table VII is devoted to cars junked during the year. During 1926 a total of 1,626 cars were reported by electric railways as being junked. By grouping these into classes it is found that a total of 1,402 city passenger cars, 135 interurban passenger cars and 89 miscellaneous service, work and freight cars were reported as being junked. It is interesting to note that this shows that the 1,402 city passenger cars junked during 1926 exceeded the 1,249 new passenger cars purchased. This is the first time since this paper has given analyses of the cars junked that this condition has been shown.

An accompanying diagram shows graphically the number of cars junked during the past five years. Comparison of the figures shown in this diagram indicates that the number of cars junked during 1926 was approximately the same as in 1923 and was exceeded only by those junked during the year 1924, when 1,853 cars were reported. The purchase of new cars, however, during 1924 was more than double that for 1926.

The information which has been assembled and is given in the accompanying tables of rolling stock was obtained from replies received to questionnaires addressed to all electric railways in the United States and Canada. Through the courtesy and co-operation of the various car manufacturers, lists of cars built by them during the year were furnished so that the replies received from railways could be checked very carefully. In a few cases where replies have not been received from electric railways themselves, information furnished by the car manufacturers has been used. Replies were received from all car manufacturers. Information from these two sources has been amplified by checking through the files of rolling stock which are kept by ELECTRIC RAILWAY JOURNAL and which include cars purchased and contemplated purchases. Particular care has been used to obtain accurate information from railways which might purchase cars at a late date, so it is felt that this year's information is particularly complete. Details of individual purchases of rolling stock during 1926 follow on pages 25-27.



Graph Showing Relative Purchases of One-Man and One-Man, Two-Man Cars for Eleven Years

Standardization Developments in 1926

NOTABLE developments in the standardization movement, important progress in industrial safety, further extension through managerial and trade association activities and forward steps in international co-operation have been achieved during 1926, according to an announcement of the American Engineering Standards Committee. Standardization was also the subject of a special report at the recent conference of the Premiers of the British Empire.

Instead of leaving standardization work as a more or less incidental function of the engineering and production departments, industrial executives are providing a definite organization for their standardization work. This was well illustrated during "management week," when scores of meetings of industrialists and chambers of commerce, held all over the country, were devoted to the consideration of the standardization and simplification problems which are met by the works manager and his associates.

The systematic organization of company standardization work is leading to a much larger degree of coperation between companies. For example, in the Cleveland industrial district the men in charge of this work for a large group of important companies have organized for mutual assistance in the work. Through this more than 30 Cleveland firms have reorganized their screw thread practice in accordance with the revised national standard, and more than a dozen firms have systematized their entire control of interchangeable manufacture through the introduction of the new national standard of limit gaging.

In April there were held in New York the most important group of international conferences on standardization ever assembled. Of these, the two principal features were the meeting of the International Electrotechnical Commission with its group of technical committees and the Third Conference of the National Standardizing Bodies, in connection with which there were international technical conferences on screw threads, ball bearings, gages and preferred numbers. In each of these technical conferences real progress was made toward bringing about international uniformity in industrial practice in the different countries. Twenty countries from Europe, Asia and South America were officially represented.

During the conferences a basis was laid for what it is hoped will soon become a unified international standardizing body covering the general field of industrial standardization. In September committees of the two groups met in London, at which time further steps were taken. Final agreement upon a unified plan has not yet been consummated, there naturally being difficulties inherent in a problem involving a group of national as well as international organizations.

Electric Railway Costs and Fares in 1926

While Prices of Wholesale Commodities, Electric Railway Operating Materials and Car Fares Have Been Stabilized at About 150 per Cent of Pre-War Figures, Electric Railway Wages and Construction Costs Are More than Double the 1913 Level

By Albert S. Richey
Electric Railway Engineer, Worcester, Mass.

FOR the past several years, in its Financial and Corporate section, monthly, ELECTRIC RAILWAY JOURNAL has been presenting a series of index numbers compiled by the author under the heading "Conspectus of Indexes." This conspectus comprises indexes showing the trend of street railway fares and the costs of electric railway wages and materials entering into electric railway operation; costs of construction, both electric railway and general; wholesale commodities in general; retail food; cost of living, and some others. In the Annual Statistical Numbers of the JOURNAL—the first issue in January in 1923, 1924, 1925 and 1926—there have been shown charts and tables depicting the trend since 1914 of the more important of these indexes as affecting electric railway operation. In Fig. 4 herewith is shown a similar chart indicating the trend of five of these indexes from January, 1914, through the latest available figures for 1926. The indexes there shown are: (1) Wholesale prices of all commodities, as computed by the U. S. Bureau of Labor Statistics; (2) Electric Railway Construction Costs, as computed by the formula of the American Electric Railway Association; (3) Electric Railway Operating Materials Costs, including fuel for power; (4) Electric Railway Wages; (5) Street Railway Fares.

The methods used in the computation of these five indexes were described fully in the statistical issue of the JOURNAL for Jan. 2, 1926, which issue also contained a tabulation showing the numerical values of the various indexes monthly from January, 1920, through December, 1925. The numerical values monthly from January, 1914, through December, 1919, may be found in the JOURNAL for Jan. 5, 1924. A tabulation herewith shows the numerical value of six of the indexes monthly from January, 1924, to date, and these six indexes are also shown graphically on a somewhat larger scale than Fig. 4 by the charts Figs. 1 to 3 and 5 to 7, inclusive.

As shown by Fig. 1, the average street railway fare has increased slightly during 1926 from 7.32 cents in January to 7.42 cents in December. The change is due principally to increases in the eastern Massachusetts cities and Cleveland, and in a lesser degree to increases in Oakland, Des Moines, Spokane, Louisville, Salt Lake City, Duluth and Norfolk. A number of other increases have been of less consequence in affecting the index, either on account of small amount or the relatively small population involved. During the year only one decrease was noted as affecting the index, this being at Tacoma.

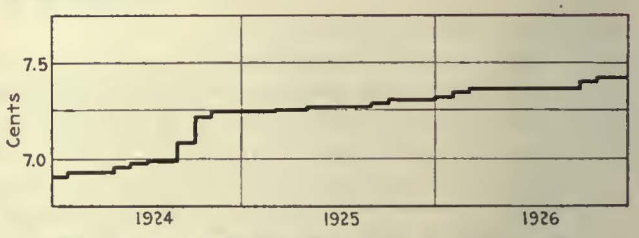


Fig. 1—Street Railway Fares (1923 = 4.8425 Cents

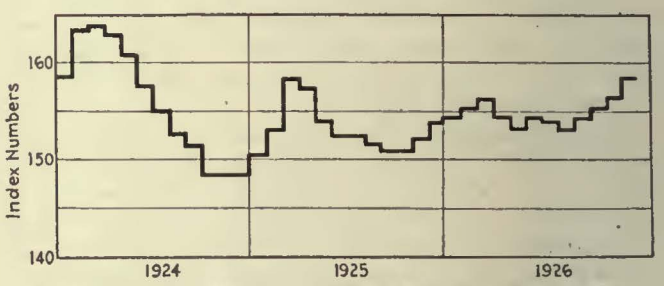


Fig. 2—Electric Railway Operating Materials (1913 = 100)

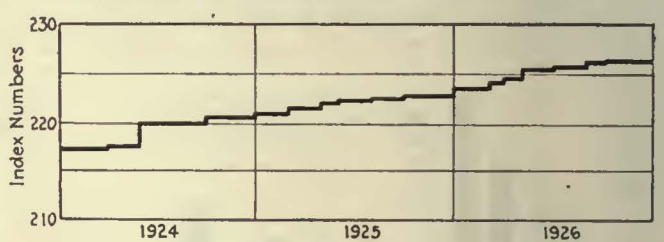


Fig. 3—Electric Railway Wages (1913 = 100)

The trend of the cost of electric railway operating materials has fluctuated only slightly during the year, as shown by Fig. 2, and seems to be stabilizing at about 155 as compared with its pre-war level of 100. The factor which was particularly effective in causing the fluctuations during the year was fuel for power, which enters into this index with the weighting of 40 per cent. Other factors entering maintain prices considerably more uniform than did fuel for power. Nevertheless, as indicated by Fig. 2, the fluctuations in this index were much less marked during 1926 than in either of the two preceding years.

The average wage of electric railway motormen and conductors maintained the upward trend which has been in evidence since the middle of 1923, as shown by Fig. 3. During 1926 eight companies were dropped from this index on account of reduction of forces and one company added, so that the index now

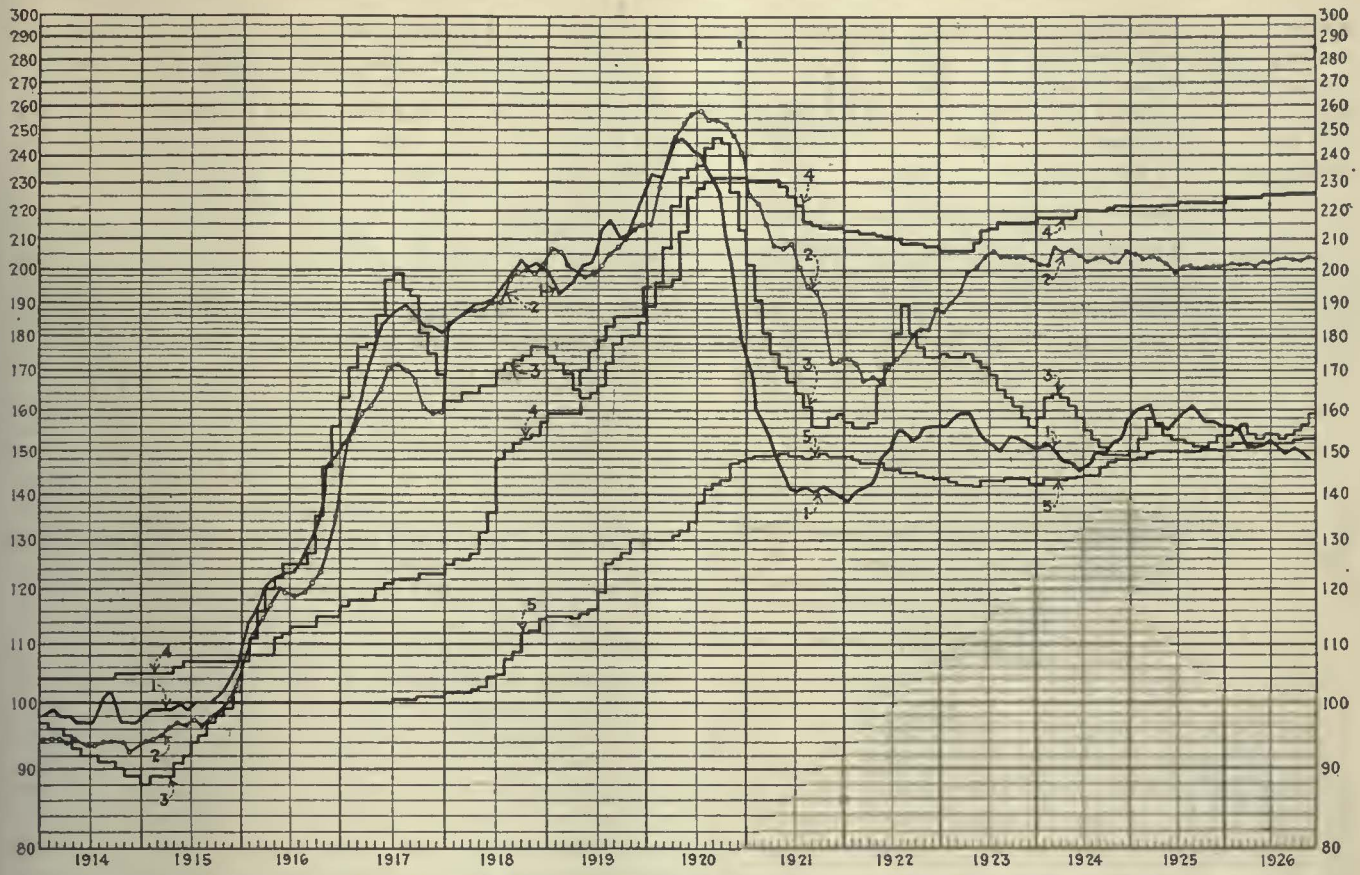


Fig. 4—Trend of Construction Costs, Wages and Fares, 1913-1926 (1913 = 100)

1. Wholesale prices all commodities (U. S. Bureau of Labor Statistics).
2. Electric railway construction costs (American Electric Railway Association statistics).
3. Electric railway operating materials costs (Richey). Includes fuel for power and weighted according to average use in maintenance and operation.
4. Electric railway wages (Richey). Maximum hourly wages of platform men, weighted according to number of men.
5. Street railway fares (Richey). U. S. cities (except New York) weighted according to population.

	Street Railway Fares (Richey)	Elec. Ry. Operating Materials Costs (Richey)	Electric Railway Wages (Richey)	Elec. Ry. Construction Costs (Am. Elec. Ry. Assn.)	General Construction Costs (*Eng. News-Record*)	Wholesale Prices, All Commodities (U.S. Bur. Lab. Stat.)
1913 aver...	100.0	100.0	100.0	100.0	100.0	100.0
1914 aver...	100.0	92.6	104.2	94.0	88.6	98.1
1915 aver...	100.1	93.5	106.2	97.3	92.6	100.8
1916 aver...	100.1	126.2	111.6	119.8	129.6	126.8
1917 aver...	100.5	181.9	120.6	162.7	181.2	177.2
1918 aver...	106.2	168.8	140.5	192.5	189.2	194.3
1919 aver...	120.7	172.2	174.0	205.1	198.4	206.4
1920 aver...	137.2	224.6	217.3	244.7	251.3	226.2
1921 aver...	148.9	169.9	222.7	200.7	201.8	146.9
1922 aver...	146.0	170.0	210.0	175.2	174.4	148.8
1923 aver...	142.9	168.0	212.1	200.2	214.1	153.7
1924						
January....	142.6	158.5	217.4	203.0	217.9	151.2
February...	143.1	163.2	217.4	203.8	220.3	151.7
March.....	143.1	163.9	217.5	206.8	224.7	149.9
April.....	143.2	162.8	217.7	205.5	221.6	148.4
May.....	143.5	160.8	217.8	206.7	222.4	146.9
June.....	143.8	157.6	220.0	204.8	216.8	144.6
July.....	144.2	154.9	220.0	203.7	214.4	147.0
August....	144.3	152.6	220.0	204.3	213.1	149.7
September..	146.2	151.4	220.1	204.3	211.2	148.8
October....	149.1	148.5	220.6	203.2	207.5	151.9
November..	149.5	148.6	220.7	203.7	205.7	152.7
December..	149.6	148.7	220.8	205.6	208.6	157.0

1925	Street Railway Fares (Richey)	Elec. Ry. Operating Materials Costs (Richey)	Electric Railway Wages (Richey)	Elec. Ry. Construction Costs (Am. Elec. Ry. Assn.)	General Construction Costs (*Eng. News-Record*)	Wholesale Prices, All Commodities (U.S. Bur. Lab. Stat.)
January....	149.6	150.3	221.0	205.3	210.4	160.0
February...	149.6	153.1	221.0	203.9	209.7	160.6
March.....	149.9	158.4	221.5	204.4	210.2	161.0
April.....	150.0	157.3	221.6	204.1	209.5	156.2
May.....	150.0	153.9	222.2	202.0	207.2	155.2
June.....	150.0	152.4	222.4	200.0	204.6	157.4
July.....	150.2	152.6	222.5	200.1	204.6	159.9
August.....	150.3	151.6	222.6	201.0	204.6	160.4
September..	150.6	150.9	222.7	200.5	202.1	159.7
October....	151.0	150.9	222.8	202.7	205.3	157.6
November..	150.7	152.0	222.8	202.4	205.9	157.7
December..	150.7	153.9	223.0	202.2	205.9	156.2
1926						
January....	151.2	154.3	223.8	202.2	207.1	156.0
February...	151.8	155.3	223.8	201.9	206.5	155.0
March.....	151.9	156.4	224.1	202.0	207.6	151.5
April.....	151.9	154.2	224.7	201.3	207.0	151.1
May.....	151.9	153.1	225.4	202.4	207.3	151.7
June.....	152.1	154.4	225.5	201.9	204.8	152.3
July.....	152.0	154.1	225.7	203.2	207.8	150.7
August.....	152.0	153.1	225.9	203.6	208.3	149.2
September..	152.0	154.2	226.1	203.2	208.3	150.5
October....	152.8	155.4	226.2	202.9	209.8	149.7
November..	153.2	156.6	226.3	203.7	210.8	148.1
December..	153.2	159.2	226.3	203.2	210.8	.....

includes 137 companies, each of which employs more than 100 motormen and conductors, and indicates the trend of the average wage of 105,025 men. The upward trend of the index during 1926 was due principally to increased wages in San Francisco, Philadelphia, Louisville, Cleveland, Connecticut, Detroit, Memphis, Cincinnati, Birmingham, Providence and eastern Massachusetts. Several other increases were noted which affected the index only slightly, either on account of the limited amount of the increase or the relatively small number of men involved. The average wage of the 105,025 men, as compared with 1913, had increased 123.8 per cent up to January, 1926, and 126.3 per cent up to December, 1926, there being an increase of 1.1 per cent during the year 1926. It will be noted that, in comparison with the rise in cost of living, the increase in electric railway wages has been out of all proportion. According to the National Industrial Conference Board, the cost of living since 1914 had increased 70.4 per cent up to January, 1926, and 67.2 per cent up to November, 1926. The average index of the cost of living during 1926 was about 168, and the average index of electric railway wages was about 225. This indicates a very considerable increase in the "real

wages" of motormen and conductors, the index representing "real wages" being the index of wages divided by the index of cost of living, or 134. In other words, the average motorman or conductor in the United States has had the opportunity to increase his standard of living since 1914 by about 34 per cent.

CONSTRUCTION COSTS AND WHOLESALE PRICES

Turning to construction costs, the American Electric Railway Association Construction Cost Index, as shown by Fig. 5, has maintained a very constant level during the year, with minor fluctuations between 201.3 and 203.7, as compared with the pre-war level of 100 in

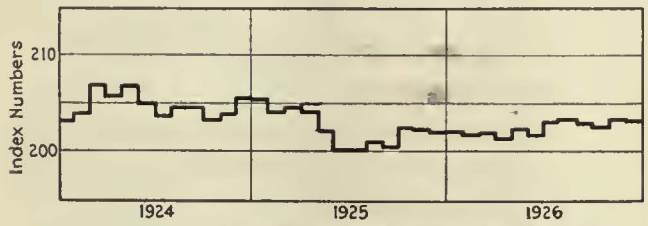


Fig. 5—A.E.R.A. Electric Railway Construction Cost Index (1913 = 100)

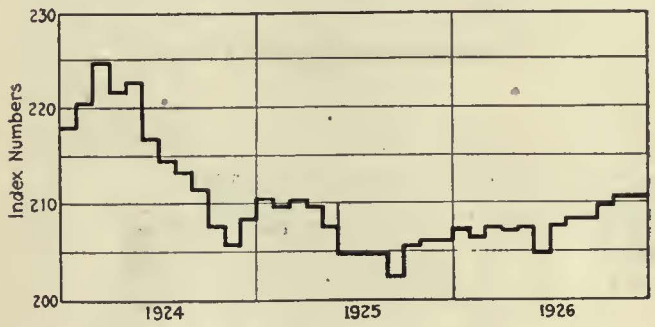


Fig. 6—"Engineering News-Record" Construction Cost Index (1913 = 100)

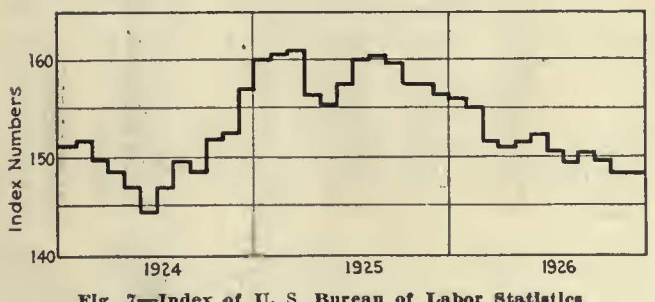


Fig. 7—Index of U. S. Bureau of Labor Statistics Wholesale Commodities (1913 = 100)

1913. The minor rise occurring about the middle of the year was principally due to the increased wage of common labor, which according to the *Engineering News-Record* averaged 54 cents for the country as a whole in January and had increased to 55½ cents in August, which latter figure was being maintained in December. It will be noted that the index, which averages about 202 for 1926, is somewhat lower than two years ago, when it was about 205, that being the maximum since the post-war low in 1922. Apparently this index is stabilizing at somewhere between 200 and 205 per cent of the pre-war value.

The *Engineering News-Record* Construction Cost Index (Fig. 6) applies to construction cost in general, and is here presented as of some value for comparison with the Electric Railway Construction Cost Index. The Electric Railway Index includes a much heavier weighting of labor than the general index, and is further stabilized by the heavier weighting of steel rail, the price of which has remained constant at $43 per ton since October, 1922. The General Construction Cost Index as compared with the Electric Railway Index during 1926 shows a slightly greater tendency upward during the last half of the year, although its reduction as compared with 1924 is considerably greater. The General Construction Cost Index is apparently stabilizing itself at about five points higher than the Electric Railway Construction Cost Index, both on the basis of 1913.

The Wholesale Commodity Index of the U. S. Bureau of Labor Statistics (Fig. 7) is perhaps the most often quoted of any index which purports to show the trend of the general price level. This index reached a maximum of 246.7 in May, 1920, dropped sharply to about 140 in 1921, rose to 158 in 1923, dropped to an average of 150 in 1924, averaged about 157 in 1925, and during the last half of 1923 has been hovering around 150. In other words, for the past several years, while this index has averaged about 150, it has been subject to fluctuations which carried it about ten points above and below that average in cycles of about two years. It is, of course, impossible to foretell its future course, but if the experience of the last four years is of any value, it confirms the opinion previously expressed, that the general price level is tending to fix itself at about 50 per cent above the pre-war level. Electric railway operating materials costs as compared with pre-war levels have increased only about the same amount, or 50 per cent. Construction costs have increased more than 100 per cent and electric railway wages more than 125 per cent. Inasmuch as neither the general commodity index nor the operating materials index contains a labor item, it is fair deduction that the disproportionate rise in electric railway construction and operating costs is due in large measure to the disproportionate increase in wages as compared with that of commodities in general. The fact remains that both construction and operating costs of electric railways have increased very considerably more than the cost of commodities in general, and, further, that the increase in the average fare paid for street railway service in the country as a whole has increased only about the same as commodities in general. The necessity for such operating economies as the light-weight car and one-man operation is evident, when the indexes of street railway fares and wages are compared.

Statistics on Cars and Mileage

IN PREVIOUS statistical issues of this paper, or in issues shortly after the first of the year, it has been customary to include a table showing the number of electric railways in the United States and the miles of track, and number of cars of various kinds owned by these companies. This table has been compiled each year from the issue of the McGraw Electric Railway Directory published shortly after the first of each year.

Owing to changes in the publication date of this directory, the collection of statistics for it has not progressed sufficiently to permit the publication of a similar table at this time. It is expected, however, that such a table, as of Jan. 1, 1927, will appear in pages of ELECTRIC RAILWAY JOURNAL before long.

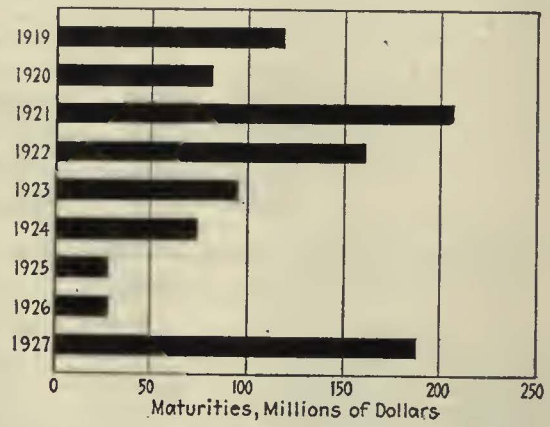
Total of New Securities Publicly Offered Was Small

RECORDS of financing for 1926 of companies doing purely a railway business make it appear that the issues in amount of more than $500,000 placed publicly totaled $11,100,000. This is less than half the total so placed during the previous year. But compared with the average it shows up favorably. The amount is determined largely by the volume of maturities from year to year. It takes no account of such issues as were placed privately by the investment bankers, and does not take into account equipment trust issues sold similarly, of which, of course, there is no public record. It would be idle to speculate about the bulk of this business. As regards the financing of new buses purchased, the amount probably is sizable, but no records are available about it, for the paper is placed privately.

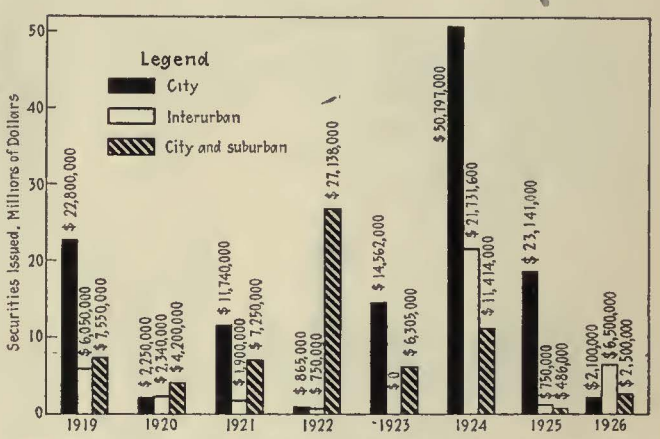
There is no blinking the fact that the companies doing a purely railway business have been living out of earnings, not capital. They have been husbanding their resources, but the financing done publicly, small though it may bulk in the aggregate, has been done on moderate terms. The records bear this out. With the improvement being shown in the earnings situation generally and the tendency of money rates to ease off, it would seem likely that when the railways do appear again publicly to finance their requirements they will be able to do so on terms fairly favorable to themselves. The Gary financing, in particular, seems to be a case in point. This little road, thoroughly rehabilitated, has re-established its earning power, and Halsey, Stuart & Company, who did the financing of the railway's equipment trust obligations, did not hesitate unequivocally to recommend the securities at prices that were not inordinate, namely, 5.50 to 6 per cent. Similarly Blyth, Witter & Company offered the first mortgage obligations of the city and suburban property of the Key System Transit Company at a price to yield 5.78 per cent. The Philadelphia Rapid Transit Company equipment trust issue speaks for itself. So does the Chicago, North Shore & Milwaukee issue. The Chicago, Aurora & Elgin Railroad issue was somewhat different. Here is a road recently rehabilitated earning its interest a little more than twice over, still the issuing price was reasonable, based undoubtedly on the prospective probable future earning capacity of the company. So much for the financing that has been done.

As for the future, the industry is faced with maturities of $180,798,000 in 1927 compared with only $26,644,790 in 1926. The great bulk of this, however, is made up of issues of the surface line companies at Chicago. This amount is close to $145,000,000, but the earning capacity of the roads is well established. It is only the political situation with franchises about to expire that causes any concern with respect to the matter there. It is, of course, impossible to hazard a guess at this time regarding probable impending events in Chicago, but the course things are taking indicates that the full measure of protection will be available to the holders of these securities.

It takes time to amend the consequences of events such as the electric railways experienced in the war-time and post-war periods, but the results are beginning to manifest themselves. Let it be recalled, incidentally, that the steam railroads suffered no less acutely than did the electric railways during this period, and they are only just now beginning to re-establish themselves financially. It might be said by some that there is small comfort in this, but that is not altogether so. True, $126,556,400 of traction securities still are in default, but some of them date back—in the unusual case of the Second Avenue Railroad, New York—to 1908. The amount of such defaults has been constantly diminishing in the last few years, and the prospects are that many other issues of the kind will be eliminated from the list now that the earning power of many of the properties is being re-established. It might at first appear that succor has long been delayed to the investor in some of these cases, but the length of time is not the real criterion. Rather is it the enduring accomplishment that has been achieved in the interim. It is not so easy always to accept this view, but it is the correct one just the same. After all, the basis of any security is the earning power of the property on which it is a lien. This is true even of bonds secured on real estate, the supposed premier investment.



Maturities in 1927 Are Larger than for Any Recent Year Except 1921



Securities Issued for Electric Railway Properties Were Smaller than for Several Years

Details of New Bond and Note Financing in Amounts of More than $500,000 Offered Publicly in 1926

Issue	Price	Maturity	Yield	Amount
January				
Gary Railways equipment trust certificates, Series A 5½	1.00 to 97.89	1930	5.50 to 6	$350,000
Chicago, Aurora & Elgin Railroad first and refunding 6's	96	1951	5.30	5,000,000
February				
Philadelphia Rapid Transit equipment trust 5's, Series J		1929	4.75 to 5.35	1,750,000
Key System Transit Company first mortgage 5½	97½	1938	5.78	2,500,000
September				
Chicago, North Shore & Milwaukee Railroad first and refunding mortgage 5½	98.50	1956	5.60	1,500,000
Total				$11,100,000

Eight-Year Record of New Electric Railway Financing Involving Bond or Note Issues of More than $500,000

	City Railway	Interurban	City and Suburban
1919	$22,800,000	$6,050,000	$7,550,000
1920	2,250,000	2,340,000	4,200,000
1921	11,740,000	1,900,000	7,250,000
1922	865,000	750,000	27,138,000
1923	14,562,000		6,305,000
1924	50,797,000	21,731,600	11,414,000
1925	23,141,000	750,000	486,000
1926	2,100,000	6,500,000	2,500,000

Principal Electric Railway Maturities in 1927 Based on Dow, Jones & Company's Compilation

	Rate	Amount
January		
Chicago City & Connecting Railways olt	5	$20,616,000
Winnipeg Electric Street Railway 1st	5	579,000
Interborough Rapid Transit equipment trust B	6½	450,000
Springfield & Eastern Street Railway 1st	7	330,000
Eastern Massachusetts Street Railway aerial	6	300,000
New Bedford & Onset Street Railway 1st	6	280,0000
Peoples Railway 1st	5	200,000
Wayne & Fifth Street Railroad 1st	5	200,000
Brooklyn City Railroad equipment trust	5	375,000
		$23,330,000
February		
Chicago Railways 1st	5	$55,655,000
Chicago City Railway 1st	5	33,926,000
Chicago Railways Consolidated B	5	17,164,470
Chicago Railways Consolidated A	5	16,703,800
Calumet & South Chicago 1st	5	5,458,000
Chicago Railways purchase money	5	3,969,300
West End Street Railway debenture	6½	2,700,000
Chicago Railways income	4	2,500,000
Philadelphia Rapid Transit equipment trust G	5½	237,500
Hagerstown & Northern Railroad 1st	5	200,000
Pittsburgh Railways car trust	6	200,000
		$138,714,040
March		
Interborough Rapid Transit equipment trust A	6	$280,000
		$280,000
April		
Denver City Tramway extended	6	$2,000,000
Detroit, Ft. Wayne & Belle Isle 1st	5	857,000
Denver Tramway Power extended	6	693,000
Des Moines City Railway 5-year	7	618,000
Enid City Railway 1st	5	235,000
		$4,403,000
May		
West End Street Railway 5-year	6	$1,956,000
Jacksonville Electric (now traction) 1st	5	1,245,000
New Castile Traction 1st	5	470,000
		$3,271,000
June		
Galveston-Houston Electric 2-year	7	$1,200,000
Berkshire Street Railway extended	7	777,000
Buffalo, Bellevue & Lancaster 1st	5	215,000
		$2,192,000
July		
Lorain & Cleveland Railway 1st	5	$750,000
		$750,000
August		
United Railways & Electric Company of Baltimore 5-year	6	$2,500,000
Phila. Rapid Transit equipment trust G	5½	237,500
New Albany (Ind.) Street Railroad 1st	5	234,000
		$2,971,500
September		
Worcester & South Bridge Street Railway	7	$500,000
		$500,000
October		
South Bend & Southern Michigan Railway 1st	5	$750,000
Pittsburgh Traction 1st	5	684,000
Citizens Traction, Pittsburgh 1st	5	657,000
		$2,091,000
November		
Worcester Consolidated Street Railway debenture	5	$1,200,000
Interborough Rapid Transit equipment trust C	6	570,000
		$1,770,000
December		
Phila. Rapid Transit equipment trust H	5½	$270,000
Scranton Railway guaranteed notes	6	458,690
Altoona & Logan Valley Railway guaranteed	6	247,560
		$975,560
Total 1927		$180,798,000
Total 1926		26,644,790

Comparison of Maturities in the Electric Railway Field

1927	$180,798,000	1922	$160,015,860
1926	26,644,790	1921	207,617,530
1925	28,224,000	1920	80,466,100
1924	73,051,600	1919	116,785,500
1923	94,851,800		

Below are given electric railway bonds in default of interest as of Dec. 31, 1926, with amount and date of default, based on Dow, Jones & Company's compilation for the entire utility industry. Where the maturity date appears after the issue, it means there is default as to principal as well as to interest. Technical defaults are not included in this table:

Electric Railway Bonds in Default as of Dec. 31, 1926

Public Utility Issues:	Amount	Defaulted
Auburn & Syracuse Electric 5s	$1,752,000	Apr. 1926
Binghamton Railway cons. 5s	1,833,000	May 1926
General and refunding 6s	426,200	July 1925
Binghamton Railroad 6s, 1925	452,000	July 1925
Bing, Lester & Union Ry. 5s, 1925	147,000	June 1925
Boise Valley Traction 5s, 1925	750,000	Jan. 1923
Boise & Interurban Ry 1st 5s	964,000	Apr. 1925
Buffalo & Lackawanna Traction 5s	1,150,000	Dec. 1918
Chatham, Wallaceb. & L. E. 5s, 1925	694,500	July 1925
Chicago & Interurban Traction 5s	1,816,000	Jan. 1922
Cin., Lawrence & A. St. Ry. 5s, 1919	750,000	Jan. 1918
Columbia & Montour El. Ry. 5s	375,000	July 1914
Columb., Lond. & Springfield 5s, 1920	1,260,000	Oct. 1920
Dayton, Cov. & Piqua Trac. 5s, 1922	490,000	Apr. 1922
Detroit, Altmont & Northern 6s	400,000	Aug. 1925
Detroit, Jackson & Chicago Ry. 5s	881,000	July 1925
Detroit, Monroe & Toledo Sh. L. 5s	3,000,000	July 1925
Detroit & Port Huron Sh. L. 5s	2,497,000	July 1925
Detroit United coll. tr. 6s	8,472,000	July 1925
Two-year coll. tr. notes 6s, 1926	640,000	Aug. 1925
Det, Ypsilan, Ann Arb. & Jack. 5s	1,610,000	Aug. 1925
Geneva, Seneca Fall & Aub. R. R. 5s	497,000	Jan. 1926
Gd. Rapids, Gd. Haven & M. 5s, 1926	1,500,000	Jan. 1926
Gd. Rapids, Holland & L. M. 5s, 1924	1,500,000	Aug. 1924
Indiana, Col. & Eastern Trac. 5s	6,400,000	Nov. 1919
Indiana Northern Traction 5s	500,000	Apr. 1925
Indiana Union Trac. 1st 5s	1,620,000	Apr. 1925
Indianapolis & Cincinnati Traction 5s	1,400,000	July 1923
Indianapolis, Newcastle & East., 6s	1,200,000	June 1925
Indianapolis Northern Traction 5s	5,000,000	Jan. 1925
Indianapolis, Shelby & S. E. Traction 5s	414,000	July 1923
Indianapolis & Southeastern Traction 5s	586,000	July 1923
Jackson Consol. Traction 5s	790,000	May 1925
Jefferson Traction 6s, 1925	434,000	Jan. 1925
Kansas City, Lawr. & Top. R.R. 5s	400,000	Sept. 1919
Kansas-Oaklahoma Traction 6s	250,000	Nov. 1924
Lakeside Railway 1st 6s	150,000	May 1926
Lima, Findlay & Ohio Ry. 5s, 1925	324,000	Jan. 1925
Lowell & Fitchburg St. Ry. 5s, 1926	275,000	Jan. 1926
Michigan Electric Ry. ref. 5s	7,190,500	Jan. 1925
Michigan Railroad 1st 6s	4,050,000	May 1924
Milford, Hollia & Framingham 7s	165,000	July 1925
Milford & Uxbridge St. Ry. 7s	335,000	July 1925
Millvale, Etna & Sharp 5s, 1923	741,000	Nov. 1923
Minn., Anoka & Cuyuna Range 5s	380,000	Nov. 1925
Morris County Traction 1st 5s	3,000,000	June 1922
Muncie, Hartford & Ft. Wayne 5s	916,000	Jan. 1925
Muncie & Union City Traction 5s	925,000	Jan. 1925
New York & Queens County Ry. cons 4s	1,300,000	Apr. 1922
Northern Cambria Ry. 1st 5s	250,000	Nov. 1924
Olean, Brad. & Salamanca Ry. 7s	264,000	Sept. 1926
Penn Street Ry. 1st 5s, 1922	250,000	June 1922
Pitts, Crafton & Manafield 5s, 1924	171,000	July 1924
Pitts. & W. End Pass. Ry. 5s, 1922	313,000	July 1922
Rockford, Beloit & Janesville 5s	907,000	Apr. 1925
Rockford & Freeport Elec. Ry. 5s	490,000	Nov. 1925
Rockford & Interurban Ry. 5s	1,685,500	Oct. 1925
St. Louis & Suburban gen. 5s, 1923	4,500,000	Apr. 1923
Consolidated 8s, 1923	2,000,000	Oct. 1923
St. Louis Transit 5s, 1924	9,790,000	Apr. 1924
Salt Lake & Utah 1st 5s	1,431,900	Oct. 1925
Convertible notes 7s	150,000	Oct. 1925
Schuykill Railway 1st 5s	640,000	Apr. 1926
Schuykill Traction 1st 5s	500,000	Apr. 1926
Consolidated 4½s	105,000	July 1926
Second Avenue R.R. cons. 5s	5,631,000	Aug. 1908
Receivers' certificates 6s, 1924	3,140,000	Oct. 1914
Steinway Railway 6s, 1922	1,500,000	July 1922
Trenton, Bristol & Phila 5s	413,800	Mar. 1925
Union Traction of Indiana 6s	4,623,000	Jan. 1925
Union Traction Coffeyville 5s	900,000	Jan. 1925
Wash., Alex. & Mt. Vernon Ry. 5s	2,500,000	Sept. 1920
Wash., Arling. & Falls Church 5s	650,000	Sept. 1920
Second 5s	250,000	Apr. 1921
Wash., Virginia Ry. notes A 6s, 1922	759,500	Jan. 1922
B notes 6s, 1922	666,500	Jan. 1922
Waterloo, Cedar Falls & Nor. 5s	5,773,000	Jan. 1922
Western Ohio Ry. 1st 5s, 1921	2,500,000	Nov. 1921
Youngstown & Ohio River 1st 5s	1,200,000	Oct. 1926
Total in default	$126,556,400	

Bus Development Continued Steadily

Number of Electric Railways Engaged in Bus Operation Increased Approximately 20 Per Cent During 1926, While the Number of Buses Increased More than 40 Per Cent—Much New Route Mileage Added—Replacement of Rail Service Comparatively Slight—Large Purchases Made of Other Automotive Equipment

EXPANSION of bus operations by electric railways in the United States and Canada continued steadily during the year just ended. According to reports received by ELECTRIC RAILWAY JOURNAL from properties representing over 95 per cent of the industry, 280 electric railways were operating a total of 5,358 buses on Jan. 1, 1926. A survey just completed shows that on Jan. 1, 1927, some 333 such companies are operating 7,749 buses. Thus during the year there has been an increase of approximately 20 per cent in the number of operating companies and more than 40 per cent in the number of buses. A list of electric railways now engaged in bus operation is given in Table I, together with the number of buses owned and the names of subsidiary companies.

First place in the number of buses operated is still held by Public Service Railway with 1,204. Philadelphia Rapid Transit Company is again second with 382. Next in point of numbers come the Department of Street Railways, City of Detroit, with 303 buses. In the list there are altogether fifteen companies having more than 100 buses each. In addition to the companies named, these are the Boston Elevated Railway, Connecticut Company, Virginia Electric & Power Company, Illinois Power & Light Corporation, South Shore Motor Coach Company, Detroit United Railway, Twin City Rapid Transit Company, Cleveland Railway, Northern Ohio Power & Light Company, Pennsylvania-Ohio System, the Milwaukee Electric Railway & Light Company, the Los Angeles Railway and the Pacific Electric Railway.

In contrast to the large number of electric railways which have been added to the list of bus operators during the year just ended, only four of those formerly engaged in bus operation have now abandoned it. These are the Stockton Electric Railroad in California, the Stark Electric Railroad in Ohio, the Reading Transit Company in Pennsylvania, and the Nova Scotia Tramways & Power Company. Fifteen others have given up portions of their bus route mileage while continuing the operation elsewhere. Altogether about 200 miles of bus route has been abandoned during the year.

Subsidiary companies are utilized by about one-third the electric railways engaged in bus operation. Joint subsidiaries for two or more electric railways are gaining in popularity. Outstanding examples include the Los Angeles Motor Bus Company, a joint subsidiary of the Los Angeles Railway and the Pacific Electric Railway; the Shore Line Motor Coach Company, a joint subsidiary of the Chicago, South Shore & South Bend

On Jan. 1, 1927, More than 300 Electric Railways Were Operating Buses in 46 States. Each Dot Indicates a Bus-Operating Electric Railway Company

Table I—Bus Operation by Electric Railways and Subsidiary Companies

	Buses Owned
Connecticut	
Connecticut Co.	113
Danbury Power & Transportation Co.	16
Groton & Stonington Traction Co.	3
*Hartford & Springfield Street Ry.	21
*Lordship Ry.	6
New Haven & Shore Line Ry.	13
Waterbury & Mildale Tramway	3
Maine	
Central Maine Power Co. (b)	1
York Utilities Co.	8
Massachusetts	
Boston Elevated Ry.	227
Boston & Worcester Street Ry.	19
Eastern Massachusetts Street Ry.	65
Fitchburg & Leominster Street Ry.	5
Gardner-Templeton Street Ry.	4
Holyoke Street Ry	3
Interstate Street Ry. (a)	8
Middlesex & Boston Street Ry	45
New Bedford & Onset Street Ry.	5
Plymouth & Brockton Street Ry.	3
Springfield Street Ry.	27
Union Street Ry.	12
Worcester Consolidated Street Ry.	17
New Hampshire	
Dover, Somersworth & Rochester Street Ry.	6
*Exeter, Hampton & Amesbury Street Ry.	6
*Keene Electric Ry.	8
*Laconia Street Ry.	5
*Manchester & Derry Street Ry.	3
Nashua Street Ry.	3
*Portsmouth Electric Ry.	12
Rhode Island	
*Newport Electric Corp.	21
Newport & Providence Ry.	10
United Electric Rys.	70
Vermont	
Burlington Traction Co.	1
*Twin State Gas & Electric Co.	3
Delaware	
Wilmington & Philadelphia Traction Co.	45
Delaware Bus Co.	
Southern Pennsylvania Bus Co.	
District of Columbia	
Capital Traction Co.	27
Washington & Old Dominion Ry.	1
Washington Railway & Electric Co.	57
Washington-Virginia Ry.	5
Alexandria & Suburban Motor Vehicle Co.	
Maryland	
Cumberland & Westernport Electric Ry.	4
Cumberland & Westernport Transit Co.	
Hagerstown & Frederick Ry.	47
Blue Ridge Transportation Co.	
United Rys. & Electric Co.	82
Baltimore Transit Co.	
East Fayette Street Bus Co.	
New Jersey	
Coast Cities Ry.	23
Atlantic Coast Transportation Co.	
Cumberland Traction Co.	15
Cumberland Transit Co.	
Morris County Traction Co.	9
*New Jersey Inter-Urban Co.	6
New Jersey Interurban Coach Co.	
Ocean City Electric R.R.	1
Public Service Ry.	1204
Public Service Transportation Co.	
Penn-Jersey Transit Co. (c)	
Trenton & Mercer County Traction Corp.	29
Central Transportation Co.	
New York	
Auburn & Syracuse Electric R.R.	8
Mid-State Coach Lines (c).	
Binghamton Ry.	11
Black River Traction Co.	15
Watertown Transportation Co.	
Brooklyn-Manhattan Transit Corp. (b)	10
Buffalo & Erie Ry. (a)	1
Buffalo & Erie Coach Corp.	
Cortland County Traction Co.	3
Cortland County Bus Lines	
Empire State R.R.	6
Mid-State Coach Lines (c).	
Fonda, Johnson & Gloversville R.R.	1
Sacandaga Valley Transportation Co.	
Geneva, Seneca Falls & Auburn R.R.	3
International Ry.	67
International Bus Corp.	
Jamestown Street Ry.	10
Jamestown Motor Bus Transportation Co., Inc.	
Kingston Consolidated R.R.	5
Kingston City Transportation Corp.	
*Newburgh Public Service Co.	22
New York Rys. (b)	1
New York State Rys. (Rochester)	64
Darling Bus Line, Inc.	
East Avenue Bus Co., Inc.	
Rochester Interurban Bus Co., Inc.	
Rochester Rys. Co-ordinated Bus Lines, Inc.	
New York State Rys (Syracuse)	17
Syracuse Railway Co-ordinated Bus Line, Inc.	
New York State Rys. (Utica)	9
Utica Railway Co-ordinated Bus Line, Inc.	
Niagara Gorge R.R.	4
Niagara Gray Bus Lines	
Olean, Bradford & Salamanca Ry.	5
Olean, Bradford & Salamanca Bus Line, Inc.	
*Peekskill Lighting & R.R. Co.	9
Peekskill Motor Bus Corp.	
*Port Jervis Transit Co.	2
Rochester & Syracuse R.R.	1
Mid-State Coach Lines, (c).	
Syracuse & Eastern R.R.	3
Third Avenue Ry.	20
Eastchester Transportation Corp.	
North Street Transportation Corp.	
Westchester Street Transportation Co.	
United Traction Co. of Albany	49
Capital District Transportation Co.	
*Walkill Transit Co.	8
Pennsylvania	
Altoona & Logan Valley Electric Ry.	20
Logan Valley Bus Co.	
Bangor & Nazareth Transit Co.	3
Bangor & Portland Transit Co.	2
Paul R. La Bar.	
Beaver Valley Traction Co.	16
Beaver Valley Motor Coach Co.	
Chambersburg & Shippensburg Ry.	3
Cumberland Valley Transit Co.	
Citizens Traction Co.	13
Citizens Transit Co.	
Conestoga Traction Co.	4
Conestoga Transportation Co.	
Duquesne & Dravosburg Street Ry.	2
Erie Rys.	6
Erie Coach Co.	
Johnstown Traction Co.	11
Traction Bus Co.	
Lackawanna & Wyoming Valley R.R.	5
Laurel Line Bus Co.	
Lehigh Traction Co.	10
Hazleton Auto Bus Co.	
Lehigh Valley Transit Co.	16
Lehigh Valley Transportation Co.	
Lewiston & Reedsville Electric Ry.	3
Lewiston & Reedsville Transportation Co.	
Northumberland County Ry.	3
Sunbury Transit Co.	
Northwestern Electric Service Co.	5
Penn Public Motor Transportation Co.	
Philadelphia Rapid Transit Co.	382
Philadelphia Rural Transit Co.	
Penn-Jersey Transit Co. (C)	
Philadelphia & Westchester Traction Co.	19
Aronimink Transportation Co.	
Philadelphia & Western Ry.	2
Main Line Transfer Co.	
Pittsburgh, Harmony, Butler & New Castle Ry.	
Pittsburgh, Mars & Butler Ry.	8
Harmony Short Line Motor Transp. Co.	
Pittsburgh Rys.	34
Pittsburgh Motor Coach Co.	
Schuylkill Ry.	11
Schuylkill Transportation Co.	
Scranton Ry.	11
Scranton Bus Co.	
Shamokin & Edgewood Electric Ry.	5
Shamokin & Trevorton Bus Line.	
Southern Cambria Ry.	4
Southern Cambria Bus Co.	
Stroudsburg Traction Co.	3
East Stroudsburg Bus Co.	
*United Traction Street Ry.	2
Du Bois Transit Co.	
West Chester Street Ry.	65
Peoples Transportation Corp.	
Westmoreland County Ry.	5
Chestnut Ridge Transportation Co.	
West Penn Rys.	2
Penn Bus Lines.	
Westside Electric Street Ry.	3
Westside Motor Transit Co.	
Wilkes-Barre Ry.	21
Williamsport Passenger Ry.	2
Williamsport Transportation Co.	
York Rys.	4
York Transit Co.	
Virginia	
Lynchburg Traction & Light Co.	2
Newport News & Hampton Ry., Gas & Elec. Co.	4
Norfolk Southern R.R.	3
Roanoke Railway & Electric Co.	5
Virginia Electric & Power Co.	235
West Virginia	
Charleston Interurban R.R.	33
Monongahela-West Penn Public Service Co.	13
Ohio Valley Electric Ry.	23
Ohio Valley Bus Co.	
Wheeling Public Service Co.	4
Wheeling Traction Co.	
Ohio Valley Transit Co.	11
Illinois	
Aurora, Elgin & Fox River Electric Co.	5
Central Illinois Public Service Co.	5
Chicago, Aurora & Elgin R.R.	2
Chicago & Joliet Electric Ry.	9
Chicago & Joliet Transportation Co.	
Chicago, North Shore & Milwaukee R.R.	47
Chicago & West Towns Ry.	22
East St. Louis & Suburban Ry.	35
Blue Goose Motor Coach Co.	
Red Line Motor Bus Co.	
Evanston Ry.	12
Evanston Bus Co.	
Illinois Power Co.	12
Illinois Power & Light Corp.	
(Bloomington)	7
(Champaign)	12
(Danville)	4
(Decatur)	19
(Galesburg)	8
(Jacksonville)	3
(Peoria)	16
(Quincy)	10
Illinois Traction System.	9
(Main Line Division)	8
(Valley Division)	7
*Joliet, Plainfield & Aurora Transportation Co.	5
Rockford City Traction Co. (a)	18
Rockford & Interurban Ry.	6
Indiana	
Chicago, South Bend & Northern Indiana Ry.	24
Railway Transit Lines.	
Chicago, South Shore & South Bend R.R.	123
Gary Railways.	
Shore Line Motor Coach Co.	
Evansville & Ohio Valley Ry.	2
Indianapolis & Cincinnati Traction Co.	4
Indianapolis Street Ry.	33
Indiana Service Corp.	25
Interstate Public Service Co.	43
Northern Indiana Power Co.	2
Southern Indiana Gas & Electric Co.	10
Terre Haute, Indianapolis & Eastern Traction Co.	40
Indiana Motor Transit Co.	
Union Traction Co.	38
Iowa	
Des Moines City Ry.	6
Des Moines & Central Iowa R.R.	3
Des Moines Electric Light Co.	6
Dubuque Electric Co.	7
Fort Dodge, Des Moines & Southern R.R.	16
Fort Dodge, Des Moines & Southern Transportation Co.	
Iowa Railway & Light Co.	2
Iowa Southern Utilities Co.	
(Burlington)	8
(Centerville)	3
(Ottumwa)	6
Mississippi Valley Electric Co.	5
Tri-City Ry.	9
Waterloo, Cedar Falls & Northern Ry.	8
Kentucky	
Kentucky Traction & Terminal Co.	27
Kentucky Coach Co.	
Kentucky Utilities Co. (Paducah)	6
Louisville Ry.	17
Kentucky Carriers, Inc.	
Michigan	
City of Detroit, Department of Street Rys.	303
Detroit United Ry.	194
Peoples Motor Coach Co.	
Grand Rapids Ry.	10
Menominee & Marinette Light & Traction Co.	1
Michigan R.R.	14
Michigan Electric Ry.	32
Muskegon Traction & Lighting Co.	2
Saginaw Transit Co.	28
Minnesota	
Duluth Street Ry.	10
Duluth-Superior Coach Co.	
Mesaba Ry.	
Mesaba Railway-Coach Co.	16
Twin City Rapid Transit Co.	102
Twin City Motor Bus Co.	
Missouri	
Kansas City, Clay County & St. Joseph Ry.	16
Kansas City, Clay County & St. Joseph Auto Transit Co.	
Kansas City Public Service Co.	69
Missouri Power & Light Co.	2
Southwest Missouri R.R.	10
Springfield Traction Co.	12
United Rys. of St. Louis	40
St. Louis Bus Co.	
*West Missouri Power Co.	2
Ohio	
Cincinnati, Lawrenceburg & Aurora Electric Street Ry.	7
Cincinnati Street Ry.	67
City of Ashtabula—Division of Street Rys.	3
Cleveland Ry.	111
Cleveland, Southwestern Ry. & Light Co.	3
Southwestern Bus Co.	
Columbus Railway, Power & Light Co.	3
*Columbus, Urbana & Western Electric Ry.	2
Community Traction Co.	30
Dayton Street Ry.	3
Dayton, Springfield & Xenia Southern Ry.	2
Indiana, Columbus & Eastern Traction Co.	37
Dayton & Columbus Transportation Co.	
Lake Shore Electric Ry.	3
Nelsonville-Athens Electric Ry.	1
Nelsonville Transportation Co.	
Northern Ohio Power & Light Co.	213
Ohio Service Co.	5
Ohio Public Service Co.	3

Table I—Bus Operation by Electric Railways and Subsidiary Companies (Concluded)

	Buses Owned
Pennsylvania-Ohio Electric Co. } Youngstown Municipal Ry. }	120
Akron-Youngstown Bus Co.	
Cleveland-Mahoning Valley Coach Line, Inc.	
Penn-Ohio Coach Lines Co.	
Penn-Ohio Tourist Co.	
Portsmouth Public Service Co.	9
Southern Ohio Public Service Co.	14
Springfield Ry.	1
Steubenville, East Liverpool & Beaver Valley Traction Co.	4
Toledo & Indiana R.R.	1
Toledo & Northwestern Transportation Co.	
Youngstown & Ohio R.R.	4
Youngstown & Suburban Ry.	14
Columbus Bus Co.	
Youngstown & Suburban Tourist Lines, Inc.	
Youngstown & Suburban Transportation Co.	
Wisconsin	
Madison Rys.	10
Milwaukee Electric Ry. & Light Co.	133
Wisconsin Motor Bus Lines	
Wisconsin Gas & Electric Co.	10
Wisconsin Power & Light Co.	40
The Orange Line.	
Wisconsin Public Service Corp.	8
Riverview Motor Bus Co.	
Wisconsin Traction, Light, Heat & Power Co.	5
Wisconsin Valley Electric Co.	4
Alabama	
Birmingham Electric Co.	4
*Selma Electric Rys.	3
Arkansas	
Arkansas Power & Light Co.	11
Hot Springs Street Ry.	2
Intercity Terminal Ry.	6
Florida	
*Key West Electric Co.	10
Miami Beach Ry.	50
Municipal Ry. of St. Petersburg	8
Tampa Electric Co.	31
Georgia	
Augusta-Aiken Ry. & Electric Co.	(b) 1
Columbus Electric & Power Co.	22
Columbus Transportation Co.	
*Fairburn & Atlanta Ry. & Electric Co	4
Georgia Railway & Power Co.	32
Atlanta Coach Co.	
Savannah Electric & Power Co.	3
Louisiana	
Baton Rouge Electric Co.	3
New Orleans Public Service, Inc.	30
Mississippi	
Mississippi Power Co.	
(Gulfport Division)	20
(Hattiesburg Division)	7
(Meridian Division)	7
Mississippi Power & Light Co.	
(Jackson Division)	1
(Vicksburg Division)	2
North Carolina	
Carolina Power & Light Co.	19
Durham Public Service Co.	17
North Carolina Public Service Co.	2
Greensboro Bus Co.	
Southern Public Utilities Co.	7
Tidewater Power Co.	3
Coast City Transit Co.	
South Carolina	
South Carolina Gas & Electric Co.	8
Tennessee	
Nashville Interurban Ry.	9
Interurban Bus Co.	
Nashville Ry. & Light Co.	13
Tennessee Electric Power Co.	5
Union Traction Co.	1
Arizona	
Tucson Rapid Transit Co.	5
California	
Bakersfield & Kern Electric Ry.	6
Eureka Street Ry.	5
Key System Transit Co.	47
Los Angeles Ry.	110
Los Angeles Motor Bus Co. (c)	
Market Street Ry.	4
Municipal Ry. of San Francisco	20
Pacific Electric Ry.	125
Los Angeles Motor Bus Co. (c)	40
Pacific Gas & Electric Co.	6
Peninsular Ry.	8
San Diego Electric Ry.	15
San Francisco-Sacramento R.R.	1
San Jose Railroads	4
Santa Barbara & Suburban Ry.	8
Southern Pacific Co.	14
(Electric Division)	
Union Traction Co., Santa Cruz	4
Colorado	
Colorado Springs & Interurban Ry.	6
*Denver & Interurban R.R.	8
Denver & Interurban Motor Co.	
*Denver & South Platte Ry.	2
Denver & South Platte Transportation Co.	
Denver Tramway	4
Bus Transportation Co.	
Idaho	
*Boise Street Car Co.	4
Kansas	
Arkansas Valley Interurban Ry.	19
Arkansas Valley Transportation Co.	
Kansas Electric Power Co.	5
Kansas Public Service Co.	2
Kansas City, Leavenworth & Western Ry.	7
Leavenworth Transportation Co.	
*Salina Street Ry.	1
Topeka Ry.	23
United Power & Light Corp.	2
Wichita Railroad & Light Co.	13
Montana	
Butte Electric Ry.	3
Nebraska	
Lincoln Traction Co.	14
Omaha & Council Bluffs Street Ry.	10
Omaha, Lincoln & Beatrice Ry.	3
Omaha & Lincoln Railway & Light Co.	6
New Mexico	
City Electric Co., Albuquerque	1
North Dakota	
Northern States Power Co.	2
Northern Transit Co.	
Oklahoma	
Northeast Oklahoma R.R.	5
Oklahoma Ry.	19
Oklahoma Union Ry.	75
*Okmulgee Traction Co.	3
Tulsa Street Ry.	17
Oregon	
Portland Electric Power Co.	32
*Southern Pacific System (Salem)	3
South Dakota	
Sioux Falls Traction System	16
Utah	
Bamberger Electric R.R.	2
Utah-Idaho Central R.R.	4
Utah Light & Traction Co.	3
Washington	
Grays Harbor Ry. & Light Co.	3
Lewiston-Clarkston Transit Co.	1
Pacific Northwest Traction Co.	20
Puget Sound International Ry. & Power Co.	16
Puget Sound Power & Light Co.	7
Seattle Municipal Ry.	38
Seattle & Rainier Valley Ry.	2
Yakima Valley Transportation Co.	3
Canada	
British Columbia Electric Ry.	21
Grand River Ry.	3
Hamilton Street Ry.	10
Hydro-Electric Rys.	
(Guelph District)	1
(Peterboro District)	5
(Windsor District)	11
London Street Ry	7
Montreal Tramways	55
Ottawa Electric Ry.	9
Pictou County Electric Co., Ltd.	2
Quebec Railway, Light & Power Co.	11
Toronto Transportation Commission	67
Windsor, Essex & Lake Shore Rapid Ry.	4
Winnipeg Electric Ry.	23
Woodstock, Thames Valley & Ingersoll Electric Ry.	3
Panama	
Panama Electric Co.	2
Porto Rico	
Ponce Electric Co.	4
Hawaii	
Honolulu Rapid Transit Co.	6
Total	7,749

Railroad and the Gary Railways; the Mid-State Coach Lines of the Auburn & Syracuse Electric Railroad, the Empire State Railroad and the Rochester & Syracuse Railroad. During the year, the Penn-Jersey Transit Company was organized by the Philadelphia Rapid Transit Company and the Public Service Railway of New Jersey, to furnish bus service over the recently completed Delaware River Bridge connecting the cities of Philadelphia and Camden.

Many Large Orders Placed During Year

In all 2,203 buses were bought in 1926. Of this number 231 vehicles were second hand.

Purchasers of new buses aggregated 1,972 during the year, only slightly less than the purchases made during 1925. Details of the individual orders are given in Table II. Additional orders totaling several hundred buses are under consideration at the present time, but details were not available when this issue went to press.

More than half of the electric railways engaged in the operation of automotive vehicles bought one or more buses during the year. The largest single purchaser was the Philadelphia Rapid Transit Company, which bought 163 buses. Second was the Department of Street Railways, City of Detroit, which ordered 142 new buses. Other large orders include 78 buses bought by the Boston Elevated Railway, 67 by the Cincinnati Street Railway, and 50 by the Miami Beach Railway. Public Service Railway of New Jersey added more than 300 buses to its equipment, but this increase included some vehicles bought second-hand from independent operators. The same was true in the case of the Virginia Electric & Power Company, which added 85 buses.

Of the large number of buses ordered in 1926, only 80 were double-decked vehicles. This is less than the number of double-deckers bought during either of the two preceding years. Detroit and Cleveland made the largest purchases of buses of this type. Others were bought by the Pacific Electric Railway, the Boston Elevated Railway, the Third Avenue Railway, New York City, and the Pittsburgh Railways. In the case of the last-mentioned property, two buses of the type operated by the London General Omnibus Company were imported from England for experimental purposes.

Table II—Buses Bought by Railways During 1926

Name of Company	Total	Total Type	Type Chassis	Body Builder	Seating Capacity
Connecticut					
Connecticut Co.	20	20	Yellow	Yellow	29
Danbury Power & Trans. Co.	10	10	Yellow	Yellow	21
Lordship Ry.	2	2	Graham	Graham	20
Maine					
York Utilities Co.	2	1	Yellow	Boston	13
		1	Yellow	.....	..
Massachusetts					
Boston Elevated Ry.	78	5	International	Niagara	25
		30	Mack	Mack	29
Massachusetts				Brown	29
Boston Elevated Ry.				Yellow	29
Boston & Worcester Street Ry.				Six Wheel	61
Eastern Massachusetts Street Ry.				Mack	29
Fitchburg & Leominster Street Ry.				Yellow	29
Gardner-Templeton Street Ry.				Lang	..
Holyoke Street Ry				(a Brown	..
Interstate Street Ry.					
Middlesex & Boston Street Ry				Yellow	21
New Bedford & Onset Street Ry.				Pierce	27
Plymouth & Brockton Street Ry.				White	23
Springfield Street Ry.					
Union Street Ry.				Yellow	29
Worcester Consolidated Street Ry.				Graham	20
New Hampshire				Bender	29
Dover, Somersworth & Rochester Street Ry.				Bender	23—29
*Exeter, Hampton & Amesbury Street Ry.				Nickerson	25
*Keene Electric Ry.		1*	Reo	Boston	20
Springfield Street Ry.	3	1	Yellow	Yellow	21
		2	Yellow	Yellow	29
Union Street Ry.	2	2	Yellow	Yellow	30
Worcester Consolidated St. Ry.	5	5	Yellow	Yellow	29
New Hampshire					
Dover, Somersworth & Rochester St. Ry.	6	6	White	Brown	29
Exeter, Hampton & Amesbury St. Ry.	5	..	.....	.....	..
Keene Electric Ry.	8	6	Graham	Graham	21
	2	2*	Ford	Ford	15
Laconia Street Ry.	5	..	.....	.....	..
Manchester & Derry St. Ry.	3	..	.....	.....	..
Portsmouth Electric Ry.	2	..	.....	.....	..
Rhode Island					
Newport Electric Corp.	2	2	Fageol	Fageol	29
Newport & Providence Ry.	2	2	White	Brown	21
United Electric Rys.	10	10	Yellow	Yellow	29
Vermont					
Burlington Traction Co.	1	1	Studebaker	Studebaker	21
District of Columbia					
Capital Traction Co.	3	2	Yellow	Yellow	21
		1	Yellow	Yellow	29
Washington Ry. & Elec. Co.	15	14	Yellow	Yellow	29
		1	Yellow	Yellow	21
Maryland					
Cumberland & Westernport Electric Ry.	1	1	White	Bender	29
Hagerstown & Frederick Ry.	15	15	International	International	18
United Railways & Elec. Co.	1	1	Studebaker	Studebaker	15
New Jersey					
Cumberland Traction Co.	6	6	Yellow	Yellow	29
Morris County Traction Co.	5	5	Fageol	Fageol	29
New Jersey Interurban Ry.	2	2	Yellow	Yellow	29
Public Service Ry.	111	61†	Yellow	Yellow	..
		50*	Yellow	Yellow	..
New York					
Cortland County Traction Co.	3	3	Brockway	Patterson	19
Fonda, Johnstown & Gloversville R.R.	1	1	Mack	Mack	25
International Ry.	25	21†	Yellow	Yellow	33
		4†	Yellow	Lang	26
Kingston Consolidated R.R.	5	5	Yellow	Yellow	29
New York State Rys. (Rochester)	19	8	White	Bender	29
		4	Mack	Bender	29
		1	Stewart	Caley-Nash	20
		1	White	Caley-Nash	20
		1	White	Bender	24
		1	Reo	Ontario	24
		1	White	N. Y. Rys.	21
		1	White	Caley-Nash	18
		1	Buick	Buick	7
New York State Rys. (Syracuse)	2	1	Mack	Bender	29
		1	White	Bender	29
New York State Rys. (Utica)	2	1	Mack	Bender	29
		1	White	N. Y. Rys.	18
Olean, Bradford & Salamanca Ry.	4	4	Fageol	Fageol	22
Peekskill Lighting & R.R. Co.	9	9	White	Bender	29
Third Avenue Ry.	5	3	Studebaker	Studebaker	21
		1	Graham	Graham	22
		1	Six Wheel	Six Wheel	59
United Traction Co of Albany	27	27†	Mack	Mack	27
Pennsylvania					
Altoona & Logan Valley Electric Ry.	9	2	White	White	25
		7	Yellow	Yellow	21
Bangor & Nazareth Transit Co.	3	2	International	Paterson	65
		1	International	Hoover	65
Bangor & Portland Transit Co.	2	2	Reo	Reo	20
Beaver Valley Traction Co.	7	5*	White	White	14
		1*	P. Arrow	P. Arrow	14
		1*	Safeway	Wolfington	29
Citizens Traction Co.	3	3	Yellow	Yellow	21
Conestoga Traction Co.	2	2	Mack	Mack	25
Erie Rys.	2	2	Yellow	Yellow	21
Johnstown Traction Co.	2	2	Yellow	Yellow	21
Lehigh Valley Transit Co.	11	6	Mack	Mack	29
		1*	Mack	Mack	29
		1*	Reo	Reo	21
		3	Yellow	Yellow	29
Lewistown & Reedsville Electric Ry.	1	1	White	Bender	29
Philadelphia Rapid Transit Co.	163	163†	Yellow	Yellow	..
Northwestern Electric Service Co.	2	..	.....	.....	..
Philadelphia & West Chester Traction Co.	16	15	Fageol	Fageol	29
		1	White	Kuhlman	29
Pittsburgh Rys.	19	5	Six Wheel	Thompson	29
		1	Six Wheel	Wolfington	27
		1	Six Wheel	Wolfington	29
		4	Mack	Mack	25
		2	L. G. O.	L. G. O.	52
		6	Yellow	Yellow	19
Schuylkill Ry.	3	3	Brockway	Paterson	22
Scranton Ry.	6	6	Fageol	Fageol	29
Shamokin & Edgewood Electric Ry.	3	1	Reo	Reo	21
		1	Reo	Paterson	21
		1	Paterson	Paterson	21
Southern Cambria Ry.	4	4	Reo	McKay	15
Stroudsburg Traction Co.	1	1	Garford	Garford	21
United Traction St. Ry.	2	2	Graham	Graham	21
West Chester Street Ry.	12	10	Yellow	Yellow	..
		2	Hahns	Hahns	..
West Penn Rys.	2	2	Yellow	Yellow	21
Westside Electric St. Ry.	1	1	Yellow	Yellow	21
Virginia					
Newport News & Hampton Ry., Gas & Electric Co.	1	1	Reo	Reo	21
Virginia Electric & Pwr. Co.	85	15	White	Bender	21
		18	White	Am. Car	29
		2	Yellow	Am. Car	29
		5	Reo	Fitzjohn	21
		5	White	Hoover	21
		10	Mack	Am. Car	29
		30*	Various types.		
West Virginia					
Charleston Interurban R.R.	15	6	Yellow	Yellow	25—30
		6	Yellow	Yellow	17—21
		3	Yellow	Yellow	21
Monongahela-West Penn Public Service Co.	4	4	Yellow	Yellow	21
Ohio Valley Electric Ry.	14	6	Graham	Graham	20
		1	White	White	25
		1	Denby	Denby	29
		4	Studebaker	Studebaker	21
		2	Studebaker	Studebaker	14
Wheeling Traction Co.	9	5	Studebaker	Studebaker	12
		4	Studebaker	Studebaker	7
Illinois					
Aurora, Elgin & Fox River Electric Co.	2	1	Fageol	Fageol	27
		1	Reo	Reo	21
Chicago & Joliet Elec. Ry.	3	2	Yellow	Yellow	29
		1	Yellow	Yellow	21
East St. Louis & Suburban Ry.	16	12	Yellow	Yellow	29
		1	White	Kuhlman	29
		1	Mack	St. Louis	29
		2	P. Arrow	Buffalo	29
Evanston Ry	4	4	Yellow	Yellow	21
Illinois Power Co.	2	2	Yellow	Yellow	29
Illinois Power & Light Corp.	34	24	.....	.....	21
		7	.....	.....	25
		3	.....	.....	21
Rockford & Interurban Ry.	6	4	Yellow	Yellow	29
	..	2	Yellow	Yellow	21
Indiana					
Chicago, South Bend & Northern Ind. Ry.	5	5	Studebaker	Auto	21
Indianapolis Street Ry.	4	4	Yellow	Yellow	29
Indiana Service Corp.	23	6*	Fageol	Fageol	30
		3*	White	Bender	26
		1*	Fageol	Fageol	26
		1*	Studebaker	Fremont	15
		1*	Studebaker	Fremont	18
		4*	Studebaker	Clark	15
		2*	Studebaker	Miller	12
		3	International	Lang	24
		2	International	Lang	28
Shore Line Motor Coach Co.	53	..	.....	.....	..
		..	.....	.....	..
Southern Indiana Gas & Electric Co.	10	6	Graham	Graham	21
		4	Yellow	Yellow	29
Terre Haute, Indianapolis & Eastern Traction Co.	17	9*	Mack	Mack	..
		5*	Mack	Mack	..
		3	Fageol	Fageol	..

Table II—Buses Bought by Railways During 1926 (Continued)

Name of Company	Total	Total Type	Type Chassis	Body Builder	Seating Capacity
Union Traction Co. of Indiana	31	12	Mack	Mack	25
		4	Mack	Eckland	25
		5	Fageol	Fageol	29
		10	White	Kuhlman	25
Iowa					
Des Moines City Ry.	3	3	White	Bender	25
Fort Dodge, Des Moines & Southern R.R.	2	2	Yellow	Yellow	29
Iowa Southern Utilities Co. (Burlington)	4	4	Mack	Mack	26
Iowa Southern Utilities Co. (Ottumwa)	6	6	Mack	Mack	25
Tri-City Ry.	9	2†	Mack	Mack	25
		1	Mack	Mack	29
		6	Mack	Mack	21
Kentucky					
Kentucky Traction & Terminal Co.	20	11	Yellow	Yellow	21
		1*	U. S.	U. S.	15
		2*	Reo	Reo	19
		1*	Reo	Reo	15
		5*	Reo	Reo	14
Kentucky Utilities Co. (Paducah)	6	2*	Reo	Reo	21
		1*	Reo	Reo	19
		3	Yellow	Yellow	21
Michigan					
Department of Street Rys., Detroit	142	41*	Yellow	Yellow	29
		50†	Fageol	Amer. Car	60
		50	Graham	Graham	21
		1	Fageol	Amer. Car	60
Detroit United Ry.	14	12	Fageol	Fageol	27
		2	Graham	Graham	12
Menominee & Marinette Light & Traction Co.	1	1	Yellow	Yellow	21
Minnesota					
Duluth Street Ry.	1	1	White	Eckland	14
Twin City Rapid Transit Co.	11	7†	Yellow	Eckland	..
		1	Mack	Eckland	25
		3	White	Eckland	25
Missouri					
Springfield Traction Co.	4	3	Yellow	Yellow	21
		1	Graham	Graham	21
Ohio					
Cincinnati, Lawrenceburg & Aurora Electric St. R.R.	3	3*	Mack	Mack	25
Cincinnati Street Ry.	67	29	Mack	Bender	29
		18	Safeway	Kuhlman	29
		7	Schacht	Kuhlman	29
		13	Mack	Mack	29
Cleveland Ry.	51	30	White	Kuhlman	29
		20	Six Wheel	Six Wheel	62
		1	Six Wheel	Six Wheel	29
Cleveland Southwestern Ry. & Light Co.	3	3	White	Kuhlman	24
Columbus Railway, Power & Light Compan'	3	3†	Mack	Mack	11
Community Traction Co.	30	6	Mack	Mack	25
		12	Mack	Mack	29
		12	White	Kuhlman	29
Indiana, Columbus & Eastern Traction Co.	1	1	Fageol	Fageol	22
Nelsonville-Athens Electric Ry.	1	1	Reo	Reo	21
Northern Ohio Power & Light Co.	71	1	N.O.P. & L.	Kuhlman	29
		6	Mack	Mack	29
		16	Yellow	Yellow	29
		20	Six Wheel	Kuhlman	29
		2	Six Wheel	Hoover	59
		8	Six Wheel	Six Wheel	27
		5*	Mack	Mack	29
		5	Yellow	Lang	30
		5	Mack	Lang	29
		3*	Studebaker	Superior	19
Ohio Public Service Co.	3	2	Yellow	Yellow	21
		1*	Yellow	Yellow	21
Pennsylvania-Ohio Electric Co.	36	15	White	Bender	29
		13	Fageol	Fageol	29
		3	Fageol	Fageol	29
		5	Yellow	Yellow	25
Southern Ohio Public Service Co.	1	1	Studebaker	Cambridge	19
Youngstown & Suburban Ry.	2	2	Fageol	Fageol	22
Wisconsin					
Madison Rys.	4	4*	Stoughton	Stoughton	90
Milwaukee Electric Railway & Light Co.	20	3	Fageol	Fageol	26
		3	Yellow	Yellow	29
		14	Yellow	Yellow	29
Wisconsin Power & Light Co.	11	3	Yellow	Yellow	29
		3	Fageol	Fageol	29
		5	Menominee	Menominee	21
Wisconsin Public Service Corp.	5	3	Yellow	Yellow	21
		2	Reo	Reo	21
Wisconsin Traction, Light, Heat & Power Co.	7	7*	.....	.....	16—25
Arkansas					
Arkansas Power & Light Co.	2	2	Yellow	Yellow	21
Florida					
Key West Electric Co.	6	6	Yellow	Yellow	21
Miami Beach Ry.	50	36†	Fageol	Fageol	29
		14	Yellow	Yellow	21
Municipal Ry. of St. Petersburg	8	8	Yellow	Yellow	21
Georgia					
Columbus Electric & Power Co.	7	7	Studebaker	Gibraltar	21
Georgia Ry. & Power Co.	10	10	Yellow	Yellow	21
Louisiana					
New Orleans Public Service Inc.	14	14†	Fageol	St. Louis	29
Mississippi					
Mississippi Power Co., Gulfport	12	12	Mack	Mack	..
Mississippi Power & Light Co.	2	1	White	Bender	21
		1	Yellow	Yellow	21
North Carolina					
Carolina Power & Light Co.	7	7†	Fageol	Fageol	30
Durham Public Service Co.	6	2	Reo	Fitzjohn	21
		4	Yellow	Yellow	21
Southern Public Utilities Co.	5	5	Yellow	Yellow	21
Tennessee					
Nashville Interurban Ry.	9	8	International	Burkett	..
		1	International	Lang	15
Nashville Railway & Light Co.	13	13	Yellow	Yellow	29
California					
Bakersfield & Kern Electric Ry.	1	1	Studebaker	Studebaker	12
Key System Transit Co.	27	14	Fageol	Fageol	28
		5	Yellow	Amer. Car	28
		2	Yellow	Yellow	29
		3	Yellow	Yellow	21
		3	Reo	Reo	21
Los Angeles Ry.	35	3	Yellow	Yellow	21
		4	Yellow	Yellow	29
		8	Yellow	Yellow	63
		8	Fageol	Fageol	59
		1	Fageol	Fageol	21
		9	Fageol	Fageol	29
		1	White	White	25
		1†	Yellow	Yellow	29
Market Street Ry.	3	3	Fageol	Fageol	29
Municipal Railway of San Francisco	7	2	White	White	29
		2	Fageol	Fageol	29
		2	Mack	Mack	29
		1	Miscellaneous		
Pacific Electric Ry.	3	3	Fageol	Fageol	58
Pacific Gas & Electric Co.	1	1	Moreland	Moreland	16
San Diego Electric Ry.	3	3	Fageol	Fageol	29
Santa Barbara & Suburban Ry.	4	3	Mack	Mack	25
		1	Fageol	Fageol	29
Southern Pacific Co.	11	3	Mack	Mack	29
		8	White	Fischer	25
Union Traction Co., Santa Cruz	4	4	Reo	Reo	21
Colorado					
Colorado Springs & Interurban Ry.	6	6	Yellow	Yellow	21
Denver Tramway	1	1	Yellow	Yellow	21
Denver & South Platte Ry.	2	2	Graham	Graham	21
Idaho					
Boise Street Car Co.	4	4	.....	.....	..
Kansas					
Arkansas Valley Interurban Ry.	1	1	Studebaker	Studebaker	14
Kansas City, Leavenworth & Western Ry.	1	1	Mack	Mack	25
Montana					
Butte Electric Ry.	3	2	Fageol	Fageol	29
		1	P. Arrow	Brown	29
Nebraska					
Lincoln Traction Co.	14	12	Mack	Mack	25
		2	Studebaker	Studebaker	21
Omaha & Council Bluffs Street Ry.	3	3	Douglas	Weir	21
Omaha, Lincoln & Beatrice Ry.	3	3	White	Bender	21
North Dakota					
Northern States Power Co.	2	2	Reo	Reo	21
Oklahoma					
Oklahoma Ry.	9	4	Yellow	Yellow	21
		5	Reo	Reo	21
Oklahoma Union Ry.	49	17	Reo	Reo	21
		13	Mack	Mack	25
		16	Graham	Graham	15
		1	Studebaker	Studebaker	15
		1	International	International	15
		1	Buick	Buick	12
Tulsa Street Ry.	3	3	Yellow	Yellow	21
Oregon					
Portland Electric Power Co.	9	7	Yellow	Yellow	33
		1	Mack	Mack	29
		1	Yellow	Yellow	29
South Dakota					
Sioux Fall Traction System.	2	1	Garford	Garford	15
		1	White	Eckland	19
Texas					
Austin Street Ry.	1	1	Yellow	Yellow	21
Dallas Ry. & Terminal Co.	7	7	Graham	Graham	21
Eastern Texas Electric Co.	4	4	Graham	Graham	21
El Paso Electric Co.	3	2	Studebaker	Miller	21
		1	Yellow	Yellow	21

Table II—Buses Bought by Railways During 1926 (Concluded)

Name of Company	Total	Total Type	Type Chassis	Body Builder	Seating Capacity
Galveston Electric Co.	4	3	Studebaker	Studebaker	16
		1	Yellow	Yellow	17
Houston Electric Co.	15	2	Mack	McKay	29
		4	Yellow	Yellow	21
		1	Yellow	Yellow	27
		3	Reo	International	15
		2	Yellow	Yellow	33
		2	Yellow	Yellow	29
		1*	Studebaker	Gilbraltar	21
Northern Texas Traction Co	4	2	Yellow	Yellow	21
		2	Reo	Fitzjohn	21
San Antonio Public Service Co.	14	1	Studebaker	Gilbraltar	22
		3	Reo	Fitzjohn	21
		1	P. Arrow	Bender	29
		9	Yellow	Yellow	21
Southwestern Traction Co.	3	1	Graham	Graham	12
		2	Hudson	Hudson	7
Wichita Falls Traction Co.	8	4	Reo	Reo	20
		4	Graham	Graham	20
Utah					
Bamberger Electric R.R.	2	2	Yellow	Yellow	25—29
Utah Idaho Central R.R.	2	1	Fageol	Fageol	25
		1	Mack	Mack	29
Utah Light & Traction Co.	2	2	Mack	Duralyte	29
Washington					
Puget Sound Power & Light Co.	24	2	Fageol	Fageol	..
		1	Yellow	Yellow	17—21
		5*	Pierce	Local	23
		4*	Fageol	Fageol	22
		2*	White	Local	14—22
		1*	Fageol	Fageol	27
		1*	Yellow	Yellow	17—21
		2*	Fageol	Fageol	19
		3*	Fageol	Fageol	25
		3*	Fageol	Fageol	20
Seattle Municipal Ry.	14	5	Reo	Fitzjohn	21
		5	Garford	Garford	21
		2	White	Ry. Co.	29
		2	Garford	Ry. Co.	29
Yakima Valley Transportation Co.	2	2	Mack	Mack	29
Canada					
British Columbia Electric Ry., Ltd.	3	3	Fageol	Fageol	33
Hamilton Street Ry.	10	10	Yellow	Nat. Steel	21
London Street Ry.	6	6	Yellow	Yellow	21
Montreal Tramways	31	19	Yellow	Yellow	29
		6	Yellow	Yellow	21
		6	Reo	Ottawa	21
Ottawa Electric Ry.	5	4	Reo	Ottawa	21
		1	Reo	Ottawa	22
Pictou County Electric Co., Ltd.	2	2	International	International	20
Toronto Transportation Commission	24	10	Yellow	Yellow	29
		9	Yellow	T. T. C.	29
		5	Yellow	Yellow	21
Windsor, Essex & Lake Shore Rapid Ry.	2	2	Gotfredson	Gotfredson	25
Winnipeg Electric Co.	4	3	Reo	Reo	21
		1	Studebaker	Studebaker	..
Woodstock, Thames Valley & Ingersoll Electric Ry.	1	..	.....	.....	..
Porto Rico					
Ponce Electric Co.	1	1	Reo	Fitzjohn	22
Total	2,203				

*Second-hand.
† Gas-electric.

Table III—Bus Route Extensions During 1926

Name of Railway	City Miles	Intercity Miles	Replaced Miles
Connecticut			
Connecticut Co.	14.63	12.79	1.76
Lordship Ry.	.....	3.70	.....
Massachusetts			
Boston Elevated Ry.	11.16	.....	8.61
Boston & Worcester Street Ry	6.00	14.00	6.00
Eastern Massachusetts Street Ry.	0.60	18.31	15.40
Gardner-Templeton Street Ry.	.....	10.00	10.00
Middlesex & Boston Street Ry.	.....	29.39	.....
Springfield Street Ry.	.....	15.50	17.00
Union Street Ry.	2.10	.....	.....
Worcester Consolidated Street Ry.	.....	5.30	5.30
New Hampshire			
Keene Electric Ry.	12.00	5.00	.....
Manchester & Derry Street Ry.	.....	8.37	.....
Rhode Island			
Newport & Providence Ry.	1.50	.....	1.50
Vermont			
Burlington Traction Co.	0.33	.....	.....
District of Columbia			
Capital Traction Co.	.....	8.00a	.....
Washington Railway & Electric Co.	6.36	.....	.....
New York			
Fonda, Johnstown & Gloversville R.R.	.....	37.00	.....
International Ry.	.....	13.83	.....
Kingston Consolidated R.R.	7.00	.....	3.00
New York State Rys.	4.20	.....	1.35
Olean, Bradford & Salamanca Ry.	.....	9.00	9.00
United Traction Co. of Albany	6.52	.....	6.63
Pennsylvania			
Citizens Traction Co.	2.85	.....	2.85
Conestoga Traction Co.	3.20	.....	.....
Erie Rys.	4.50	.....	.....
Lehigh Valley Transit Co.	2.18	13.64	11.90
Philadelphia & West Chester Traction Co.	.....	18.00	.....
Shamokin & Edgewood Electric Ry.	4.00	.....	.....
Southern Cambria Ry.	.....	39.50	.....
West Penn Rys	0.76	.....	.....
Westside Electric Street Ry.	3.00	7.00	.....
West Virginia			
Charleston Interurban R.R.	4.00	.....	.....
Wheeling Traction Co.	.....	57.00	.....
Illinois			
Chicago, North Shore & Milwaukee R.R.	1.60	48.50b	.....
Chicago & West Towns Ry.	2.50	.....	.....
East St. Louis & Suburban Ry	5.66	72.20	2.90
Evanston Ry	8.00	.....	.....
Chicago & Joliet Electric Ry.	7.00	.....	.....
Illinois Power Co.	4.68	.....	.....
Illinois Power & Light Corp.	75.00	.....	.....
Indiana			
Chicago, South Bend & Northern Indiana Ry.	4.20	.....	.....
Indianapolis Street Ry.	6.06	.....	.....
Southern Indiana Gas & Electric Co.	7.00	.....	.....
Terre Haute, Indianapolis & Eastern Trac. Co.	13.17	148.00	.....
Union Traction Co. of Indiana	10.05	81.40	3.60
Iowa			
Des Moines City Ry	7.48	.....	.....
Iowa Southern Utilities Co.	7.75	.....	8.00
Tri City Railway	4.80	.....	.....
Kentucky			
Kentucky Traction & Terminal Co.	7.70	.....	.....
Louisville Ry.	3.10	.....	.....
Michigan			
Department of Street Rys., Detroit	109.97	.....	.....
Grand Rapids Ry.	0.80	.....	.....
Minnesota			
Duluth Street Ry.	3.28	.....	.....
Twin City Rapid Transit Co.	15.30	12.00	.....
Missouri			
Springfield Traction Co.	3.40	.....	3.40
United Rys.	2.81	1.09	.....
Ohio			
Cincinnati Street Ry.	69.75	.....	1.80
Cleveland Ry.	24.16	.....	1.10
Cleveland Southwestern Railway & Light Co.	.....	10.30	10.30
Columbus, Urbana & Western Electric Ry.	.....	7.50	7.50
Community Traction Co.	15.22	.....	4.59
Indiana, Columbus & Eastern Traction Co.	.....	55.00	.....
Nelsonville-Athena Electric Ry.	5.00	.....	.....
Northern Ohio Power & Light Co.	15.49	.....	1.49
Pennsylvania-Ohio Electric Co.	4.00	181.00	.....
Wisconsin			
Madison Rys.	3.75	.....	0.75
Wisconsin Power & Light Co.	9.65	35.00	1.20
Wisconsin Public Service Corp.	0.68	6.00	6.00
Florida			
Key West Electric Co	2.66	.....	2.70
Miami Beach Ry.	36.00	.....	.....
Georgia			
Columbus Electric & Power Co.	4.10	.....	3.60
Georgia Railway & Power Co.	.....	4.42c	.....
Louisiana			
Baton Rouge Electric Co.	1.00	.....	.....
New Orleans Public Service, Inc.	8.30	.....	.....
Mississippi			
Mississippi Power Co., Gulfport	.....	31.00	22.50
North Carolina			
Carolina Power & Light Co.	8.60	.....	.....
Durham Public Service Co.	2.13	.....	.....
Tennessee			
Nashville Interurban Ry	.....	192.00	.....
Tennessee Electric Power Co.	7.30	.....	.....
Arizona			
Tucson Rapid Transit Co.	5.00	.....	.....
California			
Bakersfield & Kern Electric Ry.	0.50	.....	.....
Key System Transit Co.	3.96	.....	.....
Los Angeles Ry.	13.96	.....	.....

Table III—Bus Route Extensions During 1926 (Concluded)

Name of Railway	City Miles	Intercity Miles	Replaced Miles
Market Street Ry	3.86	.....	.....
Pacific Electric Ry	4.50	.....	.....
San Diego Electric Ry	2.00	.....	.....
Union Traction Co	3.50	.....	3.50
Colorado			
Colorado Springs & Interurban Ry	5.00	30.00a	2.53
Denver & South Platte Ry	.....	4.50	4.25
Idaho			
Boise Street Car Co	5.50	.....	.....
Nebraska			
Omaha & Council Bluffs Street Ry	2.02	.....	.....
Omaha, Lincoln & Beatrice Ry	.....	5.50	0.63
North Dakota			
Northern States Power Co	3.00	.....	.....
Oklahoma			
Northeast Oklahoma Ry	.....	9.33	.....
Oklahoma Ry	6.70	.....	.....
Oklahoma Union Ry	.....	18.00	.....
Tulsa Street Ry	1.70	.....	.....
South Dakota			
Sioux Falls Traction System	.....	90.00	.....
Texas			
Austin Street Ry	4.38	.....	.....
Dallas Railway & Terminal Co	6.88	.....	.....
Eastern Texas Electric Co	9.00	.....	.....
Galveston Electric Co	.....	36.00d	.....
Galveston-Houston Electric Co	12.80	.....	.....
Houston Electric Co	27.25	30.00a	.....
Northern Texas Traction Co	3.20	.....	.....
San Antonio Public Service Co	14.60	.....	3.39
Southwestern Traction Co	10.50	.....	10.50
Utah			
Utah Idaho Central R.R	.....	27.00	.....
Utah Light & Traction Co	.....	7.50	8.74
Washington			
Puget Sound Power & Light Co	.....	216.50	.....
Seattle Municipal Ry	6.25	.....	.....
Southern Pacific R.R	4.80	1.90	.....
Yakima Valley Transportation Co	3.10	.....	.....
Canada			
Hamilton Street Ry	7.00	.....	.....
Hydro-Electric Railways	10.36	.....	.....
London Street Ry	6.85	.....	0.50
Montreal Tramways	22.45	.....	.....
Toronto Transportation Commission	3.30	83.00	.....
Windsor, Essex & Lake Shore Rapid Ry	.....	50.00	.....
Winnipeg Electric Co	1.75	.....	.....
Total	841.66	1,827.17	215.17

a—Sightseeing.
b—Does not include sightseeing.
c—1.62 mi sightseeing included.
d—20.00 mi. sightseeing included.

Gas-electric buses to the number of about 396 were ordered by electric railways during the year just ended. This number was somewhat larger than the number for the preceding year, when orders totaled approximately 370. Moreover, the distribution of railways ordering gas-electrics was wider. Important purchases during the year include 163 gas-electrics for the Philadelphia Rapid Transit Company, 61 for the Public Service Railway, 50 for the Department of Street Railways, City of Detroit; 36 for the Miami Beach Railway; eighteen for the International Railway, Buffalo, and fourteen for the New Orleans Public Service, Inc.

Of the new buses ordered during the year about one-half had seating capacities from 27 to 30, inclusive. This was by far the most popular size. Medium-sized buses ranging in seating capacity from 19 to 21 numbered about 500. Small buses of seating capacities from 13 to 16 were few in number. Those over 30, not including the double-deck buses with seating capacities from 50 to 65, were also comparatively few. Various other odd sizes were included in the list.

In addition to the new buses ordered from manufacturers during the year, the electric railways have acquired more than 200 buses by purchase of lines already existing. In many cases the equipment thus acquired has been retired from service and new vehicles purchased. In other instances, while the old equipment remains in operation it is planned to replace it at the earliest practicable moment. An outstanding feature of the survey this year is the number of buses junked. Altogether 47 electric railways report approximately 160 buses retired from service.

New Routes Are Extensions Rather than Replacements

Much new bus route mileage was added during the year. In all 116 companies report bus route extensions totaling about 2,650 miles on which regular service is given. Besides that there have been about 60 miles of extensions to sightseeing routes. Replacement of rail service by bus service has occurred on only 215 miles of route, or less than 9 per cent of the route mileage added during the year.

Adding the figures for 1926 to those for preceding years, it is found that approximately 100 railways have replaced cars by buses on parts of their systems. Rail service on approximately 940 miles of track has been superseded by bus service. Some 25 electric railways having about 450 miles of track have suspended rail service altogether and now operate only buses. An additional 75 railways with 900 miles of track have suspended all service and a certain measure of transportation service is now furnished by buses under different management. Thus the bus has replaced the car on a total of 2,300 miles of track. The bus routes operated by electric railways total more than 15,000 miles. From this it will be seen that replacement of rail service has been a minor factor in the expansion of bus service.

Automotive Service Equipment Orders Largest in Recent Years

Together with the large purchases of buses already mentioned, electric railways in 1926 ordered 347 automotive vehicles of various kinds for other than passenger-carrying purposes. This was a substantial increase over the figure of 284 automotive service vehicles bought in 1925. In 1924 such purchases amounted to 105, in 1923 they were 148, and 112 in 1922.

Trucks for miscellaneous haulage purposes were the most numerous. Seventeen freight and express trucks and ten tractors were ordered, and a considerable number of line and tower trucks also were bought. An interesting commentary on the development of bus operation by electric railways is found in the number of automotive snow plows ordered. Four companies ordered eleven such vehicles. Two tank trucks were purchased for use in conjunction with buses. In size the service equipment ranged from ½ ton to 14½ tons. The most popular size was the 1-ton truck, with 2½-ton and 5-ton sizes about even for second place in popularity.

The largest single purchaser of automotive service equipment was the Boston Elevated Railway, which ordered 95 trucks of various types. Other large orders included the Chicago, North Shore & Milwaukee Railroad, 22; Brooklyn City Railroad, 21; Brooklyn-Manhattan Transit Corporation, 20; Key System Transit Company, 18, and Toronto Transportation Commission, 15. Altogether 53 electric railways reported such orders.

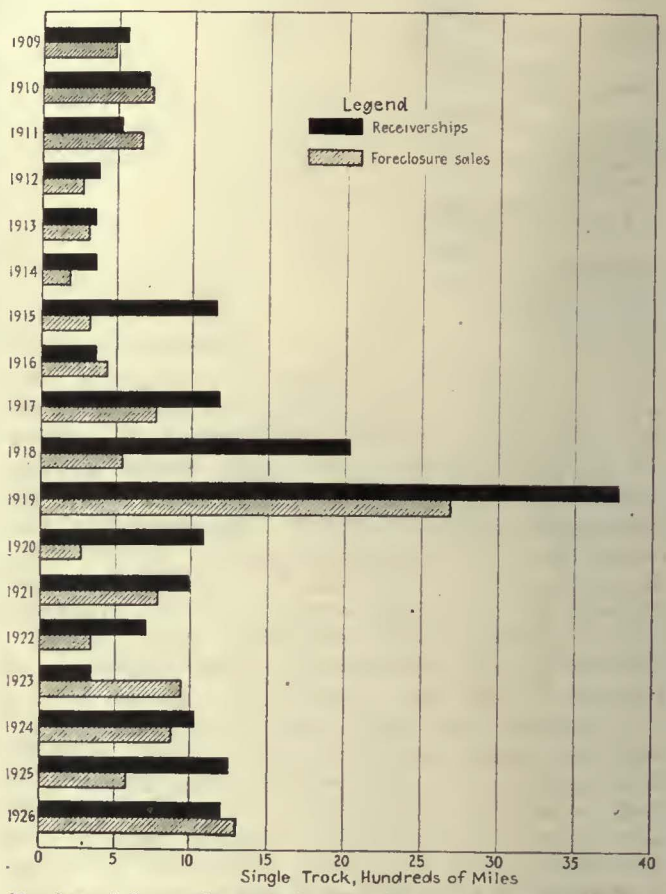
No trackless trolleys were reported as having been ordered by electric railways in the year just ended.

Fewer Electric Railways in Receivership

Mileage of Properties Defaulting Have Little More than Half the Mileage of Those Included in 1925 Record—Even Including Chicago Railways the Total Is Reduced—Twenty Companies Emerged from Receivership and Nine Others Were Foreclosed and Should Come Out in 1927

WITH the passing of another year electric railways in receivership are still on the wane, the number having been decreased in 1926 to 55 companies. Twenty companies, comprising 1,060 miles of track, emerged from receivership and twelve others were sold at foreclosure and may be expected to emerge in 1927. Railways going into receivership in 1926 as a result of financial difficulties comprise a total of about 640 miles, or 620 miles less than in 1925.

The Chicago Railways, with 590 miles of track, is not included in the above figures, as the receivership in this instance is in no way attributable to the financial results of operation. This was a voluntary receivership to conserve the property at the expiration of a franchise. The property is physically in fine condition and has broken all former traffic and revenue records. The increase in gross revenue and passengers carried for 1926 ran better than 4 per cent above 1925, and public relations are more satisfactory than at any time in the company's history. A complete summary of this situation was published in the Dec. 25, 1926, issue of ELECTRIC RAILWAY JOURNAL, page 1124.



Number of Companies Entering Receivership During 1926 Was Slightly Less Than In The Previous Year Although Foreclosure Sales More Than Doubled

Table I—Electric Railway Receiverships—1926

	Miles of Single Track Involved	Outstanding Securities: Stock	Bonds	Receivers' Certificates
Milford & Uxbridge Street Ry., Milford, Mass.	35.00	$540,000	$500,000	None
Geneva, Seneca Falls & Auburn R.R., Geneva, N. Y.	12.00	157,100	507,000	None
Olean, Bradford & Salamanca Ry., Olean, N. Y.	100.00	3,808,000	472,818	None
Northern Cambria Ry., Patton, Pa.	13.00	250,000	250,000	None
Chicago Rys., Chicago, Ill.	591.16	100,000	103,228,255	None
Rockford, Beloit & Janesville Ry., Rockford, Ill.	(a)	(a)	907,000	None
Rockford City Traction Co., Rockford, Ill.	(a) 36.17	(a)	(a)	None
Rockford & Interurban Ry., Rockford, Ill.	76.00	4,000,000	2,175,500	None
Kankakee & Urbana Traction Co., Urbana, Ill.	26.00	(b)	(b)	(b)
Mississippi Valley Electric Co., Iowa City, Iowa	9.00	592,835	184,500	$2,000
Grand Rapids, Grand Haven & Muskegon Ry., Grand Rapids, Mich.	44.09	1,200,000	1,500,000	None
Minneapolis, Anoka & Cuyuna Range Ry., Minneapolis, Minn.	18.23	300,000	380,000	None
Southwest Missouri R.R., Webb City, Mo.	90.00	5,000,000	2,341,000	None
Sharon & Newcastle Street Ry., Youngstown, Ohio	17.00	120,000	120,000	None
Denver & Interurban R.R., Denver, Colo.	45.63	101,500	1,079,000	None
Utah Idaho Central R.R., Ogden, Utah	115.00	1,600,000	3,913,000	None
Total for 1926 (16 Cos)	1,228.28	17,769,435	117,558,073	2,000

(a) Included with Rockford & Interurban Ry.
(b) Information not available.

Table II—Record of Electric Railway Receiverships

Year	Number of Companies	Miles of Single Track Involved	Outstanding Securities: Stock	Bonds
1909	22	558.00	$29,962,200	$22,375,000
1910	11	696.61	12,629,400	75,490,735
1911	19	518.90	29,533,450	38,973,293
1912	26	373.58	20,410,700	11,133,800
1913	18	342.84	31,006,900	47,272,200
1914	10	362.39	35,562,550	19,050,460
1915	27	1,152.10	40,298,050	39,372,375
1916	15	359.26	14,476,600	10,849,200
1917	21	1,177.32	33,918,725	33,778,400
1918	29	2,017.61	92,130,388	163,257,102
1919	48	3,781.12	321,259,354	312,915,104
1920	19	1,065.31	28,758,455	72,283,575
1921	19	986.42	32,909,525	36,177,800
1922	14	695.43	18,140,150	20,304,400
1923	12	333.63	8,332,100	14,707,066
1924	12	1,021.88	28,489,700	35,716,000
1925	14	1,260.07	51,383,195	54,696,525
1926	16	1,228.28	17,769,435	117,560,073

Table III—Record of Electric Railway Foreclosure Sales

Year	Number of Companies	Miles of Track Involved	Outstanding Securities: Stocks	Bonds	Receivers' Certificates
1909	21	488.00	$22,265,700	$21,174,000	(a)
1910	22	724.36	19,106,613	26,374,075	(a)
1911	25	660.72	91,354,800	115,092,750	(a)
1912	18	267.18	14,197,300	10,685,250	(a)
1913	17	302.28	15,243,700	19,094,500	(a)
1914	11	181.26	26,239,700	44,094,241	(a)
1915	19	308.31	30,508,817	16,759,997	(a)
1916	19	430.14	13,895,400	22,702,300	(a)
1917	26	745.19	27,281,900	27,313,045	(a)
1918	23	524.22	37,740,325	20,149,384	(a)
1919	29	2,675.48	89,893,400	79,836,738	$42,300
1920	13	259.90	7,782,400	11,227,328	52,000
1921	13	777.97	33,642,255	30,863,526	5,000
1922	13	322.88	7,491,500	12,640,600	114,683
1923	15	927.45	118,077,959	110,638,250	12,265,000
1924	14	869.25	21,022,800	34,845,535	3,440,388
1925	13	569.39	18,074,300	18,329,555	53,000
1926	28	1,291.17	20,054,700	57,340,363	214,000

(a) Data not available.

Table IV—Electric Railway Receiverships as of Dec. 31, 1926

New England States	Year of Receivership	Miles of Single Track	Outstanding Securities: Capital Stock	Funded Debt	Receivers' Certificates
CONNECTICUT					
Hartford & Springfield Street Ry., Warehouse Point	1918	48.00	$785,000	$961,000	None
MASSACHUSETTS					
Boston & Worcester Street Ry., Framingham	1925	83.00	2,482,200	2,520,000	None
Milford & Uxbridge Street Ry., Milford	1925	35.00	540,000	500,000	None
Milford, Attleboro & Woonsocket Street Ry., Springfield (1)	1924	29.73	315,000	300,000	None
NEW HAMPSHIRE					
Portsmouth, Dover & York Street Ry., Portsmouth (1)	1917	12.00	.....	707,000	$30,000
Net receiverships Dec. 31, 1926, (5 Cos.)		207.73	4,122,200	4,988,000	30,000
Eastern States					
DISTRICT OF COLUMBIA					
Washington-Virginia Ry.	1923	40.00	2,378,300	5,614,000	None
NEW JERSEY					
Morris County Traction Co., Morristown	1923	68.98	300,000	4,179,000	None
NEW YORK					
Binghamton Ry., Binghamton	1925	49.52	978,895	2,807,200	None
Brooklyn Heights R.R., Brooklyn	1919	5.10	200,000	250,000	None
Buffalo & Lackawanna Traction Co., Buffalo	1918	8.80	55,000	1,000,000	None
Hamburg Ry., Buffalo	1920	21.72	None	750,000	$27,000
Geneva, Seneca Falls & Auburn R.R., Geneva	1926	12.00	157,100	507,000	None
Ithaca Traction Corporation, Ithaca	1924	11.62	400,000	763,000	None
Long Island Electric Ry., Jackson Heights (2)	1924	24.97	600,000	600,000	None
New York & Queens County Ry., Jackson Heights	1923	34.98	3,235,000	1,500,000	None
Manhattan & Queens Traction Corp., Long Island City	1917	21.66	20,000	25,946	None
Second Avenue R.R., New York	1908	23.96	1,862,000	5,682,000	$3,140,000
Staten Island Midland Ry., New York	1920	28.68	1,000,000	1,000,000	3,000
Steinway Railway, New York	1922	31.11	None	1,500,000	None
Westchester Street Ry. (3)	1920	17.92	700,000	168,000	None
Ogdensburg Street Ry., Ogdensburg	1922	7.74	150,000	150,000	None
Olean, Bradford & Salamanca Ry., Olean	1926	100.00	3,808,000	472,818	None
Penn Yan & Lake Shore Ry., Penn Yan	1918	8.50	94,000	100,000	None
Net receiverships Dec. 31, 1926, (18 Cos.)		517.26	15,938,295	27,068,964	3,170,000
Central States					
ILLINOIS					
Chicago & Interurban Traction Co., Chicago	1922	50.00	1,000,000	1,816,000	None
Chicago Rys., Chicago	1926	591.16	100,000	103,228,255	None
Peoria Railway Terminal Co., Peoria (4)	1922	25.28	1,000,000	2,444,000	None
Rockford, Beloit & Janesville Ry., Rockford	1926	(7)	(7)	907,000	None
Rockford City Traction Co., Rockford	1926	36.17	(7)	(7)	None
Rockford & Interurban Ry., Rockford	1926	76.00	4,000,000	2,175,500	None
INDIANA					
Union Traction Co. of Indiana, Anderson	1924	447.20	11,500,000	15,197,000	None
Indianapolis & Cincinnati Traction Co., Indianapolis	1925	101.00	3,600,000	2,400,000	112,000
IOWA					
Mississippi Valley Electric Co., Iowa City	1926	9.00	592,835	184,500	$2,000
KENTUCKY					
Owensboro City R.R., Owensboro	1923	12.50	75,000	400,000	None
MICHIGAN					
Detroit United Ry., Detroit	1925	613.89	15,375,000	29,745,500	None
Grand Rapids, Grand Haven & Muskegon Ry., Grand Rapids	1926	44.09	1,200,000	1,500,000	None
Houghton County Traction Co., Houghton	1921	32.15	957,200	660,000	None
Michigan Railroad, Jackson	1924	173.84	4,000,000	8,050,000	None
MINNESOTA					
Wahpeton-Breckenridge Street Ry., Breckenridge (5)	1925	1.00	42,500	None	None
St. Paul Southern Electric Ry., Hastings	1918	17.54	658,225	425,400	None
Minneapolis, Anoka & Cuyuna Range Ry., Minneapolis (4)	1926	18.23	300,000	380,000	None
Mesaba Railway, Virginia	1924	38.00	2,260,000	1,581,000	None
MISSOURI					
Kansas City, Lawrence & Topeka Electric Ry., Kansas City	1919	12.00	250,000	400,000	None
Missouri Electric R.R., St. Louis	1919	20.97	1,000,000	700,000	None
United Railways Co. of St. Louis	1919	462.88	41,296,000	52,590,000	None
Southwestern Missouri R.R., Webb City	1926	90.00	5,000,000	2,341,000	None
OHIO					
Cincinnati, Lawrenceburg & Aurora Electric Street R.R., Cincinnati	1913	31.67	808,900	750,000	None
Indiana, Columbus & Eastern Traction Co., Springfield	1921	201.49	4,025,000	7,900,000	$200,000
Sharon & New Castle St., Ry., Youngstown (6)	1926	17.00	120,000	120,000	None
Net receiverships Dec. 31, 1926 (25 Cos.)		3,123.06	99,160,660	235,895,155	314,000
Western States					
COLORADO					
Denver & Interurban R.R., Denver	1926	45.63	101,500	1,079,000	None
KANSAS					
Kansas City, Kaw Valley & Western Ry., Bonner Springs	1924	42.31	740,500	1,374,500	None
Joplin & Pittsburg Ry., Pittsburg	1924	94.52	7,000,000	3,078,500	None
MONTANA					
Helena Light & Railway Co., Helena (4)	1925	18.50	935,000	878,000	None
OKLAHOMA					
Oklahoma Railway, Oklahoma City	1924	138.45	5,595,900	5,815,000	None
Tulsa Street Ry., Tulsa	1925	23.00	580,000	771,000	None
UTAH					
Salt Lake City & Utah R.R., Salt Lake City	1925	96.71	5,043,700	2,611,292	100,000
Net receiverships Dec. 31, 1926 (7 Cos.)		459.12	19,996,600	15,607,292	100,000
Recapitulation for United States					
Net receiverships Dec. 31, 1926 (55 Cos.)		4,307.17	139,217,755	283,559,411	3,644,000

(1) All the property has been sold and assets being distributed. Receiver not yet discharged.
(2) Sold at foreclosure sale and now being operated by the Jamaica Central Rys. Receiver not yet discharged.
(3) Sold at foreclosure sale to the Third Avenue Ry. Receiver not yet discharged.
(4) Sold at foreclosure sale.
(5) Operations abandoned in 1925. Receiver not yet discharged.
(6) Operations abandoned.
(7) Included in Rockford & Interurban Ry. figures.

Thus taking as a measure of the industry's condition only those railways involved in financial difficulties, there are 15 new companies which went into receivership in 1926. These represent $17,769,435 capital stock and $14,329,818 bonds, or about one-fourth the value of stocks and bonds involved last year.

Including the Chicago Railways, the total of the 1926 receiverships is 1,228.28 miles, or slightly less than that in 1925; capital stock $17,769,435, only a little more than one-third the amount of capital involved in last year's figures. Also, the companies terminating receivership in 1926 exceed those of 1925 by about 150 miles.

Reorganization of the Kansas City Railways was consummated this year, the property now being operated as the Kansas City Public Service Company. Besides the Chicago Railways, this leaves only one large city property in receivership, the United Railways of St. Louis. Plans are now being perfected for termination of receivership of this property. The St. Louis Public Service Company was organized and stands ready to take over operation of the St. Louis properties as soon as a satisfactory franchise can be worked out.

The Utah-Idaho Central Railroad, which went into receivership Aug. 20, 1926, was sold at receiver's sale on Nov. 5 to a committee representing 99 per cent of the outstanding mortgage holders and the receivership was terminated.

On March 8, 1926, the Cincinnati & Dayton Traction Company receivership was ended, and immediately following acquisition of the property by the reorganized company, the Cincinnati, Hamilton & Dayton Railway, an extensive improvement program was inaugurated.

The property of the Dayton, Springfield & Xenia Southern Railway was taken over on Aug. 1 by the Dayton-Xenia Railway, organized for that purpose.

Two companies, the St. Louis & Alton Railway, with $1,000,000 capital stock, and the Alton Railway, with $750,000, were organized to take over and operate the Alton, Granite & St. Louis Traction Company, receivership of which was terminated.

The Cumberland & Westernport Transit Company was organized to take over the property of the Cumberland & Westernport Electric Railway and receiver discharged Oct. 1.

The Grand Rapids, Holland & Chi-

Table V—Receiverships Terminated and Foreclosure Sales During 1926

Receivers Discharged With or Without Foreclosure Sales or Following Abandonment	Miles of Single Track	Outstanding Securities—Stocks	Bonds	Receivers' Certificates	
Danbury & Bethel Street Ry., Danbury, Conn.	13.00	$320,000	$588,500	$100,000	Sold at foreclosure sale and reorganized as the Danbury Power & Transportation Co.
Connecticut Valley Street Ry., Greenfield, Mass.	47.05	621,000	580,000	None	Property liquidated.
Laconia Street Ry., Laconia, N. H.	8.00	140,000	91,000	None	Property dismantled.
Barre & Montpelier Traction & Power Co., Montpelier, Vt.	9.75	50,000	None	None	Sold at foreclosure sale to Vergennes Power Co.
Cumberland & Westernport Electric Ry., Frostburg, Md.	25.00	625,000	655,000	None	Sold at foreclosure sale and reorganized as the Cumberland & Westernport Transit Co.
North Jersey Rapid Transit Co., Hohokus, N. J.	18.00	800,000	800,000	None	Sold to Public Service Ry., Newark, N. J.
Hornell Traction Co., Hornell, N. Y.	10.90	117,900	150,000	None	Sold at foreclosure sale, operation abandoned and bus service substituted.
New York & Long Island Trac. Co., Jackson Heights, N. Y.	52.62	1,000,000	1,000,000	None	Sold at foreclosure sale and operations abandoned.
North Branch Transit Co., Bloomsburg, Pa.	30.00	500,000	532,500	45,000	Sold at foreclosure sale in 1925. Property taken over by North Branch Bus Co., railway service abandoned and buses substituted.
Northern Cambria Ry., Patton, Pa.	13.00	250,000	250,000	None	Sold at foreclosure sale and property dismantled.
Alton, Granite & St. Louis Trac. Co., East St. Louis, Ill.	62.00	3,189,000	3,000,000	None	Sold at foreclosure sale and reorganized as the Alton Railway and the St. Louis & Alton Ry.
Kankakee & Urbana Traction Co., Urbana, Ill.	26.00	(a)	(a)	(a)	Sold at foreclosure sale and property now being dismantled.
Fort Wayne, Van Wert & Lima Trac. Co., Fort Wayne, Ind.	61.63	1,000,000	1,470,000	None	Sold at foreclosure sale and reorganized.
Grand Rapids, Holland & Chicago Ry., Jackson, Mich.	80.93	1,324,700	1,500,000	21,000	Property sold in receivership sale and operations abandoned.
Kansas City Rys., Kansas City, Mo.	317.84	100,000	29,957,800	None	Sold at foreclosure sale and reorganized as the Kansas City Public Service Co.
Dayton, Covington, & Piqua Trac. Co., West Milton, Ohio	34.00	1,150,000	550,000	18,000	Sold at foreclosure sale and operations abandoned.
Dayton, Springfield & Xenia Southern Ry., Dayton, Ohio.	27.97	250,000	250,000	None	Sold at foreclosure sale and reorganized as the Dayton-Xenia Ry.
Cincinnati & Dayton Traction Co., Hamilton, Ohio.	91.07	1,250,000	3,250,000	None	Sold at foreclosure sale and reorganized as the Cincinnati, Hamilton & Dayton Ry.
Hocking-Sunday Creek Traction Co., Nelsonville, Ohio.	14.99	223,000	300,000	None	Sold at foreclosure sale in 1925 and reorganized as the Nelsonville-Athens Electric Ry. Receiver discharged this year.
Utah Idaho Central Railroad Co., Ogden, Utah.	115.00	160,000	3,913,000	None	Sold at receiver's sale and receivership terminated.
Total of receiverships terminated (20 cos.)	1,058.75	13,070,600	48,837,800	184,000	
Sold at Foreclosure Sale But Receiver Not Yet Discharged					
Milford, Attleboro & Woonsocket Street Ry., Milford, Mass.	29.73	315,000	300,000	None	Assets being distributed.
Portsmouth, Dover & York Street Ry., Portsmouth, N. H.	12.00	.....	707,000	30,000	Operations abandoned in 1924.
Long Island Electric Ry., Jackson Heights, N. Y.	24.97	600,000	600,000	None	Operated by the Jamaica Central Rys.
Westchester Street R.R., New York, N. Y.	16.32	700,000	168,000	None	Sold to Third Avenue Ry.
Peoria Railway Terminal Co., Peoria, Ill.	25.28	1,000,000	2,444,000	None	
Rockford, Beloit & Janesville Ry., Rockford, Ill.	(a)	(a)	$907,000	None	Sold at foreclosure and reorganization pending.
Rockford City Traction Co., Rockford, Ill.	36.17	(a)	(a)	None	
Rockford & Interurban Ry., Rockford, Ill.	76.00	$4,000,000	2,175,500	None	
Minneapolis, Anoka & Cuyuna Range Ry., Minneapolis, Minn.	18.23	300,000	380,000	None	
Sharon & New Castle Street Ry., Youngstown, Ohio.	17.00	120,000	120,000	None	
Denver & Interurban R.R., Denver, Colo.	45.63	101,500	1,079,000	None	Operations abandoned and bus service substituted.
Helena Light & Railway Co.	18.50	935,000	878,000	None	
Total of foreclosure sales without receivers discharge (12 cos.)	319.83	8,071,500	9,758,500	30,000	
Foreclosures Without Receiverships in 1926					
Philadelphia & Easton Transit Co.	32.00	546,600	364,400	None	
Lebanon-Thornton Traction Co.	10.00	150,000	150,000	None	
Cleveland, Painesville & Eastern R.R.	38.76	(a)	(a)	(a)	
Total foreclosures without receiverships (3 cos.)	80.76	696,600	514,400	None	

(a) Information not available.

cago Railway was sold at receivership sale in October. Shortly afterward all operations were suspended and the receiver was discharged.

Eight companies, comprising 255.45 miles of track, terminated receiverships and are no longer operating. The Laconia Street Railway and the Northern Cambria Railway have already been dismantled and the Kankakee & Urbana Traction Company is now being dismantled. The Hornell Traction Company and the North Branch Transit Company abandoned railway operations and inaugurated bus service in the territory formerly covered by the railways. Other companies which abandoned operations are the Connecticut Valley Street Railway, the New York & Long Island Traction Company and the Dayton, Covington & Piqua Traction Company.

The largest of the companies which went into receivers' hands because of financial difficulties were the Utah-Idaho Central Railroad, with 115 miles of track; the Olean, Bradford & Salamanca Railway, with 100 miles; the Southwestern Missouri Railroad, with 92 miles, and the Rockford & Interurban Railway, 78 miles.

The largest properties in receivership at the close of 1926 are the Detroit United Railway, with 613.89 miles; the United Railways of St. Louis, with 463.18 miles; the Chicago Railways and the Union Traction Company of Indiana, with 450.53 miles.

Included in Table I for 1926 was the Tiffin & Fostoria Railway, Tiffin, Ohio. Information received from the company this year resulted in its being dropped from Table IV in this issue. The property was sold to the Toledo, Fostoria & Findlay Railway in 1925, and was never in receivership.

Three properties in Rockford, Ill., went into receivership last year—the Rockford & Interurban Railway, the Rockford, Beloit & Janesville Electric Railway and the Rockford City Traction Company. A plan of reorganization has already been submitted to the bondholders and all the properties have gone through foreclosure proceedings. This leaves only the final reorganization steps to be perfected before the companies terminate receiverships.

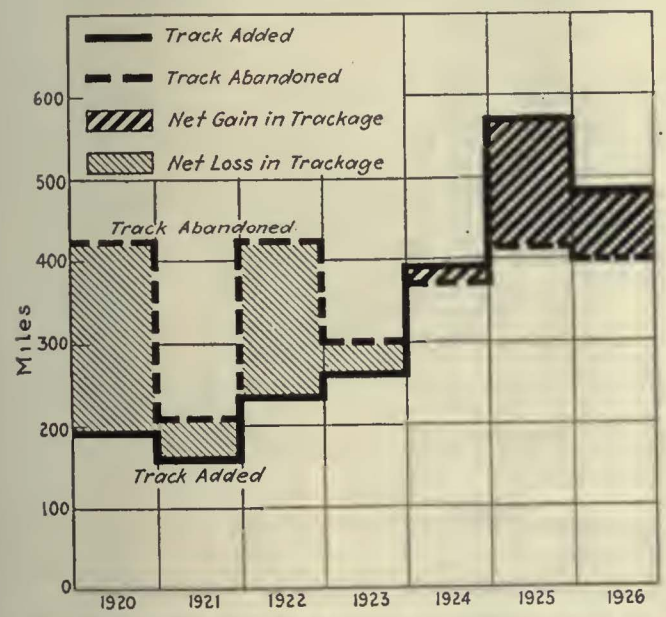
The Connecticut Valley Street Railway property was abandoned about two years ago. Early in 1926 the receiver completed the distribution of the assets and was released by the court.

Another reorganization pending at the present time is that proposed for the Second Avenue Railroad, New York City. This company went into receiver's hands in 1908, and is the oldest. A plan has already been proposed to sell the property at public auction in January and form two separate corporations to control the real estate and railway properties of the company.

Marked Increase in Track Activity During Year

Mileage of Extensions and Reconstruction in 1926 Was 20 Per Cent Greater than in 1925—Largest Increase Was in Rebuilt Interurban Track—Less Electrification of Steam Railroads Occurred than During the Preceding Year—Track Abandonments Were Lower—Total Electrified Mileage Showed Substantial Gain

INCREASED activity in electric railway track reconstruction, both city and interurban, was one of the outstanding developments of 1926, as indicated by the figures of this year's annual survey. The mileage of track rebuilt during the past year exceeded that of 1925 by nearly 40 per cent. Approximately the same mileage of extensions was built in 1926 as in 1925. Steam railroad electrification during the year amounted to about two-thirds of that done the year before. The total of all trackwork, including extensions, reconstruction and electrification, was 1,290 miles, as compared with 1,155 miles in 1925, an increase of about 12 per cent. Abandonments were somewhat less than those of the preceding year. As a result of these various factors an important gain was made in the total electrified track mileage of the country. This marked the third successive year in which the additions to trackage exceeded the abandonments.



Net Gain in Electrified Trackage During Past Three Years Has Offset Much of Earlier Loss

Interurban track rebuilt during the year totaled more than 200 miles. Electric railways to the number of 63 reported having done work of this kind as compared with 46 companies in 1925 reporting 93 miles rebuilt. City track reconstruction during 1926 amounted to nearly 600 miles, as against 486 miles the year before. The number of railways making such improvements increased from 160 to 181. In all over 800 miles of electric railway track were rebuilt in 1926, an increase of 216 miles over the 1925 figure. Details of the work done by individual companies are given in Table I.

Extensions made during the past year amounted to 218 miles, or approximately the same as the preceding year. Of this amount 193 miles were city extensions, a slight decrease from 1925, when such extensions totaled 227 miles, and interurban extensions were 125 miles, or slightly more than the year before, when the corresponding figure was 112 miles. City extensions were reported this year by 75 companies, as compared with 80 the year before. Interurban extensions were made by 38 companies as against 35 in 1925. Names of companies making extensions are given in Table I, together with the miles of track added. An accompanying chart shows graphically the comparative mileage of reconstruction and extensions of electric railway tracks by years since 1919.

Comparison of Track Construction by Years

Year	No. of Companies	Track Extensions—Miles: City	Inter-urban	Total	Track Rebuilt—Miles: City	Inter-urban	Total	Electrified Steam Lines Miles
1908	157	(a)	(a)	1174.5	(a)	(a)	(a)	84.00
1909	160	(a)	(a)	774.7	(a)	(a)	(a)	112.40
1910	217	(a)	(a)	1204.8	(a)	(a)	(a)	192.40
1911	223	(a)	(a)	1105.0	(a)	(a)	(a)	86.50
1912	171	(a)	(a)	869.4	(a)	(a)	(a)	80.80
1913	181	(a)	(a)	974.9	(a)	(a)	(a)	119.00
1914	163	(a)	(a)	716.5	(a)	(a)	(a)	229.00
1915	136	(a)	(a)	596.0	(a)	(a)	(a)	448.20
1916	104	115.40	240.90	356.30	(a)	(a)	(a)	388.00
1917	121	251.10	125.60	376.70	(a)	(a)	375.40	66.00
1918	80	216.41	97.41	313.82	(a)	(a)	155.43	275.70
1919	73	110.90	29.67	140.57	307.06	82.82	389.89	287.60
1920	87	145.69	30.87	176.56	246.21	115.56	361.77	8.92
1921	78	108.15	38.95	147.10	488.96	126.25	615.21	8.08
1922	104	126.27	85.11	211.38	584.75	154.95	739.70	12.35
1923	272	169.61	63.54	233.15	559.77	294.86	854.63	26.12
1924	243	218.09	93.99	312.08	585.51	178.82	764.33	83.39
1925	207	227.31	112.48	339.79	485.75	93.15	578.90	236.36
1926	236	193.20	124.76	317.96	594.35	208.17	802.52	169.52

(a) Information not available.

Electrification of steam railroads totaling 170 miles in 1926 was reported by nine companies. In 1925 four companies reported 236 miles of steam railroad track electrified. Of the mileage recently converted to electric operation, the greater part belonged to the Virginian Railway, which electrified 135 miles. Other developments of this character were limited to small amounts. Figures for individual companies follow:

Electrified Steam Railroad Extensions

	Single Track Miles
Virginian Railway	135.30
Long Island Railroad	17.71
Niagara, St. Catharines & Toronto Railway	10.96
Oklahoma Railways	2.73
Pacific Electric Railway	1.30
Northeast Oklahoma Railroad	1.16
Chicago, Milwaukee & Pacific Railroad	.17
New York, New Haven & Hartford Railroad	.17
Denver & Intermountain Railroad	.02
Total	169.52

Less track was abandoned last year than in the year before. Only 36 miles of city track was abandoned by electric railways, which continued operation of the ma-

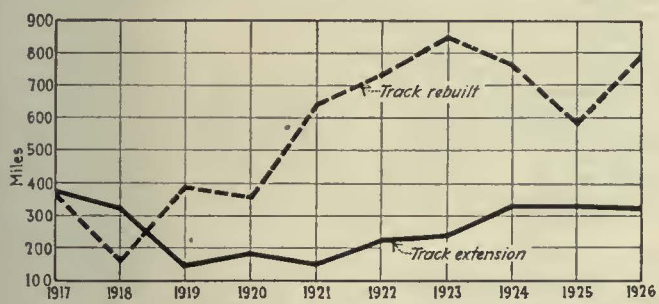
Table I—Track Extensions and Reconstruction in 1926

Name of Company	Extension Miles City	Extension Miles Inter-urban	Rebuilt Miles City	Rebuilt Miles Inter-urban
Connecticut				
Connecticut Co.	4.04	0.90	21.33	9.73
New York, New Haven & Hartford R. R.	....	.49	....	....
Maine				
Bangor Hydro-Electric Co.	....	....	1.66	....
York Utilities Co.	....	....	0.75	....
Massachusetts				
Berkshire Street Ry.	....	....	0.87	3.03
Boston Elevated Ry.	0.70	....	17.56	....
Eastern Massachusetts Street Ry.	1.20	....	8.15	4.56
East Taunton Street Ry.	1.48	10.00	0.25	2.50
Greenfield & Montague Transportation Area	....	....	0.50	....
Holyoke Street Ry.	....	....	1.05	....
Massachusetts Northeastern Street Ry.	....	....	0.40	3.00
Middlesex & Boston Street Ry.	....	....	....	3.54
Milford & Uxbridge Street Ry.	....	....	....	4.00
Springfield Street Ry.	0.27	....	3.22	2.68
Union Street Ry.	....	....	1.12	0.36
Worcester Consolidated Street Ry.	....	....	1.10	0.25
New Hampshire				
Berlin Street Ry.	....	....	2.00	....
Manchester Street Ry.	....	....	1.14	....
Rhode Island				
United Electric Rys.	1.24	0.09	4.56	3.68
Vermont				
Burlington Traction Co.	....	....	0.11	....
Springfield Terminal Ry.	....	....	....	2.00
Vergennes Power Co.	....	....	....	1.50
District of Columbia				
Capital Traction Co.	....	....	1.45	....
Washington Railway & Electric Co.	....	....	5.56	....
Maryland				
United Rys & Electric Co.	1.18	....	14.60	....
New Jersey				
Cumberland Traction Co.	....	....	2.00	....
Morris County Traction Co.	....	....	1.33	....
Pennsylvania-New Jersey Ry.	....	....	0.75	....
Public Service Railway	1.00	....	....	....
Trenton & Mercer County Traction Corp.	....	....	....	3.52
New York				
Brooklyn City R.R.	....	....	11.24	....
Brooklyn-Manhattan Transit Corp.	....	....	12.00	....
City of New York	....	....	0.97	....
Elmira Water, Light & Railroad Co.	....	....	4.00	....
Empire State R. R.	....	....	0.16	....
Erie County Traction Corp.	....	....	0.57	....
Fonda, Johnson & Gloversville R.R.	....	....	0.52	....
Interborough Rapid Transit Co.	1.18	....	....	....
International Ry.	.73	....	.45	....
Jamaica Central Rys.	0.75	....	0.80	....
Jamestown Street Ry.	....	....	0.25	4.00
New York & Queens County Ry.	0.09	....	1.03	....
New York & Stamford Ry.	....	....	....	2.21
New York Rys.	....	....	3.00	....
New York State Rys.	....	....	8.10	....
New York, Westchester & Boston Ry.	....	3.58	....	....
Richmond Light & R.R. Co.	....	....	0.77	....
Rochester, Lockport & Buffalo R.R.	....	....	....	1.06
Rochester & Syracuse R.R.	....	....	....	0.64
Rome Railway & Lighting Co.	....	....	0.50	....
Schenectady Ry.	....	....	1.55	....
Third Ave. Ry.	....	....	8.58	....
United Traction Co.	....	....	1.38	....
Warren & Jamestown Street Ry.	....	....	0.34	....
Pennsylvania				
Chambersburg & Shippensburg Ry.	2.00	9.00	....	....
Conestoga Traction Co.	....	....	0.67	0.43
Erie Rys.	0.37	....	1.14	....
Homestead & Mifflin Street Ry.	....	....	....	0.50
Lehigh Valley Transit Co.	....	0.11	2.98	0.14
Hanover & McSherrytown Street Ry.	....	....	0.33	....
Harrisburg Rys.	....	....	2.08	....
Hershey Transit Co.	....	....	....	14.00
Mauch Chunk Transit Co.	....	....	0.76	....
Philadelphia & West Chester Traction Co.	....	0.29	....	....
Pittsburgh Rys.	2.78	0.32	25.59	2.62
Reading Transit Co.	....	....	1.30	3.00
Schuylkill Ry.	....	....	0.67	....
Scranton Ry.	0.28	....	2.06	2.16
Shamokin & Mt. Carmel Transit Co.	0.54	....	....	....
Southern Cambria Ry.	....	....	1.00	....
Trenton, Bristol & Philadelphia Street Ry	....	....	5.50	....
West Penn Rys.	0.15	....	....	2.02
Westside Electric Street Ry.	....	....	2.00	....
Williamsport Passenger Ry.	1.31	....	0.21	....
York Rys.	....	....	0.25	....
Virginia				
Danville Traction & Power Co.	....	....	2.00	....
Newport News & Hampton Railway, Gas & Electric Co.	....	....	1.13	....
Virginia Electric & Power Co.	4.00	....	8.37	....
West Virginia				
Ohio Valley Electric Ry.	....	....	7.57	1.90
Illinois				
Aurora, Elgin & Fox River Electric Co.	0.29	....	1.29	....
Chicago, Aurora & Elgin R.R.	....	....	....	29.30
Chicago & Joliet Electric Ry.	....	....	....	1.33
Chicago, North Shore & Milwaukee R.R.	....	48.74	1.40	1.30
Chicago Rapid Transit Co.	....	....	9.70	....
Chicago Surface Lines	5.34	....	37.44	....
Chicago & West Towns Ry.	....	....	3.50	....
East St. Louis & Suburban Ry.	0.23	....	1.70	2.30
Evanston Ry.	1.58	....	....	....
Illinois Power Co.	....	....	0.84	....
Illinois Power & Light Corp.	....	....	4.30	....
Illinois Traction System	....	....	....	4.41
North Kankakee Street Ry.	....	....	0.35	....
Rockford City Traction Co.	0.27	....	4.60	....
Indiana				
Chicago, South Bend & Northern Indiana Ry.	....	....	0.99	....
Gary Rys.	....	0.50	....	....
Indianapolis Street Ry.	6.00	....	4.70	....
Indiana Service Corp.	0.74	1.47	1.80	3.85
Northern Indiana Power Co.	....	....	0.36	....
Southern Indiana Gas & Electric Co.	0.34	....	2.75	....
Terre Haute, Indianapolis & Eastern Traction Co.	....	....	2.39	0.38
Union Traction Co. of Indiana.	0.94	0.23	1.08	....
Iowa				
Cedar Rapids & Marion City Ry.	....	....	1.00	....
Des Moines City Ry.	1.50	0.20	2.00	....
Iowa Southern Utilities Co. (Ottumwa).	....	....	0.25	....
Sioux City Service Co.	0.76	....	0.07	....
Tri-City Ry. of Iowa.	....	0.19	0.64	0.78
Kentucky				
Kentucky Traction & Terminal Co.	....	....	0.60	....
Kentucky Utilities Co.	....	....	0.38	....
Louisville Ry.	0.27	....	3.83	0.30
Michigan				
Department of Street Rys., Detroit.	3.01	....	15.46	....
Detroit United Ry.	1.95	0.25	4.60	8.60
Duluth Street Ry.	2.70	....	0.67	....
Grand Rapids Ry.	0.36	....	3.45	....
Michigan Electric Ry.	....	0.19	....	....
Minnesota				
Twin City Rapid Transit Co.	5.00	....	5.40	....
Missouri				
City Light & Traction Co.	....	....	0.19	....
Kansas City, Clay County & St. Joseph Ry.	....	....	....	0.75
Kansas City Public Service Co.	....	....	6.00	....
Missouri Power & Light Co.	....	....	0.67	....
St. Joseph Railway, Light, Heat & Pwr. Co.	....	....	1.95	....
United Rys of St. Louis.	0.09	1.53	13.12	0.44
Ohio				
Cincinnati, Hamilton & Dayton Ry.	....	1.60	2.40	....
Cincinnati, Newport & Covington Ry.	....	....	0.27	....
Cincinnati Street Ry.	....	8.20	11.31	....
City of Ashtabula, Division of Street Rys.	....	....	0.45	....
City Ry., Dayton.	....	....	4.17	....
Cleveland Ry.	4.08	....	8.46	....
Cleveland Southwestern Railway & Lt. Co.	....	....	....	12.00
Columbus, Delaware & Marion Electric Co.	....	....	....	4.00
Dayton & Troy Elec. Ry.	....	....	....	.57
Dayton & Western Traction Co.	....	0.35	....	0.50
Lancaster Traction & Power Co.	....	....	0.09	....
Lima-Toledo R. R.	....	0.19	....	....
Northern Ohio Pwr. & Light Co.	0.22	0.19	2.00	1.00
Pennsylvania-Ohio Electric Co.	....	....	0.30	....
Peoples Ry., Dayton.	....	....	1.20	....
Southern Ohio Public Service Co.	0.37	....	....	0.55
Steubenville, East Liverpool & Beaver Valley Traction Co.	....	....	1.70	0.95
Western Ohio Ry.	....	....	0.50	....
Wisconsin				
Lake Superior District Power Co.	....	....	0.40	....
Madison Rys.	0.25	....	0.50	....
Milwaukee Elec. Ry. & Light Co.	5.24	9.00	10.52	8.11
Milwaukee Northern Ry.	....	....	0.15	....
Wisconsin Power & Light Co.	....	....	1.42	0.71
Alabama				
Alabama Power Co.	....	....	4.83	....
Birmingham Electric Co.	0.79	....	12.77	....
Mobile Light & Railroad Co.	....	....	1.27	....
Arkansas				
Arkansas Power & Light Co.	0.37	....	0.63	....
Forth Smith Light & Traction Co.	....	....	4.50	....
Southwestern Gas & Electric Co.	....	....	2.60	....
Florida				
Coral Gables Rapid Transit Co.	12.00	....	....	....
Miami Beach Railway.	3.70	8.10	....	6.00
Georgia				
Georgia Railway & Power Co.	1.40	0.15	6.74	....
Savannah Electric & Power Co.	0.40	....	0.87	....
Louisiana				
New Orleans Public Service, Inc.	1.97	....	4.86	....
Shreveport Rys.	....	....	0.07	....
South New Orleans Light & Traction Co.	....	....	0.83	....
Mississippi				
Mississippi Power Co., Gulfport	....	....	2.25	....
North Carolina				
Carolina Power & Light Co.	....	....	0.41	....
North Carolina Public Service Co.	....	....	2.00	....
Tidewater Power Co.	....	....	1.20	....
South Carolina				
Charleston Consolidated Ry. & Lighting Co.	....	....	0.40	....
South Carolina Gas & Electric Co.	....	....	0.57	....
Tennessee				
Knoxville Power & Light Co.	....	....	0.54	....
Memphis Street Ry.	0.48	....	4.33	....
Nashville Ry. & Lt. Co.	0.60	....	10.73	....
Tennessee Electric Power Co.	....	....	1.60	....

Table I—Track Extensions and Reconstruction in 1926 (Concluded)

Name of Company	Extension Miles City	Extension Miles Interurban	Rebuilt Miles City	Rebuilt Miles Interurban
California				
Bakersfield & Kern Electric Ry.	....	....	0.20	....
Central California Traction Co.	....	....	....	1.25
Key System Transit Co.	2.39	1.47	25.98	....
Los Angeles Ry.	2.46	....	17.03	....
Market Street Ry.	....	....	2.40	....
Municipal Ry. of San Francisco	1.13	....	1.98	....
Pacific Electric Ry.	2.20	7.30	1.30	28.20
Sacramento Northern Ry.	....	1.12	....	0.69
San Diego Electric Ry.	1.15	....	2.85	....
San Francisco, Napa & Calistoga Ry.	....	....	....	0.60
Southern Pacific R.R.	....	0.35	....	0.69
Colorado				
Denver & Intermountain R.R.	....	....	....	0.05
Denver Tramway Corp.	....	....	1.36	....
Kansas				
Arkansas Valley Interurban Ry.	....	0.06	....	....
Kansas City, Lawrence & Topeka Elec. R.R.	....	....	0.06	....
Kansas City, Leavenworth & Western Ry.	....	0.17	....	....
Topeka Ry.	....	....	1.00	....
Union Traction Co.	....	....	2.00	1.00
Nebraska				
Lincoln Traction Co.	....	....	0.40	....
Omaha & Council Bluffs Street Ry.	....	....	3.00	....
Omaha, Lincoln & Beatrice Ry.	....	....	0.09	....
North Dakota				
Northern States Power Co.	....	....	0.36	....
Oklahoma				
Northeast Oklahoma R.R.	....	1.16	....	....
Oklahoma Rys.	....	0.51	0.20	....
Tulsa Street Ry.	....	....	0.60	....
Oregon				
Portland Electric Power Co	0.22	1.44	1.06	....
Texas				
Abilene Traction Co.	....	....	0.20	....
Dallas Ry. & Terminal Co.	3.88	....	5.64	....
Eastern Texas Electric Co.	....	....	0.69	....
El Paso Electric Co.	0.16	....	....	....
Galveston Electric Co.	....	....	1.00	....
Houston Electric Co.	0.30	....	3.82	....
Laredo Electric & Railway Co.	0.06	....	0.40	....
Northern Texas Traction Co.	....	....	3.36	....
Rio Grande Valley Traction Co.	....	....	0.99	....
San Antonio Public Service Co.	....	....	0.86	....
Texas Electric Ry.	....	....	....	0.53
Utah				
Utah-Idaho Central R.R.	....	....	....	....
Utah Light & Traction Co.	0.35	....	4.49	....
Washington				
Grays Harbor Railway & Light Co.	....	....	0.34	....
Puget Sound Power & Light Co.	0.50	....	0.80	....
Seattle Municipal Ry.	1.75	....	2.20	....
Yakima Valley Transportation Company	....	....	1.00	....
Canada				
British Columbia Electric Ry.	3.71	....	2.65	....
Canadian National Rys.	....	0.64	....	....
Hamilton Street Ry.	....	....	2.00	....
Hull Electric Co.	0.08	0.11	....	....
Hydro-Electric Power Commission	2.14	....	1.34	....
Levis Tramways	....	....	0.28	....
London Street Ry.	....	....	0.58	....
Montreal & Southern Counties Ry.	....	....	0.20	2.33
Montreal Tramways	9.94	0.92	14.50	2.40
New Brunswick Power Co.	....	....	0.50	....
Newfoundland Light & Pwr. Co.	3.18	....	....	1.00
Niagara, St. Catharines & Toronto Ry.	0.61	1.91	5.61	0.27
Nova Scotia Tramways & Pwr. Co.	0.55	....	0.12	....
Ottawa Electric Ry.	....	....	0.50	1.00
Port Arthur Civic Ry	1.00	....	....	....
Quebec Railway, Light & Power Co.	1.30	....	2.32	....
Sherbrooke Railway & Power Co.	....	....	0.34	....
Three Rivers Traction Co.	....	....	0.22	....
Toronto Transportation Commission	1.29	....	1.50	....
Winnipeg Electric Co.	0.86	2.09	0.76	....
Hawaii				
Honolulu Rapid Transit Co.	....	....	0.08	....
Porto Rico				
Porto Rico Railway, Light & Power Co.	....	....	6.00	....
Total	193.20	124.76	594.35	208.17

jor portions of their systems, as compared with 114 miles in 1925. Interurban track amounting to 160 miles was abandoned during the past year by companies



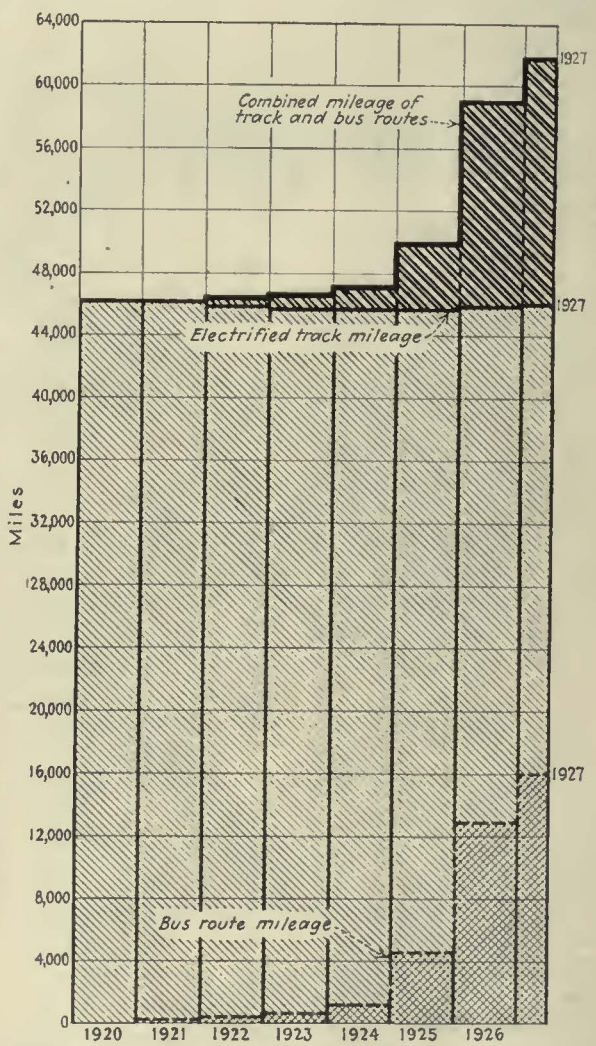
Railways Were Active in Track Reconstruction in 1926. Extensions Remained About the Same

which continued to operate elsewhere. Similar abandonments in 1925 totaled 128 miles. Table II shows the trackage abandoned by various railways during the year.

Entire properties abandoned in 1926 numbered fifteen with 206 miles of track. During the preceding year seventeen railways with 174 miles of track were entirely abandoned. In some cases bus operation under the same management replaced the rail operation, as indicated in the article on bus development which is

should be given attention. Declines in building activity, in automobile production and in commodity prices, the effects of low cotton prices, the unfavorable agri-

Company	
Denver & Interurban Railroad	11.30
Exeter, Hampton & Amesbury Street Railway	22.00
Gardner-Templeton Street Railway	10.00
Hornell Traction Company	9.64
Hudson River & Eastern Traction Company	2.81
Iron River, Stambaugh & Crystal Falls Street Railway	6.00
Kankakee & Urbana Traction Company	26.00
Manchester & Derry Street Railway	8.37
Nelson Street Railway	4.00
North Branch Transit Company	26.60
Northern Cambria Railway	13.00
Peekskill Lighting & Railroad Company	7.84
Sheridan Railway	16.50
Total	205.86



Combined Mileage of Track and Bus Routes Is Now One-Third Larger than in 1920

published elsewhere in this issue. In other cases no regular transportation is now furnished on the abandoned routes.

In all, less electric railway trackage was abandoned in 1926 than in 1925, the totals being 401 and 416 miles respectively. Track abandonments were less by 86 miles than the additions made during the same period.

Thus 1926 showed a substantial net gain in the electrified track mileage of the country. Electric railways have added some 15,000 miles of bus routes during the past five years, as shown on an accompanying chart. From this it will be seen that at present transportation is furnished by electric railways on a combined total of over 61,000 miles of track and bus routes.

Table II—Partial Track Abandonments in 1926

	Miles of Track			
	Service Suspended	Abandoned	Removed	Type of Service
Connecticut				
Connecticut Co.	.....	3.07	1.39	City
	.....	7.62	5.91	Interurban
New York, New Haven & Hartford R.R.	.....	.....	.45	.....
Massachusetts				
Berkshire Street Ry.	.....	.....	.57	Interurban
Boston Elevated Ry.	5.59	2.18	5.07	City
Boston & Worcester Street Ry.	6.00	.....	.....	Interurban
Eastern Massachusetts Street Ry.	.....	15.54	.....	Interurban
Lowell & Fitchburg Street Ry.	1.00	.....	.....	Interurban
Middlesex & Boston Street Ry.	.....	20.19	3.90	Interurban
Plymouth & Brockton Street Ry.	.....	.....	6.00	Interurban
Springfield Street Ry.	17.43	.....	2.28	Interurban
	.47	.....	.....	City
Union Street Ry.	.....	.....	.03	City
Worcester Consolidated Street Ry.	5.30	.....	.....	City
New Hampshire				
Keene Electric Ry.	10.00	.....	9.00	City
Rhode Island				
Newport & Providence Ry.	1.50	.....	.....	City
United Electric Rys.	.....	.....	.45	City
	5.47	.....	7.70	Interurban
District of Columbia				
Capital Traction Co.	.....	.....	.70	City
Washington Railway & Electric Co.	.....	.....	2.80	City
Maryland				
United Railways & Electric Co.	.....	.....	2.06	City
New Jersey				
Morris County Traction Co.	.....	.....	6.00	Interurban
New York				
Brooklyn-Manhattan Transit Corp.	.....	.....	.95	City
Buffalo & Erie Rys.	.....	2.00	.....	City
International Ry.	3.17	.....	2.15	City
	14.37	13.52	8.55	Interurban
Jamestown Street Ry.	.....	14.00	4.00	Interurban
New York & Stamford Ry.	.....	.52	.....	City
New York State Rys.	1.35	.....	.....	City
Olean, Bradford & Salamanca Ry.	5.00	.....	9.00	Interurban
Poughkeepsie & Wappinger Falls Ry.	.....	.....	.38	City
United Traction Co.	5.99	.....	3.22	City
Pennsylvania				
Bangor & Nazareth Transit Co.	11.00	.....	.....	Interurban
Bangor & Portland Transit Co.	.....	7.00	.....	Interurban
Citizens Traction Co.	2.85	.....	.....	City
	7.80	.....	.....	Interurban
Erie Rys.	.....	.50	.20	City
Lehigh Valley Transit Co.	.....	11.90	14.03	Interurban
Philadelphia Rys.	3.26	.....	.....	City
Philadelphia & West Chester Trac. Co.	.....	1.60	.....	Interurban
Pittsburgh Rys.	.....	.....	8.92	City
	.....	.....	.03	Interurban
Scranton Ry.	.....	6.17	1.50	Interurban
Shamokin & Edgewood Electric Ry.	.....	.....	5.00	Interurban
United Traction Street Ry.	12.29	.....	.....	Interurban
Virginia				
Newport News & Hampton Railway, Gas & Electric Co.	.....	.....	.32	Interurban
Virginia Electric & Power Co.	.....	2.52	.....	City
Illinois				
Coal Belt Electric R.R.	.....	3.50	.....	Interurban
East St. Louis & Suburban Ry.	2.90	.....	.06	City
Illinois Power & Light Corp.	13.37	.....	.....	City
North Kankakee Street Ry.	.34	.....	.....	City
Indiana				
Chicago, South Shore & South Bend R.R.	2.00	.....	.....	City
Indianapolis Street Ry.	.69	.....	.....	City
Terre Haute, Indianapolis & Eastern Traction Co.	.....	.....	.20	Interurban
Union Traction Co. of Indiana	3.44	.....	3.33	City
Iowa				
Charles City Western Ry.	1.20	.....	.....	Interurban
Des Moines City Ry.	.....	.60	.....	City
Iowa Southern Utilities Co.:				
(Burlington)	.....	2.00	.....	City
(Centerville)	.....	1.25	.....	City
(Ottumwa)	.....	4.50	.....	City
Sioux City Service Co.	.....	1.14	.....	City
Tri-City Ry.	4.12	.....	.....	City
Kentucky				
Kentucky Utilities Co.	4.50	.....	.....	City
Louisville Ry.	.....	.....	.19	City
	.04	.....	.....	Interurban
Michigan				
City of Detroit—Dept. of St. Rys.	.....	.....	5.49	City
Detroit United Ry.	.82	.....	.....	City
Menominee & Marinette Light & Traction Co.	1.73	.....	.....	City
Michigan Electric Ry.	3.50	.....	.68	Interurban
Missouri				
City Light & Traction Co.	1.75	.....	.....	City
Missouri Power & Light Co.	.09	.....	.....	City
St. Francois County R.R.	.....	2.00	.....	Interurban
United Rys.	.39	.68	.....	City
	.42	.41	.....	Interurban
Ohio				
Cincinnati Street Ry.	1.80	.....	.....	City
	.....	8.20	.....	Interurban
Cleveland Ry.	1.76	1.00	.....	City
Cleveland Southwestern Ry. & Light Co.	.....	10.30	.....	Interurban
Columbus, Delaware & Marion Electric Co.	.....	3.88	.....	City
Columbus, Urbana & Western Electric Ry.	.....	.....	7.50	Interurban
Community Traction Co.	.....	.....	6.30	City
Ohio Public Service Co.	.....	3.28	.....	Interurban
Pennsylvania-Ohio Electric Co.	1.30	.....	.....	City
	.....	17.00	.....	Interurban
Southern Ohio Public Service Co.	8.78	.....	.....	City
Western Ohio Ry.	1.00	.....	.....	City
Wisconsin				
Madison Rys.	.75	.....	.....	City
Milwaukee Electric Railway & Light Co.	.....	2.58	.....	City
	.17	1.23	.....	Interurban
Northern States Power Co.	.....	.....	8.07	Interurban
Wisconsin Power & Light Co.	1.20	.....	.20	City
Wisconsin Public Service Corp.	2.89	2.00	.....	City
Alabama				
Alabama Power Co.	.....	.....	.75	City
Birmingham Electric Co.	.15	.08	.....	City
Mobile Light & Railroad Co.	.....	.....	1.30	City
Georgia				
Columbus Electric & Power Co.	.....	.....	2.45	City
Georgia Railway & Power Co.	.....	.....	1.12	City
Macon Railway & Light Co.	.....	.40	.....	City
Savannah Electric & Power Co.	.....	.....	1.16	City
Florida				
Jacksonville Traction Co.	.....	.....	.54	City
Key West Electric Co.	2.70	.....	1.68	City
Louisiana				
New Orleans Public Service, Inc.	.....	.....	14.66	City
Mississippi				
Mississippi Power Co. Gulfport	.....	.....	22.50	Interurban
Mississippi Power & Light Co.	.....	.....	.60	City
North Carolina				
Durham Public Service Co.	1.83	.....	.....	City
Tidewater Power Co.	.....	.40	.....	Interurban
Arizona				
Phoenix Street Ry.	6.00	.....	.....	Interurban
California				
Key System Transit Co.	.....	.12	.....	City
Pacific Electric Ry.	.....	.....	8.80	City
	.....	.....	2.20	Interurban
Southern Pacific Co.	.....	.....	8.93	City
	.....	.....	1.13	Interurban
Union Traction Co. (Santa Cruz)	3.50	.....	.....	City
Colorado				
Colorado Springs & Interurban Ry.	.....	2.53	.....	City
Denver & Intermountain R.R.	.....	.....	.05	Interurban
Denver & South Platte Ry.	.....	4.25	.....	Interurban
Denver Tramway	4.33	.....	.....	City
Grand River Valley R.R.	3.00	.....	.....	City
Idaho				
Boise Valley Traction Co.	4.30	.....	.....	City
Nebraska				
Lincoln Traction Co.	.57	.....	.....	City
Omaha, Lincoln & Beatrice Ry.	.63	.....	.....	City
North Dakota				
Northern States Power Co.	1.00	.....	.....	City
Oklahoma				
Northeast Oklahoma Ry.	.19	.....	.....	Interurban
Oklahoma Rys.	.....	.....	.63	City
Oregon				
Portland Electric Power Co.	.54	.....	.....	City
Willamette Valley Southern Ry.	.....	11.40	.....	Interurban
New Orleans Public Service, Inc.	1.97	....	4.86	....
Shreveport Rys.	....	....	0.07	....
South New Orleans Light & Traction Co.	....	....	0.83	....
Mississippi				
Mississippi Power Co. Gulfport	....	....	2.25	....
Utah				
Utah Light & Traction Co.	.....	.64	.....	City
	.....	.....	8.74	Interurban
Washington				
Puget Sound Power & Light Co.	.....	.....	.98	City
Seattle Municipal Ry.	.91	.....	.....	City
Yakima Valley Transportation Co.	1.80	.....	.....	City
Canada				
Canadian National Rys.	.....	.....	7.53	Interurban
London Street Ry.	.....	.60	.....	City
Niagara, St. Catharines & Toronto Ry.	.09	.....	.....	Interurban
Porto Rico				
Ponce Electric Co.	1.11	1.10	.....	City
Total	227.34	195.40	230.71	

Manufacturing Activity Should Continue at High Level

General Economic Conditions Give No Indication that a Material Recession Is to Be Anticipated in 1927—Manufacturers in Electric Railway Field Believe Transportation Industry Is Now in Position to Realize on Its Opportunities — They Give Outlook for Year

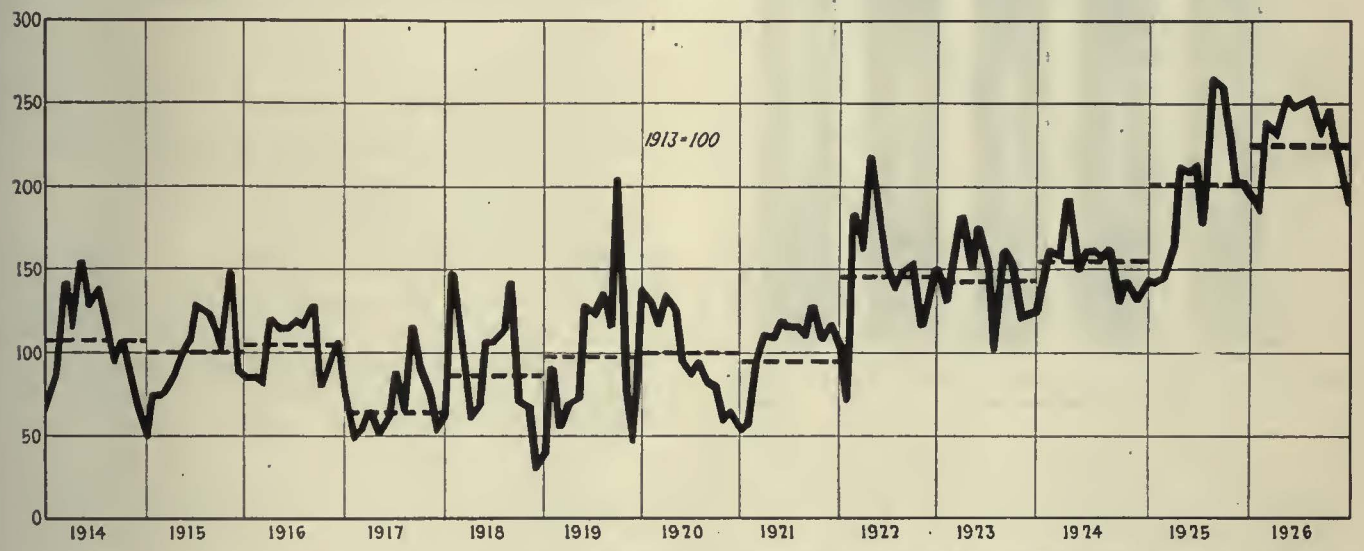
CONSERVATIVE optimism is the keynote of all prophecies for the year 1927. Few in industry generally anticipate many new records during the forthcoming twelve months. It is obvious that production cannot be expected to pyramid indefinitely at the rate established in 1925 and 1926. However, the general opinion seems to be that the present prosperity will be at least well sustained during this year.

Certain advocates of the cyclic theory hold that the current rate of production must soon slack off. Two years of unprecedented prosperity, with the second far exceeding the first in almost every respect, with the anomalous situation existing of heavy borrowing and low money rates, with a major disaster such as that which recently occurred in Florida, passed over without a downward flicker of the prosperity wave—these things, say the ultra-conservative believers in business cycles, are lulling us into a false sense of security. Awake! Prepare for a recession!

Admittedly certain elements of the economic setting should be given attention. Declines in building activity, in automobile production and in commodity prices, the effects of low cotton prices, the unfavorable agricultural conditions existing in certain sections of the country, the extremely high level of stock prices and of speculative activity might be pointed to as falling in this category. This is the darker side of the picture.

On the other side one takes cheer in the uniformly liquid condition of business generally, the growth of the hand-to-mouth purchasing movement, the high wage levels which have been maintained in the face of slightly declining prices, the minimum of unemployment, reflected in a widely spread purchasing power on the part of labor, the revival of foreign purchasing and the increasing attention which is being given by American manufacturers to the establishment of a sound foreign market which may be resorted to in case of a temporary recession in this country. In other words, a number of stabilizing factors have been developing which may be relied upon to act as effective checks to any abrupt downward movement.

The year 1926 has been marked, industrially, by a great many highlights of surpassing interest. From the point of view of the electric railways and of the manufacturers catering to this field it has been a year largely of promise, partially of fulfillment. In practically every industrial community production has attained a high proportion of capacity, with corresponding large payrolls—a boon to the railways in increasing the demand for public transportation.



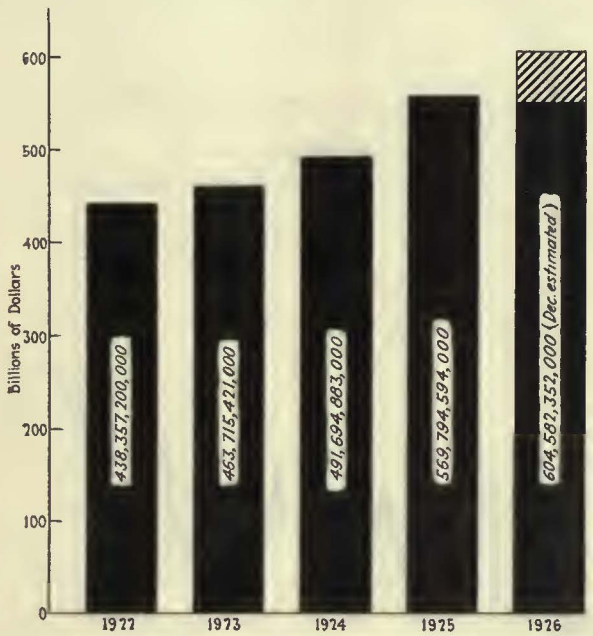
General Construction Volume Was Maintained at a Record Level During the First Ten Months of 1926, Surpassing All Previous Years

A certain retardation of general activity has been noted during the last two months of the year, but this may be attributed largely to the normal seasonal slowing down. It is perhaps more pronounced than that of a year ago, but will scarcely imperil the records which have been securely established during the first ten months, not only for high production but also for material savings which have been effected in the costs of manufacture.

Such basic industries as steel production and coal mining may generally be relied on to give a quite accurate indication of the status of industry as a whole.

In the past year steel production figures have maintained a high level throughout the summer months and at no time showed any very marked fluctuations. Although the past two months have evidenced a material reduction in ordering, the final figures for the year will undoubtedly establish a new all-time record for the industry.

Under the stimulus of the British coal strike bituminous production in this country responded as to a lash. In addition there has been a very strong domestic market which has filled in the chinks of the export trade and has vouchsafed a degree of stability to the coal industry which has been notably absent in the recent past. Production has practically reached capacity in many of the fields. Occasionally the warning is heard that labor difficulties may be expected in the



Bank Debits to Individual Accounts, as Reported by the Federal Reserve Bank, Indicate the Increasing Prosperity of the Country

spring, when the Jacksonville agreement terminates, but it is certain that every effort will be made to avert a major labor disturbance.

Cumulative figures for coal exports during the first ten months of the year reveal a total of 26,321,924 tons, as against 16,152,657 tons in the corresponding period of 1925. Foreign demand accounts for only about half of the total production; the remainder must be credited to domestic consumption and to the building up of stocks in this country.

Prices have remained gratifyingly stable in most of the basic commodities. Standard steel rails have not fluctuated an iota during the past three years; copper has shown little tendency to fluctuate, while coal has undergone such gradual price movements, up during the late summer and fall months and now slightly downward once more, that consumers have suffered no embarrassment in determining when and in what quantities to purchase. Oil production has increased, partially in response to increased demand, partially because of the discovery of new oil deposits. Much oil is being pumped into storage, a guarantee that no very material advances in the prices of oil and its derivatives need be looked for in the immediate future.

Notable progress was made by the oil industry in increasing the amount of gasoline obtained from each barrel of crude, according to W. C. Teagle, president of the Standard Oil Company of New Jersey. The average gasoline yield this year was approximately 35 per cent, an increase of nearly 2½ per cent over 1925. This is mainly accounted for by the rapid spread of cracking processes.

One excellent criterion of the nation's prosperity is the yearly total of bank debits to individual accounts, as reported to the Federal Reserve Bank. Each year since 1921 this total has been rising. In 1925, particularly, it showed a noteworthy increase. While 1926 will scarcely show as large an increase over the preceding year as did 1925, there will nevertheless be a sizable increment, estimated conservatively at $34,000,000,000. Since the bank debits include not only bank clearings but also checks deposited in the banks on which they are drawn, the total is an accurate indicator of general business activity.

Looking to the Future

It is interesting to note that both capital and labor share the same optimistic outlook upon the new year. Directors of the National Association of Manufacturers are inclined to this favorable view for a number of reasons, made public in statements issued during the past week. Among them were the following:

1. Business is nearer to a cash basis than it has ever been.
2. Financial panics are a thing of the past because the Federal Reserve Banking System stands as an indestructible buffer.
3. Industries are now operating at a high rate of production, yet one based upon a reasonable demand.
4. The margin of profits has been narrowed, bringing a truer relationship between costs and sales.
5. Competition will be stronger.
6. Credits have decreased and there is ample money at reasonable rates.
7. People generally are contented and there are gradually fewer labor disturbances.

John E. Edgerton, president of the National Association of Manufacturers, stated that 99 per cent of the association's membership is planning for better business in 1927 than was enjoyed in the year just past. He said that 75 per cent recorded better business in 1926 than in 1925; 68 per cent have increased their forces and 89 per cent are paying higher wages now than they were a year ago.

William Green, president of the American Federation of Labor, in a statement prepared for publication in the January issue of the *American Federationist*, said:

> The conditions are strongly indicative that 1927 will be as good a year as 1926 if not better. Many industries have established production policies and methods calculated to sustain prosperity. Our trade union movement has made a substantial contribution toward making ours a high wage country and demonstrating that high wages are compatible with low unit costs. Our resistance to wage reduction has held a definite influence in shaping industrial policies. Because wages are high we can do our part in buying the articles industries are turning out in ever-increasing quantities.

1926 and 1927 Seen Through the Eyes of Electric Railway Manufacturers

Feeling that the manufacturers whose activities bring them in direct contact with the electric railway industry would have opinions of particular interest in this consideration of the possibilities of the coming year, a representative group were asked by ELECTRIC RAILWAY

JOURNAL to state their ideas along this line. Their comments on the past year and any suggestions concerning probable new developments to be announced in 1927 were also requested.

It will be seen from the opinions next appended that the car builders are not hesitant in expressing their belief that 1927 will witness a widespread activity in the modernization of rolling stock. The intensive campaigns which have been waged to stimulate this desired movement are looked upon as having thoroughly prepared the ground for the sale of much-needed cars.

The J. G. Brill Company

It has been our experience that while car buying during the year just passed shows some improvement over that of its predecessor, it is apparent that purchases of new rolling stock have been far below the industry's requirements during these two years.

I am inclined to believe, however, that the year 1927 will be one of increased activity to a degree which will better reflect the optimism with which the electric railway industry is now moving forward.

Deferred replacements, as well as a more definite understanding of the parts which both the electric car and the bus shall play in public transportation and a general recognition of the economic advantages of modern, light-weight cars, are factors which should stimulate car purchases during the coming year. SAMUEL M. CURWEN, President.

The Cincinnati Car Company

The year 1926 was one of arrested progress in the street railway industry. The bus, which appeared on city streets during the two previous years, offered, particularly while new, an attractive looking and rapid means of transportation, and street railway officials generally were inclined to give this new passenger car a fair chance to demonstrate its usefulness before adopting or condemning it as a substitute for the electric street car. We believe that during the year 1926 these officials became satisfied that there is not only a "passenger preference" for the new street car, which is both comfortable and safe, but that the street car is cheaper to operate, more profitable as an investment, and the only vehicle that can move the masses during the rush hours.

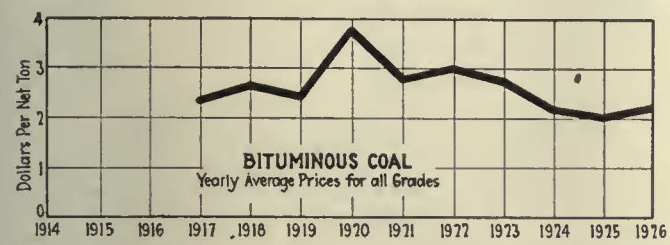
A year ago few street railway companies were even considering the purchase of new cars for city operation, whereas today there are numerous inquiries for new cars of light weight, attractive appearance and economical design. We believe that the buses heretofore purchased by street railways will be used as feeders, but that existing car lines will be kept in operation and extended. We, therefore, expect the year 1927 to be one of increased activity on the part of street railway operators, as well as manufacturers of cars and equipment.

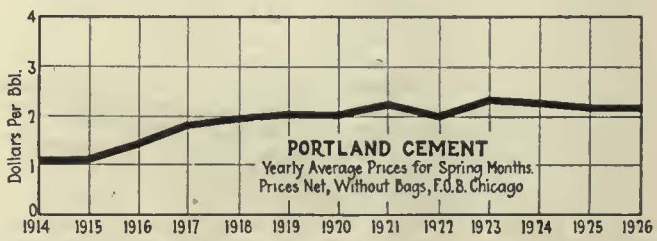
H. L. SANDERS, Vice-President.

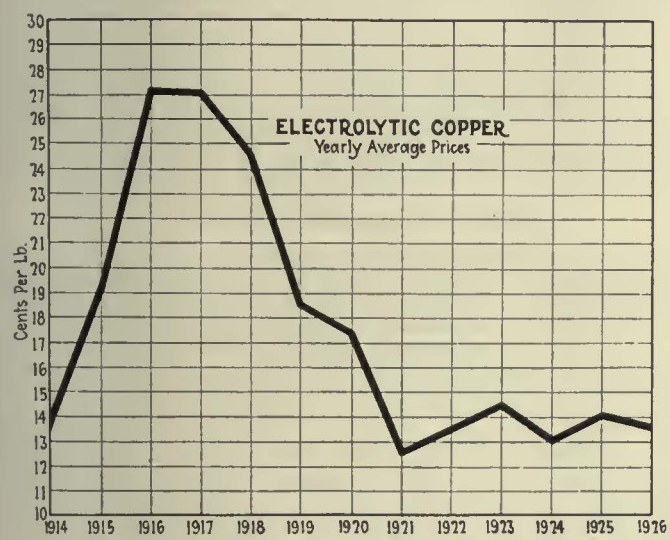
Light Weight Noiseless Electric Street Car Company

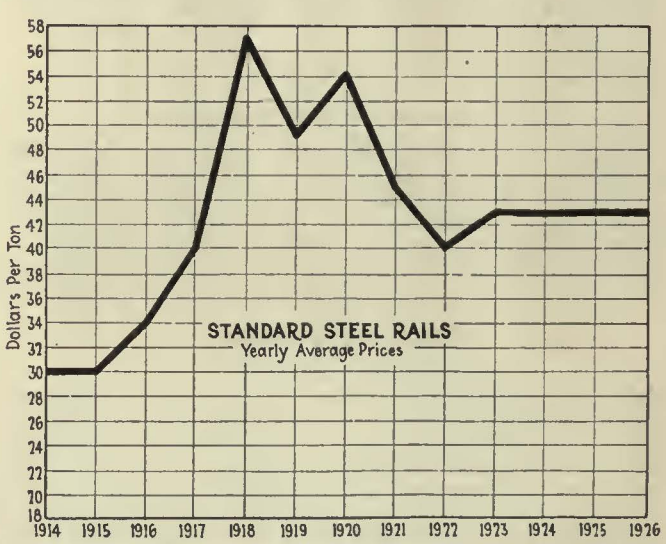
We feel that the past year has produced considerable valuable information supporting our belief and prophecy as to the value of new, attractive rolling stock, and we believe that a great deal has been accomplished in getting the electric railway industry to appreciate this fact.

E. M. MADDOX, Vice-President.









Four Basic Industries Maintain Fairly Constant Price Levels in Spite of Heavy Production

Electrical equipment manufacturers concur in the belief that the present year will equal, and probably surpass, the total of sales made during 1926. Further developments to be made in both car and gas electric bus equipment are indicated.

Westinghouse Electric & Manufacturing Company

The year 1926 marks the turning point of the electric railway industry. Orders for railway equipment booked during the past year show, in rough figures, a 25 to 30 per cent increase over the low ebb of 1925. While this, of itself, does not mean very much, it does show a definite trend upward and, when coupled with other factors, it justifies the conviction that the coming year will be marked by very definite strides toward the re-establishment of the electric railway industry and one of our sound and prosperous public utility enterprises.

Last year was marked by a crystallization of judgment by a majority of opinion as to the place of the bus and the future of the electric railway. Railway men now possess real knowledge of bus operation, its best field of service, and also its costs and limitations. They also possess knowledge of what may be accomplished by the rehabilitation of street car service.

The manufacturers have confidence in the future of the basic service of the street car for mass transportation.

Our company, for example, has expended larger amounts for engineering developments during the past three years than we did in many former years. These improvements of street car equipment introduced such things as dual ventilation, oil sealed housings, better ventilator windings, numerous improvements in controller apparatus, resistance grids and experiments with spring-borne motor equipment.

It is our conviction that the number of street cars and electrical equipments sold in 1927 will exceed the total of 1926 by from 30 to 50 per cent. MYLES B. LAMBERT, Transportation Sales Manager.

General Electric Company

A survey of the year just ended indicates a somewhat reduced volume of business in railway motor car equipment as compared with the year 1925. There have been some sales of such equipment for new extensions to existing street railways, and substantial sales of gas-electric bus equipment. If we consider the sales of gas-electric buses to electric railways, the total purchases indicate an approximately normal business, as compared with similar business during the past several years.

A very effective campaign has been instituted by the American Electric Railway Association, particularly on replacement of obsolete cars and electrical equipment, and we feel that the effects of this campaign will be reflected by an increase in car equipment business next year.

One of the outstanding features of the electric railway industry is the application of electric drive for bus transportation. It is expected that during 1927 this class of equipment will be used even more extensively.

We believe that the electrical business as a whole for the year 1927 will be equal to or greater than that for the year 1926. J. G. BARRY, Vice-President.

Westinghouse Air Brake Company

We can see no sign of any abnormal decline in business activities in the near future. We do not believe that new car orders from both steam and electric railways will decrease in 1927 as compared with 1926. Accordingly we see no reason why we should not look forward to the coming year with confidence for continued activity and prosperity.

J. A. RALSTON, Chief of Publicity.

Ohio Brass Company

The one disappointing feature of the business of our company during 1926 has been the lack of rally of the electric railway industry to the campaign and necessity for new cars. This industry holds a proportion of our interest quite out of balance with the proportion of revenue it brings to the company in comparison with the central station, mining and steam railroad fields. Doubtless, then, we are supersensitive to any evidence that this industry is not continuing to improve its position.

Apparently the year 1926, with respect to new car purchases, has been on nearly the same plane as 1925, which was the lowest in the history of the industry so far as records are available, except for 1921. This condition prevails despite the fact that some very good work has been done in the last few years, and particularly in the last year, to impress on the industry the paramount need for modernization. But it would seem that a much more effective effort must be devised to bring home to the industry the necessity for modernization, and how to accomplish it.

Successful transportation today is a matter of selling that service. But the first fundamental of selling anything is to have a product that is right in the eyes of the buyers. While track and other plant must be in good condition, to a very large extent, this matter simmers down to the cars themselves. They are the show windows of the company.

Aside from the economies that can be effected with modern equipment, there is the important consideration of developing increased riding, or, perhaps, of holding the present rate. For certainly there is nothing that impresses the public more with the feeling that the street railway is an out-of-date means of transportation and is on its way out of existence than the old cars that still navigate the streets of many cities.

As to finances, new cars will virtually finance themselves out of improved net earnings. But such improvements would be much more readily available if more companies would face squarely the necessity to go to their bondholders and sell them the necessity for accepting a much reduced face value of bonds, with preferred stock in lieu of the difference. This places a company in position, by virtue of having a smaller amount of its annual obligations in fixed charges, to improve its financial situation year by year.

It would seem that unless something is soon accomplished along the lines of financial reorganization and modernization, the industry is in danger of losing the hard-won ground it has gained in the last ten years in improved public relations and a better deal at the hands of public authorities. We cannot go on indefinitely with the old methods and old equipment. The public must have some evidence that it is getting a return for its increased investment in car rides. H. L. BROWN, Secretary.

International Steel Tie Company

The increasing optimism of the past few years, definitely crystallized in 1925 and 1926 by the discovery that new equipment more than paid its way and that the rubber-tired vehicle had its niche, has put an altogether new front on the electric railway store. We have felt this change of front very definitely in this past season's business in the reception which more permanent and ultimately renewable track construction has received from the industry.

For example, a 317-mile Middle Western property, in a complete rehabilitation of its financial and physical structure, has just completed 8 miles of twin tie track in eight weeks' time. The year 1927 promises to consolidate these confidences into a steady growth by adoption of the best in equipment, power generation, track and operating ability.

T. J. LAVAN, General Manager.

I have found in the past year a very decided tendency on the part of street railway operators to build for permanency rather than the hand-to-mouth idea of buying so prevalent a few years past. The outlook for next year seems even more optimistic and, personally, I can see more definite business in sight than in any previous year at this time. FRED H. OGDEN, Sales Manager.

Railway Track-Work Company

Our business with the electric railway industry during the present year compares favorably with that in other years. For the coming year we look for normal business, but we have no reason to believe it will be any improvement as compared with the present year, as there have been no new developments which in our opinion would make for better business conditions. W. B. GOODALL, Secretary and Treasurer.

Manufacturers of buses and bus equipment seem convinced that automotive equipment will take an even greater place in co-ordinated transportation during 1927. Inquiries for city and interurban units are active.

International Motor Company

The principal objective in 1926 of Mack Trucks, Inc., was the placing of the credit part of its business on a sound basis. This has been accomplished. We are hopeful other manufacturers will follow. If so, financially sound and established operators will find it possible to stabilize the business of selling co-ordinated transportation.

The year 1926 in the bus business saw a large increase in buses operated by public utilities and a better appreciation of their use in the street railway field. Even companies using them originally for defensive measures have found them a useful and profitable tool in transportation.

Our confidence in the prospects for 1927 is shown by the fact that, in addition to our standard line of four-cylinder Mack buses, we have added a six-cylinder and both a four-cylinder and six-cylinder gas-electric. Plant facilities have been increased anticipating the greater demand.

A. J. BROSSEAU, President.

Yellow Manufacturing Sales Corporation

Our orders booked during 1926 will show a 60 to 70 per cent increase over 1925, and I think our actual deliveries will run pretty close to 100 per cent over 1925.

There has been a slight let-down in sales during the fall months, but I think this is only temporary and I look forward to an unusually good volume of business in 1927. This information is based on our consolidated prospect list,

which we compile weekly and which indicates the trend of the industry throughout the country.

I believe I am conservative when I say that we ought to have a 50 per cent increase in sales for the year 1927.

H. E. LISTMAN,
Vice-President Directing Motor Coach Sales.

American Car & Foundry Motors Company

Anything I may say in an effort to forecast the outlook for 1927 with respect to the possible expansion of automotive operations by the traction lines will of course be nothing better than a guess. There are some indications of the fact that the traction companies are realizing the economies, under certain operating conditions, of using automotive equipment in place of, or as an adjunct to, rail equipment, and many of them are laying plans for the introduction of such service.

Business pending now seems to be materially in excess of the same period last year, and because of this we regard the outlook for 1927 from the standpoint of the electric railways as promising.

CARL ABELL,
Advertising Manager.

Haskelite Manufacturing Corporation

The past year has been the first year that this company has began to reap the benefits of its pioneering efforts to make its products Haskelite and Plymetl standard in the street railway field. Thirty-three companies which bought upward of 550 cars during 1926 specified Haskelite, Plymetl or both in some part of the body equipment. This does not take into consideration the numerous companies which purchased these materials for remodeling work as a substitute for products used when their cars were built. Our sales record shows a 98 per cent increase in the sale of our street car material direct to street railway companies during the past year over 1925.

JAMES R. FITZPATRICK, Secretary.

Ohmer Fare Register Company

We are just closing the best business year in our history. Our product functions with the most important factor in the transportation field, the protection and conservation of revenue. In these days of keen competition the difference between cost and selling price is what counts.

People are prone to take the line of least resistance. The popularity of the electric car is reflected by increased passengers everywhere. The electric car is generally conceded to be the best, safest and most reliable means of transportation. Nothing can compete with it for transporting large numbers of people. Additional rolling stock will be required and means for protecting the revenue are essential, for which reason we are optimistic.

I do not subscribe to the proposition that buses will be to any extent substituted for electric cars. Buses have their place and they will eventually prove to be good feeders to the electric lines, but in my opinion buses can never take the place of cars.

It is conceded generally that business will be good, at least for the first six months of 1927, but it should not be forgotten that we have established an unusual precedent which will be difficult to maintain to the satisfaction of all.

JOHN F. OHMER, President.

The Texas Company

During the present year the Texas Company has been very successful with regard to business relations with the electric street railway industry. We have had full cooperation from the American Electric Railway Association, and from all with whom we have been privileged to transact business. In fact, our relations have been very pleasant and all that could be expected. We contemplate an enlargement of business and a full year of the same pleasant relationship as that enjoyed in the past.

G. R. ROWLAND, Superintendent Lubricating Sales.

Electric Railway Equipment Company

Our railway and lighting equipment business for 1926 shows approximately 30 per cent increase over the previous year. From present indications we see no decline for the first quarter of next year. The present activity seems to be general and is not confined to any particular section.

Lang Body Company

The first half of 1926 was very good, but a slowing down became apparent in August and has continued to date. If half of the projects now under way for expansion of bus transportation should be carried out 1927 should be a very busy year for all who are engaged in manufacturing bus equipment.

E. J. LANG,
Vice-President and Treasurer.

Goodyear Tire & Rubber Company

It is our judgment that the advent and general acceptance of balloon tires for bus and truck use during the past year marked an important advance in the development of the transportation field. This development should be of even greater value to operators during 1927, bringing increased operating mileage and better patron satisfaction.

R. PRESTON. Bus Transportation Sales.

Nichols-Lintern Company

Last year was disappointing in the demand for car equipment. On the other hand, the demand for bus equipment by electric railways was even greater than had been anticipated. With full confidence in the industry we are now developing new equipment to go on the market early in the year. Most of these developments will be in the field of motor vehicle appliances. Our contacts, however, indicate to us a greater purchasing of car equipment and a lesser demand for bus equipment from electric railways for 1927.

WILLIAM LINTERN, President.

Heywood-Wakefield Company

At the rate we have been receiving inquiries from the electric railways it looks as though the coming year would be a very good one. There seems to be a real interest on the part of the railways to use more comfortable seating equipment and we are getting orders from the various railways for a type of seat far more comfortable than has ever been used.

We have even had inquiries for seats for one-man cars where the roads want to give their passengers a deep spring cushion seat in place of the hardwood seat formerly used.

G. E. CORNWALL, Assistant Manager.

The Baker-Raulang Company

The year 1926, viewed as a whole, indicates quite a decided step has been taken during that period toward standardizing on body types, sizes and equipments. With this experience as a background, we will enter the year 1927 with a more complete line of standard bodies for all types of service usually supplied by electric railway companies.

We anticipate the coming year will see a material further application of buses by electric railway interests.

E. J. STAHL, Vice-President.

Timken Roller Bearing Company

We have had the biggest business we have ever had during 1926 and we expect from all indications that this will increase during 1927. Our business of supplying bearings for gas rail cars is growing all the time and we are in a position now where our bearings are used on practically all types of this car made. During the past year several large companies have begun to install Timken tapered roller bearings on electric rail cars. In addition, for 1927 we foresee a great amount of business for our bearings in the steam railroad field as indicated by our entry into that field with an order for the bearings for 127 cars for the Chicago, Milwaukee & St. Paul Railroad.

R. P. KELLEY, Advertising Manager.

Gold Car Heating & Lighting Company

Looking back over the passing year, we may readily observe the definite advance made by the electric lines in conforming to a higher standard for their equipment and giving the public the benefit of recent improvements and inventions. In the heating end, more care is used to give sufficient and better distributed heat in better built cars.

We expect this development to continue during the coming year, and to increase. The public demands comfort and the railways are giving it to them.

E. B. WILSON,
Vice-President and General Manager.

The Readers' Forum

Mr. Ritchie Presents Bus Viewpoint

CHICAGO MOTOR COACH COMPANY

CHICAGO, ILL., Dec. 28, 1926.

To the Editor:

G. A. Richardson, vice-president and general manager Chicago Surface Lines, has been quoted at great length in ELECTRIC RAILWAY JOURNAL and other technical and lay papers concerning the proposition made by the Chicago Motor Coach Company to provide a city-wide system of motor coach transportation to serve all the people now served by the Surface Lines. Not all of what Mr. Richardson said has been included in the report in ELECTRIC RAILWAY JOURNAL of Dec. 18, pages 1105 to 1108, inclusive.

In the interest of accurate information for the public and, particularly, the street railway industry, it is felt that certain of Mr. Richardson's statements, obviously based upon misinformation, should be corrected. This may be done, perhaps, most briefly in the following form:

Mr. Richardson: "The bus company claims it can do the work of Chicago's 3,539 street cars with 4,685 buses. It would be impossible. The load is too high. It would take at least 6,500 buses at the minimum."

Answer: Mr. Richardson gives no data for his statement. Our estimate, carefully made, should be accorded more weight than his unsupported generality, which could be interpreted as saying that the job could be done with enough coaches.

Mr. Richardson: "If buses are to give city-wide service, certain things would have to be cared for—Greater frequency of service, service at all hours, greatly increased ratio of rush-hour service, reasonable headroom, pneumatic tires, air brakes, heating and ventilating, taxes and charges for paving."

Answer: Every requirement in the list has been provided for definitely, except that of pneumatic tires. When pneumatic tires are feasible, safe and dependable, the Chicago Motor Coach Company will use them.

Mr. Richardson: "The bus lines have had the cream of the traffic. They have not had to take the lean with the fat, as do the street cars."

Answer: The Chicago Motor Coach Company operated in 1925, its most profitable year, 29 motor coach routes. Of these thirteen lost money, in the sum of $229,226.43. *This is taking the lean with the fat.* In the vital traffic factors, average length of ride, diversification of business, load factor, two-way riding, and volume of business, it is the Surface Lines which have had the fat.

Mr. Richardson: "The claim that the buses would take up 22 per cent less street space than the street cars is nonsense."

Answer: This is to assert that simple arithmetic is nonsense. The figures in the following table are for the street cars owned by the Surface Lines, and for the motor coaches proposed for the new city-wide system. The relative total area occupied by street cars and motor coaches will be as follows:

Total area covered by 3,539 street cars	1,443,912 sq.ft.
Total area covered by 4,685 motor coaches	1,124,400 sq.ft.
Saving in street area by use of motor coaches	319,512 sq.ft. or 22 per cent.

Mr. Richardson pursues this line by declaring that "during the rush hour period we (Surface Lines) handle 80,000 passengers an hour in the Loop with 900 street cars. They would need 1,340 buses."

Answer: Taking Mr. Richardson's own figures (which we definitely declare as to coaches needed are incorrect) the comparison as to space occupied would be as follows:

900 street cars (48 ft. x 8½ ft.)	367,200 sq.ft.
1,340 coaches (30 x 8 ft.)	321,600 sq.ft.
Saving in area by use of coaches	45,600 sq.ft.

Mr. Richardson: "The Fifth Avenue Coach Company in New York has been able to justify using only 300 buses in the largest city in the country."

Answer: The Fifth Avenue Coach Company, in the calendar year of 1925, operated a fleet of 440 motor coaches and carried 70,654,704 revenue passengers, an increase over the year before of 9,197,584 passengers, or 13 per cent. In the year ended June 30, 1925, the street cars in Manhattan carried 161,956,000 fewer passengers than they did in 1915.

Mr. Richardson: "When the novelty wears off the public comes back to the street car."

Answer: The Fifth Avenue Coach Company in New York, which has operated gasoline motor coaches for nineteen years, carried, in the fiscal year of 1915, 14,570,000 revenue and transfer passengers. In the year ended June 30, 1925, it carried 68,426,000 passengers in Manhattan only, an increase of 370 per cent.

In Newark, N. J. (nearly 500,000 population), the street cars are carrying about two-thirds of the passengers where formerly they carried them all.

Mr. Richardson: "Last year during the Eucharistic Congress buses dropped off in number of passengers carried. This was the time of need in mass transportation."

Answers: In the week of the Eucharistic Congress the Chicago Motor Coach Company carried 1,728,258 revenue passengers, or 142,613 (9 per cent) more revenue passengers than the best week of its history. In one day there were carried 320,000 revenue passengers, or 39 per cent more than on any day in 1926.

It is believed that the proposed system can be operated at a higher scheduled speed than that of the present Surface Lines. Our checks indicate a superiority of from 5 to 8 per cent, depending upon conditions.

J. A. RITCHIE,
President Chicago Motor Coach Company.

EDITOR'S NOTE.—An extended report of the proposal to substitute buses for street cars in Chicago was printed in ELECTRIC RAILWAY JOURNAL of Dec. 18, pages 1105 to 1108 inclusive. The letter which Mr. Ritchie wrote to the City Council was printed in full. A report of the statement which Mr. Richardson released to the Chicago press was also given, together with the general developments in the situation there and abstracts of Mr. Ritchie's reply and testimony at the hearing before the Council. On page 3 of this issue there is an editorial expressing the JOURNAL'S views on the moves being made in New York and Chicago. The above letter was received just in time to be included in this issue. The JOURNAL disagrees frankly with Mr. Ritchie in the above comparison of actual street space occupied by double-deck buses and single-deck cars as a measure of their ability to move heavy passenger loads or of their relative obstruction to other traffic when operating in the streets. It is, however, glad to publish his views in its effort adequately to present both sides of this situation.

Association News & Discussions

Standardization of Plain and Lock Washers

STANDARDIZATION of plain and lock washers was discussed at the meeting of the sectional committee of the American Engineering Standards Committee on that subject held at the United Engineering Societies building, New York, Dec. 8, 1926. A report was submitted by J. Howard Horn, for the manufacturers' committee, which gave proposed standard dimensions for lock washers. After discussion of this report, it was decided that the specifications incorporated should be approved with the omission of tables of dimensions for light and heavy washers.

Various phases of the work necessary in standardizing plain washers were taken up and Charles R. Dowdy of the Wrought Washers Manufacturing Company was appointed to draw up a specification with tables of plain washers which is to be considered by the committee.

C.E.R.A. Announces Program for Annual Meeting

SUCCESS of the annual meeting of the Central Electric Railway Association to be held at Toledo on Feb. 3 and 4 should be assured by the program which has just been announced. New cars, buses, maintenance, safety and financing are the principal electric railway subjects. The program follows:

THURSDAY, FEB. 3, BEGINNING AT 10 A.M.

Welcome by Mayor Fred J. Mery.

Address of President G. K. Jeffries.

"The Permanency of Increased Revenue Resulting from New Cars," a series of five-minute talks by George MacLeod, Fredonia, N. Y.; F. D. Norveil, Anderson, Ind.; W. R. Power, Huntington, W. Va.; L. M. Brown, Indianapolis, Ind.; R. N. Graham, Youngstown, Ohio.

"Twelve Thousand New Cars Paid For Annually but Not Received," by Charles Gordon, New York City.

"Street Cars and the Next A.E.R.A. Convention," by J. H. Alexander, Cleveland, Ohio.

Discussion by Myles B. Lambert, New York City.

AFTERNOON SESSION, BEGINNING AT 2 P.M.

"The Proper Use of Buses by Electric Railways," by Walter Jackson, Mount Vernon, N. Y.

Special conference of operating executives—Subject, "More Profitable Business for the Interurbans," led by J. P. Barnes, Louisville, Ky.

ANNUAL DINNER, 6:45 P.M.

Address by W. H. Sawyer, president American Electric Railway Association.

"The Airplane in Commercial Service Today," by W. P. McCracken, Jr., Washington, D. C.

"The National Defense," by Brigadier-General D. E. Aultman.

FRIDAY, FEB. 4, BEGINNING AT 9:30 A.M.

"What Price Better Maintenance."—"Results to Be Expected from Higher Standards of Maintenance," by H. S. Williams, Detroit, Mich.

"Car Maintenance on a Production Basis," by W. T. Rossell, Pittsburgh, Pa.

"Progress Under the Hoover Safety Conference Recommendations," by Ernest Greenwood, Washington, D. C.

"Results of Reshaping the Financial Structure," by R. M. Feustel, Fort Wayne, Ind.

Election of officers.

COMING MEETINGS OF *Electric Railway and Allied Associations*

Jan. 6-7—Midwest Electric Railway Association, midwinter meeting, Mayo Hotel, Tulsa, Okla.

Jan. 7—American Electric Railway Association, Metropolitan Section, Engineering Societies Building, New York City, 8 p.m.

Jan. 10-14—American Road Builders' Association, convention and road show, Coliseum, Chicago, Ill.

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

Jan. 19-20—Central Electric Traffic Association, Fort Wayne, Ind.

Jan. 21-22—Central Electric Railway Accountants' Association, Fort Wayne, Ind.

Jan. 25—New York Electric Railway Association, winter meeting. Hotel Commodore, New York City.

Jan. *26-28*—Association of Equipment Men — Southern Properties, Memphis, Tenn.

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

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

Feb. 10—Central Electric Railway Master Mechanics' Association, Toledo, Ohio.

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

Oct. 3-7, 1927—American Electric Railway Association, annual convention, Public Auditorium, Cleveland, Ohio.

Modernizing the Electric Railway Topic of Midwest Meeting

MODERNIZATION will be the theme of the meeting of the Midwest Electric Railway Association, to be held in Tulsa, Okla., on Jan. 6 and 7.

Thursday morning's session will open with a paper by D. W. Snyder, Jr., vice-president Illinois Traction Company, his topic being "Public Relations." This will be followed by a paper by E. F. McKay, manager Oklahoma Utilities Association, whose subject will be "Public Relations."

At the afternoon session papers will be presented by R. M. Graham, manager railway division Pennsylvania Ohio Electric Company, Youngstown, on the subject "Present-Day Town and City Transportation," and Charles Gordon, editor of ELECTRIC RAILWAY JOURNAL, New York, on the subject "Can the Electric Railway Industry Afford New Equipment."

The banquet will be given at 6:30 p.m. The principal speaker will be J. F. Owens, vice-president and general manager Oklahoma Gas & Electric Company.

At the Friday morning session W. H. Sawyer, president American Electric Railway Association, will address the meeting. After Mr. Sawyer's speech there will be a business session. The afternoon will be given over to entertainment.

Southwestern Public Service Association 1927 Convention

NEW ORLEANS, LA., has been chosen as the meeting place of the 1927 convention of the Southwestern Public Service Association, to be held jointly with the Southwestern geographic division of the National Electric Light Association, April 26-29.

New York Electric Railway Association Midwinter Meeting

MEMBERS of the New York Electric Railway Association will get together for their midwinter meeting at the Commodore Hotel, New York City, on Jan. 25, 1927.

A very interesting program of subjects for discussion is being prepared.

It is requested that reservations for the dinner be mailed in to W. F. Stanton, secretary of the association, 267 State Street, Rochester, N. Y.

A.S.C.E. to Meet

ON JAN. 19-21, the American Society of Civil Engineers will hold its 74th annual meeting at the Engineering Societies Building, 33 West 39th Street, New York City. A number of papers on city planning and traffic control will be presented.

The News of the Industry

Municipal Ownership Bugaboo Reappears in Chicago

Use of the city's $45,000,000 traction fund for the purchase of the Chicago Surface Lines after the expiration of their franchises on Jan. 31, 1927, on a plan similar to that brought forward by the Lisman banking interests of New York, or on any other plan feasible under the city's bonding limitations, was suggested in a resolution submitted on Dec. 22 to the City Council by Alderman Patrick F. Ryan. The resolution directs the committee on local transportation, together with the Corporation Counsel and the committee's engineers, to give immediate consideration to the proposal.

In outlining his plan for municipal ownership, Alderman Ryan pointed out that, with the present franchises expiring in less than five weeks and with the failure of negotiations so far between the city and the companies, the traction question has again become "the subject of so much political propaganda that the condition of the public's mind on the subject is so confused that it is doubtful if any settlement with private ownership will be approved."

"We have completely failed, so far, in negotiating with the private companies," the Alderman declared. "And I believe we are bound to be fooled if we continue. The only way to protect the straphanger is to take over the lines ourselves."

The Lisman interests and the present surface lines managements, Alderman Ryan charged, are all co-operating in "one huge financial manipulation to gain control of the traction fund." He charged that the receivership move and the plan advanced by Mr. Lisman were prompted by mercenary motives.

Under the Lisman plan, extensions and improvements would be financed with $50,000,000 out of the city's traction fund, the Alderman pointed out.

If the properties can be obtained under the Lisman plan for $50,000,000, he insisted, it should also be possible for the city to acquire the properties under a similar plan.

John M. Harlan, who represents the Lisman interests in negotiations with the city, emphatically denied that the plan contained any "joker" such as refered to by Alderman McKinley. He said:

> Section 44 of our proposed ordinance, as it was read by Alderman McKinley provides that the city may purchase the new company's entire system on six months' notice by paying in cash the principal amount of the company's outstanding securities, representing capital investment, with interest to the date of purchase.
>
> Section 44 goes on to say: "In addition thereto an amount equal to the then present value of the grantee company's share of the compensation fixed and provided in section blank, to be divided between the city and the grantee company for the then remainder of the period of the grantee company's then existing permit to operate—such then present value of the grantee's company said share to be computed on the basis of an annual increase of $25,000,000 revenue passengers and an annual simple interest discount of 5 per cent for the then present payment of compensation not yet then earned."
>
> It will be seen that the additional amount the grantee company would receive by way of compensation in the event of purchase by the city would be vastly less than indicated in stories concerning that alleged "joker." And instead of being fixed and stationary—as under the 1907 ordinances—20 per cent of the capital account—would never be so large. In fact, it would grow less and less.

$2,000,000 Outlay by South Shore

Steps in advance in rehabilitation and new equipment of the Chicago, South Shore & South Bend Railroad during the past year mark it as the most important twelve-month period since the beginning of operation twenty-five years ago. More than $3,000,000 was spent in this work during 1926, in addition to the $750,000 spent in the last half of 1925, after the road had been purchased at foreclosure by Samuel Insull and associates of Chicago.

This improvement program is to be continued through 1927 and expenditures for new cars, construction and other extensions of facilities now tentatively planned call for an expenditure of approximately $2,000,000 during the coming year.

Among the improvements completed during 1926 are:

The purchase and placing in service of 25 new steel motor passenger cars.

Entire re-electrification of the railroad, including a change-over from alternating to 1,500-volt direct current, the construction of eight new electric substations, four of which are mercury arc rectifiers, and the rebuilding of the electrical overhead system.

Reballasting and laying of new 100-lb. rails between Kensington, Ill., and the Illinois-Indiana state line.

Reballasting and improvement of grades over the entire right-of-way.

Purchase of four new Westinghouse freight locomotives and general improvements in freight service, including extended sidings and team tracks.

Remodeling passenger stations at South Bend, Michigan City, Tremont, Gary and Hammond.

Several of these steps in the rehabilitation program led directly to the most important forward step taken during the year—the placing in service on August 29 of the new steel cars and through operation electrically between South Bend and Randolph Street, downtown, Chicago.

Among the new features which will be added to the company's service early in 1927 are two dining and two parlor observation cars. They are rapidly nearing completion at the works of the Pullman Car & Manufacturing Corporation in Chicago.

Law Forbids General Tax to Aid Seattle Railway

One of the various plans offered to solve the Seattle Municipal Railway's financial crisis, which has agitated the City Council of Seattle, Wash., for the past few months, was rejected recently when Corporation Counsel T. J. L. Kennedy rendered an opinion in which he held that the proposal to levy a general tax to aid in paying the bonded debt of the railway would be in violation of the state Constitution. Councilman E. L. Blaine had asked Mr. Kennedy to prepare for introduction in the next Legislature an act enabling the Council to levy a tax up to 2 mills, but this plan will undoubtedly be abandoned with the present ruling.

This leaves among the plans considered for solution of the problem two proposals—floating of a general bond issue to assist in paying off the debt. or issuing of refunding bonds, which would be railway revenue utility bonds, to retire the present bonded indebtedness, and then pay off the refund issue over a longer period than the present bond contract. For the first plan, a vote of the people would be necessary. For the second, the problem would be in finding a buyer for the refunding bonds.

In the meantime, the City Council is faced with the problem of meeting the railway department's payroll until Feb. 1, when the payment for 1927 on the purchase debt must be in the hands of the city's fiscal agent in New York. Refusal by the City Council, represented by a committee of its members, to consent to certain legislation demanded by City Treasurer E. L. Terry and Comptroller Harry W. Carroll to protect them from liability if the city fails on Feb. 1 to have on hand funds sufficient to take care of its bond obligation, these two officials have announced that the railway is immediately on warrant basis and no payrolls will be cashed. Warrants issued on the payrolls Dec. 24, Jan. 10 and Jan. 15 will be marked "not paid for want of funds," and to date no plan has been devised to meet the situation. The banks of the city have refused to cash them, and Mayor Bertha K. Landes states that she does not contemplate any further loans to the railway department from any other city departments.

In the meantime, the city is also facing the probability of having to repeal the ordinance passed on Dec. 20 increasing the interest on city money on deposit in local banks from 2 to 2½ per cent. The Seattle Clearing House Association has refused to accept city money at a higher rate than the present 2 per cent, and the city faces the prospect on Jan. 1 of having $5,000,000 with no place to bank it.

Davenport Proud of New Utility Building

United Light & Power Company Completes New Spacious and Luxurious Headquarters, Containing Offices of Tri-City Railway and People's Light Companies—Many Advantages Cited in Having Home Office in Davenport

WHILE the achievements of railway companies for 1926 are being recorded the United Light & Power Company will occupy a conspicious position for the completion of its new home project in Davenport, Iowa, at a cost of $500,000. This headquarters building, located at Second and Perry Streets, now houses the operating, engineering, securities, purchasing, sales and other important departments of the seventh largest American public utility company.

In April of last year the public inspected the new building, which serves now as the pivot of contact between officials and patrons of the People's Light Company and Tri-City Railway. Here municipal and all local problems are solved—customers pay their bills, invest in preferred stock and purchase railway tickets, with much more satisfying results than if the central offices were located in New York, Chicago or Grand Rapids. The wisdom of having a home for the first time in Davenport is credited to B. J. Denman, general manager, who saw in the cramped rented quarters the company was occupying an impediment to its progress, and in the erection of adequate facilities right in the heart of the operating territory another milestone in the great development of this utility, of which he is the head. Officials believed that a lower cost of living for the operating staff, as well as more pleasant living conditions generally, was among the advantages to be obtained by having the headquarters in a smaller community where one of the properties was located. The erection of its own building in any large center would hardly have been possible because of high building and real estate costs. But in addition to personal gains the municipality has gained an asset in the addition of such a building to adorn the downtown district of Davenport.

A brief description of the plan of the building was published in ELECTRIC RAILWAY JOURNAL, issue of Jan. 3, 1925, page 48. The building has five stories and a basement, with a mezzanine floor, but is designed for the addition of three more floors. The exterior of the building has limestone facing the first two stories and a combination brick and stone treatment for the balance. The first floor is occupied entirely by the People's Light Company. Here are demonstrated the utilitarian purposes of this great company in the form of display counters, information desk, cashiers' counters, but in addition the æsthetic ideal is not lost sight of. The bases around all exterior walls and columns are Verde antique marble. The woodwork in the room, including paneling around sills, windows and display counters, is genuine American black walnut.

Off one lobby to the east is located the railway cashier's booth, available to the public for the purchase of tickets and other business with the railway department. These booths are of the latest bank fixture design and the floors and base in this space are of marble. The banking fixture itself is art metal finished to imitate walnut, and all paneling in connection with this room and the counter fronts is genuine black American walnut.

Large ornamental stairs in the main sales floor lead to the basement, the front part of which is devoted entirely to additional salesroom space. The mezzanine floor is connected to the first floor by a wide stairway leading to a balcony in the main sales floor, which extends across the entire east end of the same. This mezzanine floor is taken up by the accounting departments.

The second floor is given over to various United Light & Power Company officials. There are offices for the manager and assistant manager of the People's Light Company, general manager and assistant general manager of the Tri-City Railway, purchasing department, advertising department, industrial engineer, sales manager and claim department. There is also located on this floor a large assembly room, and in connection with this room are waiting rooms and a large serving kitchen.

The third floor contains the securities department, appraisal department and the executive offices. A feature of the offices on this floor is the lighting arrangement. The private offices are illuminated with Curtis indirect silver fixtures. In General Manager Denman's office four Curtis direct specially designed fixtures are used. Intensity in all offices is from 8 to 10 foot-candles.

The fourth floor is given over entirely to the engineering department. The fifth floor has been partly finished and completion will be carried on at once so that it will be ready for expansion of the various departments. The chemical laboratory is located on the fifth floor, for the purpose of carrying on research and analytical work for all the properties of the company.

Theoretically, the building was started years ago, when the Tri-City was just beginning to make strides in electrical development. Years of careful planning, use of business acumen and propagation of ethical standards laid the foundation for this structure.

Something for Davenporters to Be Proud Of

$680,000 Improvement Program for Minneapolis

The building program of the Minneapolis Street Railway, Minneapolis, Minn., for 1927 to be considered on Dec. 30 by the street railway committee of the City Council totals $680,000, with a major project the beginning of another interurban line to St. Paul. This will be a crosstown line in south Minneapolis made by extending the Oak-Harriet line on 50th Street from Penn Avenue south to connect with the Bryant-Johnson line at Bryant Avenue fourteen blocks; on the Bryant line to 42d, thence a new track to connect with the Grand Avenue line at Grand Avenue and 42d Street; also extension of the East 25th Street line across the Ford bridge to be opened over the Mississippi River, a point where the Randolph line has a terminus on the St. Paul side. By the eventual extension of the proposed 42d Street line to connect with the East 25th Street line near the west terminus of the Ford bridge a fourth interurban line will be a fact. Also there is proposed an extension of the Oak-Harriet line on Penn Avenue south to 54th Street.

Higher Fare in Petersburg and Norfolk

Quick action was taken on Dec. 21 by the Virginia Corporation Commission on two petitions of the Virginia Electric & Power Company for increased transportation rates. The decision means that the car riders of Norfolk and Petersburg will pay higher fares after Jan. 1. With the granting of higher fares the Virginia Electric & Power Company promises to give better service in both cities. This will be accomplished by changes in routes and additional equipment. Fare zones will be abolished in each of the cities.

The Petersburg application was heard Dec. 21. In that city the company will issue four tokens for 25 cents, with 7 cents as the straight fare. School tickets will be sold for 3½ cents and free transfers between electric cars and buses will be given. The present fare in Petersburg is 6 cents.

The Norfolk case, which also had the support of municipal authorities, was heard recently, but the commission withheld consent to the increase until additional documents could be presented. The new fare in Norfolk will be 10 cents cash, three tokens for 25 cents. A weekly pass will be issued for $1.50 and school tickets will be sold for 24 for $1. The present fare in Norfolk is 8 cents. Transfers will be given between the cars and buses.

Cincinnati Has New Emblem

A new insignia will appear on all cars operated by the Cincinnati Street Railway, Cincinnati, Ohio, as fast as the cars are overhauled and repainted. The new emblem pictures the street car and bus and includes the name of the company. Adoption of the insignia followed a contest conducted by the company covering a period of six months, during which 350 designs were submitted. A combination of six designs, however, afforded just what was desired and the $50 offered for the winning insignia was divided among the six contestants. The new insignia will also be used on uniforms, buttons, badges and advertising of the company.

In commenting on the contest, Hudson Biery, Director of Public Relations, said that many of the designs used words describing the advantages of street railway service. These were not used as the company felt that the service must speak for itself. He said: "We want the car and the coach and the words 'Cincinnati Street Railway' finally to become known to the public eye as standing for good service."

Boston Electrification Not Favored

The Metropolitan Division of Planning, Boston, Mass., has disapproved the proposed plan for the electrification of the Saugus branch of the Boston & Maine Railroad between Everett and West Lynn, because of its prohibitive cost. In its report to the Massachusetts Legislature the planning board has suggested that the branch be electrified for overhead operation. This plan would do away with a proposed underpass at the railroad. This project would cost far less, outside of new rolling stock, and would be an asset to the development of the territory served. Opportunities are numerous for real estate subdivisions over the line, as well as industrial plants. In order to accomplish this end co-operation would necessarily have to exist between the railroad and the railway. The Boston & Maine would abandon passenger service and the Eastern Massachusetts Street Railway would take care of that end. Regarding the operation of trolley cars, half-hour headway was recommended with more frequent service during rush hours. The Boston & Maine would continue to operate freight trains over the Saugus branch, which would not interfere with trolley traffic.

Would Draft New Franchise for Omaha

A movement is on foot to draft for submission at the May election a new franchise for the Omaha & Council Bluffs Street Railway, Omaha, Neb., to take the place of the one shortly to expire. The voters refused their approval some months ago to the franchise asked for by the company. The present suggestion is that John P. Breen, attorney in charge of the opposition at the last election, and others competent to do so draft a grant that will embody conditions they think the city should include in a new offer.

The principal objections to the franchise defeated were that it ran for too long a period, that it exempted the company from all share in the burdens of paving and also relieved it of occupation taxes. Mr. Breen says that he is not opposed to a renewal of the franchise and that he is opposed to municipal ownership at this time. He adds that it is plain that it is in the interest of the city to pass a new grant.

If one can be drawn acceptable to the company it is possible to submit it in May and give the company an opportunity to refinance by Jan. 1, 1928.

Stopping Service To Serve

YESTERDAY morning an elderly woman stood midway on a Grand Rapids street made slippery by sleet and rain. She had made the crossing half way, when traffic began to increase, and she dared not trust her unsteady feet for a quick dash in front of swiftly moving automobiles. A motorman, keen of eye and sympathetic of heart, had, however, seen her a half block away. He stopped his street car, helped the old lady across the street and resumed his post.

Probably the passengers who failed to witness the episode, grumbled at the delay, as passengers will when service is interrupted. But not one of them, knowing the facts, would remonstrate a syllable against delay for such a reason. When service becomes a Frankenstein to which the humanities must give way, it ceases to be service at all. *Grand Rapids Herald.*

Community Day in Wheeling Featured by Free Rides

Another wholesale purchase of railway service was witnessed—this time in Wheeling, W. Va., when on Nov. 12 the first community day was held. Approximately 50 merchants in the city of Wheeling purchased the railway service inbound between the hours of 9 a.m. and 12 noon. When passengers boarded the cars during the morning they were handed cards reading "Good morning, you are the guest of George E. Steifel Company, which is this morning beginning its 48th anniversary sale."

During the day 21,000 people rode to the city on street cars and 15,000 of them came during the three-hour period as guests of the merchants. The merchants estimated a total of 25,000 visitors to the stores and business took on the aspects of a Christmas rush. Not only did the stores profit by large sales but restaurants and theaters enjoyed capacity crowds during the afternoon and evening.

In commenting on the matter editorially, the Wheeling *Register* said in part:

> To put it tersely, community day went over bigger than expectations warranted. The occasion will not be of temporary benefit to Wheeling merchants and out-of-town shoppers alone. It will form a contact between the two that will bring satisfied customers to the city next week and weeks to come.

It is understood that Wheeling merchants and business men are so well pleased with the success of the first community day that it is to be repeated at frequent intervals.

Pasadena Loses in Fare Issue

The Supreme Court of California has denied two petitions for writs of review on the part of the city of Pasadena against the Railroad Commission in which the city of Pasadena contended that the Railroad Commission was without jurisdiction to regulate the rates and services of motor coach lines operated by the Pacific Electric Railway in that city. Those cases arose out of applications on the part of the Pacific Electric Railway for increases in fares over those motor coach lines. It was the position of the city of Pasadena that since those lines were operated under contract with the city and pursuant to a franchise which it had granted, and since the Railroad Commission was not given authority over motor vehicle operations solely within the limits of municipalities, the commission had no authority to consider the question of rates for this service. In its answer to the Supreme Court, the Railroad Commission pointed out that one of those lines extends for a short distance outside the city of Pasadena, and contended that unless operations were conducted exclusively within the city limits the commission possessed authority over the entire operations.

The Supreme Court's decision denying the writs of review asked by the city of Pasadena in effect sustains the position of the Railroad Commission, and the effect of the cases is to hold that the commission does possess complete authority over motor vehicle operations such as are conducted by the Pacific Electric Railway in Pasadena.

Large Downtown Terminal in Chicago for North Shore

A passenger terminal much larger and more attractive than the old one was recently opened to the public by the Chicago, North Shore & Milwaukee Railroad in the downtown section of Chicago.

The new station occupies the entire basement, first and second floors of an eight-story office building. A ticket window, information booth and checking counter occupy the front of the first floor, where large walnut benches provide comfortable waiting facilities for travelers. The rear of the first floor is occupied by a restaurant and lunch counter operated by the North Shore Line's commissary department and is equipped for prompt and adequate dining service. The entire main floor is finished in marble and walnut with brass fixtures.

In the basement there is a commodious smoking room for men, while on the mezzanine floor, at the first landing of a broad marble staircase, may be found the ladies' waiting and rest room, a handsome suite equipped with upholstered furniture.

The second floor provides an additional ticket window and chairs for waiting passengers. At the rear are show windows where displays of household furnishings add to the cosiness of the surroundings. A second story bridge connects the upstairs waiting room with the Adams Street elevated station, where passengers may board all North Shore Line trains.

A system of electric amplifiers is used to announce the arrival of trains loudly and clearly throughout all parts of the station. Illuminated signs direct passengers to all points of service. The new station will serve as a model in future development of all North Shore Line terminals.

Construction of Maine Project Awaited

The consent of A. R. Graustein, president of the International Paper Company, to allow United States Senator Arthur R. Gould of Presque Isle, Me., to cut timber in the company's holdings across northern Maine is all that is necessary for the building of the proposed electric railway through the woods of northern Maine into the Province of Quebec. The certificate granted by the Interstate Commerce Commission for construction lapses Dec. 31 and cannot be renewed. Mr. Gould has stated that the syndicate had been organized and that work would be started as soon as the question of this permit was settled. The Gould project will be 111 miles in length, running straight across Maine from Washburn in Aroostook to Lake Frontier to connect with the Quebec Central and it will be wholly through virgin territory, opening up new land for farming.

More than a year ago an investigating committee recommended to the Interstate Commerce Commission the construction of 111 miles of electric railroad in Aroostook County, Me. At that time it was said that the new line would be known as the Quebec Extension Railway. The estimated cost was $4,000,000. Later a tentative report of the Interstate Commerce Commission by examiners opposed the project. This Maine project has been referred to previously in the ELECTRIC RAILWAY JOURNAL.

News Notes

Children's Rates Adjusted.—The California Railroad Commission has dismissed the application of the Santa Barbara & Suburban Railway, Santa Barbara, Cal., for authority to readjust special rates for school children. The matter was adjusted informally.

Kiwanis Club Honors Railway Man.—C. D. Smith, general manager of the Beaver Valley Traction Company, New Brighton, Pa., was elected president of the Beaver Falls Kiwanis Club at its recent meeting. The club was addressed by Judge W. A. McConnel, who discussed the "Underprivileged Child."

One-Man Cars Allowed.—The Public Service Commission recently granted permission to the Eastern New York Utilities Corporation, Albany, N. Y., to use new light-weight one-man safety cars. Evidence submitted to the commission showed that in 1922 the company operated with a deficit of $50,542; in 1923, $32,400; 1924, $39,093; in 1925, $54,501, and for the first ten months of 1926, $79,270.

Hot Time Promised in Baltimore.—Following complaints filed with the Maryland Public Commission, the United Railways & Electric Company, Baltimore, has agreed to increase the minimum temperature in its street cars from 40 to 45 deg. The commission passed an order calling for the 45-deg. minimum. The minimum of 40 deg. was established by the commission in 1916. New thermostat controls made necessary by the change are being installed as well as thermometers "to disprove charges of arctic temperatures."

Transit Aides in Conference.—City Solicitor Gaffney of Philadelphia, Pa., has assigned John B. Gest, an assistant city solicitor, to investigate the protests against the curtailment of service and operating policies of the Philadelphia Rapid Transit Company which were turned over to him by Mayor Kendrick. George L. Bright, special statistician and traffic engineer of the department of transit, will aid Mr. Gest in his work.

Extension Matter Up in St. Paul.—Extension of the Snelling Avenue line of the City Railway, St. Paul, Minn., ½ mile is to begin in the spring, as the company does not believe the court which ordered the extension will require construction in winter. The order is under an ordinance adopted by the city Dec. 30, 1924. The company contended that the extension would add about $18,000 to annual cost of operation without any substantial increase in revenue. Judge Charles Bechhoefer of the Ramsey District Court held the Council ordinance is a proper exercise of authority to compel necessary service. The company has forty days to appeal to the State Supreme Court.

New Disposition of Old Cars.—The Georgia Railway & Power Company, Atlanta, Ga., instead of burning its obsolete equipment has given away two of its cars to Frank Dabney and Frank Neely, Atlanta. More than twenty applications were received for the first two cars to be advertised. Mr. Dabney will set up his car in his front yard where it will be used as a meeting place for Boy Scouts and community ladies' clubs. Mr. Neely will present his car to a local orphans' home for a playhouse.

Plans Service Improvements.—A survey of the properties of the Macon Railway & Light Company, Macon, Ga., is now under way under the supervision of Horace Fligg, transportation engineer of the Atlanta office of the Georgia Light, Power & Railways Company, which controls the Macon property. It is expected that a considerable amount of new equipment will be installed.

Railway Man Honored.—Frederic H. Hill, vice-president and general manager of the Elmira Water, Light & Railroad Company, Elmira, N. Y., was recently elected president of the Association of Commerce to serve during the current year. In addition to his important position as vice-president and general manager of the Elmira property, he is associated with every local civic movement. The Elmira Advertiser of Dec. 21, commenting on his election, said that the saying "If you want something accomplished, get a busy man," was exemplified in the selection of Mr. Hill.

Time Extended on Freight Hauls.—The Salt Lake & Utah Railroad, Salt Lake City, Utah, will be allowed to participate in westbound transcontinental freight hauls until Feb. 12, 1927. The extension of time was granted the road by the Interstate Commerce Commission until it has time to make the final decision on the case to determine whether the railroad can participate in westbound transcontinental freight business. W. C. Orem, former president and now assistant to the receivers of the line, in explaining that the Salt Lake & Utah could not participate as an intermediate carrier in eastbound transcontinental freight hauling, pending the final decision, said it was apparent at the oral arguments before the entire commission at Washington that there was a discrimination against the Orem line and his company hoped for a favorable decision.

Skip-Stop Issue to Be Heard.—The committee on railways and franchises of the Baltimore City Council has postponed action on a resolution which has been introduced requesting the Maryland Public Service Commission to order the United Railways & Electric Company to discontinue the skip-stop system in operation in the morning and evening rush hours. The committee held a hearing on the subject on Dec. 20, at which several persons opposed the skip-stop. Philip B. Perlman, former City Solicitor of Baltimore, represented the United. He pointed out that the Public Service Commission had not concluded its investigation of the complaints it had received against the plan and for this reason the committee postponed action until Jan. 10.

Recent Bus Developments

Equitable Coach Favored

Bus Grants in New York to Be Considered Jan. 15—New York Railways Modifies Petition

A majority of the members of the Board of Estimate, New York City, N. Y., is said to have agreed on the awarding of franchises for bus operation in Manhattan, Brooklyn and Queens to the Equitable Coach Company. It is believed that the preliminary award will be made before Jan. 15. It must then be followed by four weeks of advertising and confirmed by the Transit Commission by the grant of a certificate of convenience. At the same time the board will grant a bus franchise for operation in the Bronx to the Surface Transportation Corporation, a subsidiary of the Third Avenue Railway. As far as Richmond is concerned, it is said that an attempt to award a franchise will be made soon after the franchises for the four other boroughs are finally determined.

The agreement was reached on a 5-cent fare zone basis. Long routes will be divided into 5-cent fare zones. In Manhattan, Brooklyn and Queens the Equitable company will charge 2 cents for transfers between intersection lines in the same zone. In the Bronx the Surface Bus Corporation will give free transfers between intersecting lines in the same zone. Each company will pay the city 3 per cent of the gross receipts from operation. The duration of the franchise will be for ten years with privilege of renewal for another ten years if operation is satisfactory to the city administration.

The Equitable Coach Company will operate 352 buses in Manhattan, 224 in Brooklyn and 196 in Queens. Its total investment for bus operation will amount to approximately $15,000,000. The equipment will include both single-deck and double-deck buses. The Surface Transportation Corporation will operate 81 buses in the Bronx with a total investment of about $1,500,000. It is expected both companies will begin the construction of garages and place orders for new equipment as soon as the franchise contracts are signed.

The sponsor of the Equitable Coach Company project is J. G. White & Company, Inc. According to the company's application that banking firm is responsible for both the financing and management of the Equitable Coach. Different groups of capitalists are mentioned as being interested in the Equitable project, but no definite information on this aspect of the situation is available.

The award agreement followed fast upon the statement of Mayor Walker that if no award on bus franchises were granted soon he would introduce a resolution to award the franchise at an open meeting. He said that there had been an unreasonably long delay since the bus report of the Board of Transportation more than three months ago. City authorities expected opposition by existing transit companies on the ground that some of the routes proposed by the Board of Transportation would compete with existing surface and bus lines. The Mayor has been told that he will receive up-state support in any attempt to eliminate the legal requirement for the issue of certificates of convenience and necessity by a state body, such as the Transit Commission or Public Service Commission, and to give each city in the state "home rule" in transit matters, including the establishment of new bus routes.

Following publication of the statement that a majority of the Board of Estimate had decided on the award just mentioned the Manhattan Surface Coach Company, affiliated with the New York Railways Corporation, sent a letter to the Board of Estimate on Dec. 28 amending its application for a Manhattan bus franchise by offering terms more favorable to the city than those in its earlier applications. It offered a 5-cent fare zone system exactly like that proposed by the Equitable Coach Company. In addition it offered to give transfers for 2 cents each to intersecting surface lines of the New York Railways system and asked a franchise for only four years. This letter, signed by H. J. Sheeran, president, follows:

On May 19, 1926, the Manhattan Surface Coach Company, a subsidiary of the "New York Railways Corporation," amended its application No. 1 for a franchise to operate buses in Manhattan to provide for a 5-cent zone fare system. The zones proposed and the fare proposed by the Manhattan Surface Coach Company were in all respects exactly identical with those proposed by the Equitable Coach Company in Manhattan, excepting that the latter company proposed no zoning on First or on Park Avenue.

We now propose to further amend our application No. 1 for a franchise to operate buses in Manhattan so as to make the fare to be charged and the zones to be established in Manhattan exactly similar to those proposed by the Equitable Coach Company in its several petitions dated Nov. 18, 1925; Feb. 13, 1926, and June 21, 1926.

In addition, we further amend our application No. 1 so that in addition to the transfer privileges set forth in the proposal of the Equitable Coach Company, all of which we hereby incorporate in this amended proposal, we will also provide for the exchange of transfers upon the payment of 2 cents at all intersections of the proposed bus routes with the existing railway lines of the New York Railways Corporation, so that a passenger, upon the purchase of a single transfer for the sum of 2 cents, may have the alternative of using that transfer on either an intersecting bus line of the Manhattan Surface Coach Company or an intersecting trolley line of the New York Railways Corporation.

Thus our application is more favorable to the city and the public than that of any other company, as no other company is in a position to give this interchangeable service.

We further point out that we have applied for a franchise for only four years, with a privilege of renewal for a further term of four years, as against a ten-year application of the Equitable Coach Company, with a right to renew for ten years.

As to our financial responsibility, we, together with the Fifth Avenue Coach Company, which will assist in the financing and operation of the system, have today on hand or in bank $4,200,000 in cash and liquid securities and have ample resources worth many millions of dollars and ample credit to permit us, without any further financing of any kind, to establish the system.

We are able to put a complete bus system into operation immediately and will have the personnel, garages already established and experience of the Fifth Avenue Coach Company to draw upon.

The New York Railways Corporation has been in existence in New York many years and has millions invested in its properties on which its security holders have had but scant return. Last year it carried approximately 146,000,000 passengers. To award the bus franchise to an outside company and divert millions of passengers away from it would further very materially cripple the road and its ability to be of service to the public. It has now under way a rehabilitation program calling for the expenditure of upward of a million dollars, and if given a fair opportunity will do its best to enlarge that program.

The New York Railways Corporation has no interest whatever or any affiliation with any other surface car lines or rapid transit lines in New York City, and none of its stock or the stock of its affiliated companies is owned or controlled by any existing surface lines or rapid transit lines in the City of New York or by any of the persons in control of those companies. It is an entirely independent transportation agency.

We feel that our company with its large investment and extensive operation, which it has labored so hard to maintain in the face of increasing difficulties, is entitled to and will receive the utmost consideration from those who are safeguarding the interests of the people, both who use these lines and whose investments lie in these properties.

Receiver for Purple Swan Line

The Purple Swan Safety Coach Lines, Inc., operating in and around East St. Louis, Ill., has just been placed in temporary receivership. Circuit Judge Calhoun appointed William H. Schaumberg, an attorney, to the post. A hearing on a permanent receivership will be held on Jan. 6. Allegations were made that the company had outstanding debts of more than $250,000. The company has expanded rapidly since last June and now is carrying an average of 2,000 passengers a day. Its main lines emanate from St. Louis to Kansas City, Chicago and Indianapolis. The president is J. H. Darlington, Louisville, Ky. As indicated in the ELECTRIC RAILWAY JOURNAL, issue of Nov. 13, 1926, page 905, some of the Purple Swan lines were operated in competition with the Blue Goose line, owned and operated by the East St. Louis & Suburban Railway.

Railway's Subsidiaries in Baltimore Consolidate

Under the provisions of an order passed by the Maryland Public Service Commission, the four bus companies in Baltimore controlled by the United Railways & Electric Company have been consolidated under the name of the Baltimore Coach Company. At the same time the commission authorized the newly organized company to issue 5,000 shares of common stock without par value and granted permission for the United Railways & Electric Company to acquire all the capital stock so to be issued in exchange for all the shares of stock in the four companies which go to make up the new concern.

The change means the consolidation of the bus lines operated by the United into one concern controlled by the railway. The four consolidating companies are the Baltimore Transit Company, the City Motor Company, the East Fayette Street Bus Company, Inc., and the Baltimore Bus Company.

Bus Bill Planned by Louisville

Regulations similar to those proposed two years ago will be written into a bill for jitneys, buses and other transportation conveyances, it was said recently, by the Public Utilities Bureau of Louisville, Ky. The measure would be substituted for the bill introduced a short time ago in the General Council.

The new bill would require registration of jitneys and their drivers, ownership including the number of persons having financial interest in the transportation concern; would require a declaration of the rate of fare, the routes to be operated on and the terminals; would demand the establishment of a fixed schedule and other operating points.

The bill also would demand a blanket insurance of $50,000, it was said, provided the jitney owners establish an organization, or $2,000 for each operator provided the blanket license cannot be arranged. The jitneys would be placed under the Board of Public Works. Permits, which would have to be obtained, could be revoked for cause, such as conviction of traffic laws or other laws, and would establish other minor regulations.

Bus Activity of Great Northern Curtailed

The Northland Transportation Company, a bus subsidiary of the Great Northern Railway, has been given conditional permission by the Minnesota Railroad and Warehouse Commission to discontinue through bus transportation between Minneapolis and St. Paul Jan. 1, 1927. This service was operated at a heavy loss. It is provided that the company enter into an operating arrangement with other bus companies for transferring and transporting all incoming and outgoing passengers between St. Paul and Minneapolis holding tickets to the other cities on scheduled vehicles of the Twin City Motor Bus Company, Jefferson Highway Transportation Company and the Twin City & Southern Bus Company.

This removes fifteen buses leaving St. Paul and twelve from Minneapolis, and leaves ten from Minneapolis and nine from St. Paul. Pick-up service between the Twin Cities is permitted the Twin City Motor Bus Company only, so that the Northland company gained no revenue from this source. Notwithstanding strong protest by St. Paul business interests, the commission found the service which is to be discontinued not required by public convenience and necessity.

Chicago Bus Hearing Continued

A new type of bus, designed to be used in Chicago, Ill., if the Chicago Motor Coach Company secures a franchise from the city for city-wide operation, was described to Alderman John Toman's sub-committee of the City Council's local transportation committee at the hearing on Dec. 21. As a result the committeemen decided to visit the coach company's plant and inspect the new vehicle. So the meeting adjourned to Dec. 28 after John A. Ritchie, president, and James G. Condon, attorney of the motor coach company, had answered questions from the committee members.

Gary Railways Asks Right to Operate Additional Bus Lines

Permission to establish a new de luxe type of motor coach service on Broadway, Gary, Ind., between 52d Avenue and the New York Central station, was asked on Dec. 16, in a petition filed with the Indiana Public Service Commission at Indianapolis by the Gary Railways. The plan as set forth in the company's petition is in answer to repeated requests from residents of the far south side of the city for faster and more comfortable service to the downtown district. In case the authority is granted by the commission, the company proposes to put into immediate effect an hourly limited stop service between these two points. The schedule is arranged primarily to afford convenient connection with all South Shore Line express trains for the Chicago Loop. For this superior type of coach service a fare of 15 cents is contemplated. No transfers will be issued.

In another petition filed with the commission the Gary Railways seeks permission to extend its present coordinated bus and railway service into the southwest portion of the City of Gary, many blocks in which are now without adequate transportation. The purpose of this project, as stated in the petition, is to place all homes in that section within a quarter of a mile or less of either street car or bus service. This new coach service would be provided with the present city-type of bus between 6 and 9 a.m. and 3 p.m. and 7 p.m. A 10-cent fare will be charged and transfers will be issued and accepted to and from connecting trolley and coach lines of the company.

Would Operate Buses.—The Tennessee Electric Power Company recently asked permission of the State Railroad and Public Utilities Commission to operate buses on the streets of Chattanooga, Tenn. The commission took the request under advisement. The city of Chattanooga and Hamilton County have already approved the terms under which the company proposes to install the service.

Reports Unfavorably on Bus.—A proposal from the York Township Council that the Toronto Transportation Commission provide a bus service in the Silverthorn district was reported upon unfavorably by D. W. Harvey, general manager of the Toronto Transportation Commission, because of the lack of patrons. The township Council decided to ask the Toronto Transportation Commission for a report on what the probable loss would be on such a service with a view to having it established if the loss would not be too great. Mr. Harvey also reported unfavorably on a proposal to replace car service by bus service on Lambton Street car line between West Toronto and Lambton, a distance of 1 mile. He claimed the change would mean financial loss to the township, which would have to continue paying charges on the car line whether or not it was operated.

Buses Substituted.—The Pubilc Service Commission on Dec. 14 authorized the Westchester Street Transportation Company, Inc., to substitute buses for cars upon tracks on a portion of its route in the city of White Plains, from the New York Central tracks on Main Street in White Plains, N. Y., to the dividing line between the village of Scarsdale and the city of White Plains. The White Plains situation was reviewed in the Third Avenue Railway report.

Would Extend Line.—The Key System Transit Company, Oakland, Cal., has applied to the Railroad Commission for a certificate to operate bus service as an extension of its Fernside bus line from the intersection of East Fourteenth and High Streets to the intersection of Ygnacio Avenue and High Street, Alameda County.

Buses Supplement Railway Service.—The Kentucky Utilities Company has recently placed three large buses in service in Paducah, Ky. This service supplements the present local railway system of the company.

Reports Favorably on Buses.—The Lincoln Traction Company, Lincoln, Neb., reports satisfactory experience with the buses it has been operating for some weeks as a substitute for and a complement to railway service. During the first two weeks of operation of the bus line to the state penitentiary, located in a suburb 4 miles from the business center, the revenues were $446 and for the second two weeks, $606, an increase of 35 per cent. Weather conditions were about the same as last year, and the number of persons hauled was about the same as the railway carried a year ago. On bus lines operated to the Agricultural College and University Place, northeast suburbs, the first eight days of operation brought revenues of $462, and the next eight days, $552, a 20 per cent increase.

Commission Order Calls for Buses.—The Public Service Commission has approved the petitions of the United Traction Company asking for the abandonment of portions of its route in the city of Rensselaer, N. Y., on Broadway and Aiken Avenue and also the Third Street line. The orders of the commission provide that the United Traction Company, on direction of the Common Council of the city, remove all of its existing structures from the streets affected and restore the portions to as good condition as the adjoining parts of said streets are at present. These orders are not to take effect unless and until the United Traction Company files with the commission an agreement to the effect that, by and with the consent of the city of Rensselaer and of the commission, transportation will be furnished to the territory now served by the portion of the route to be abandoned by means of buses with the same rate of fare and transfer privileges as are in force on the railway, and with an interval of service not greater than that which is now maintained on the Broadway and Aiken Avenue line and on the Third Street line.

Financial and Corporate

Surplus of $94,031 on New York State Lines

The report on operation of the Rochester lines of the New York State Railways for the year ended July 31 last, submitted to Mayor O'Neil and the Common Council on Dec. 14 by Commissioner of Railways Charles R. Barnes, shows a surplus of $44,897 above the return provided in the service-at-cost contract between the railways and the city. A surplus of $94,031 is shown in street car operations and a deficit of $49,134 from bus and trackless trolley operations. The balancing fund which regulates the rate of fare showed an accumulated deficit of $281,338 as of July 31.

Commissioner Barnes in his report emphasized the steady decrease in passenger revenue owing to the increased use of the automobile and pointed to the increased expenditures because of pavement repairs and new paving, in addition to track renewals. seriously and adversely than any other agency by the problems arising from the increased use of the automobile, especially in the business section. The problem was new and one born of modern conditions, and thus far it had not been met successfully. Free movement of street cars as well as the safety and convenience of automobile riders required and would require, in the future, an increasing amount of careful and earnest attention.

Regarding paving costs, Commissioner Barnes said it was well known that where new paving was laid in the city street or where repaving took place the cost of paving within the operating strip and 2 ft. outside on either side was borne by the transportation system. He referred to the general injustice of that situation, due to the fact that this paving surface was used entirely by automobiles and not by street cars. It was felt the Legislature ultimately would adopt corrective measures.

SUMMARY OF REPORT OF ROCHESTER LINES

	Railways	Bus Lines	Combined
Revenues from Transportation:			
Passenger revenues	$5,128,665	$88,235	$5,216,901
Chartered car revenues	2,700	.....	2,700
Bus rentals	.....	906	906
Mail revenues	82	.....	82
Miscellaneous transportation revenues	2,062	127	2,190
Total revenue from transportation	$5,133,511	$89,269	$5,222,780
Revenue from other railway operations:			
Station and car privileges	$55,167	.....	$55,167
Rent from tracks and facilities	37,453	.....	37,453
Rent from buildings and other property	14,771	.....	14,771
Total revenue from other railway operations	$107,391	.....	$107,391
Total operating revenues	$5,240,902	$89,269	$5,330,172
Operating expenses:			
Way and structures	$474,883	$1,484	$476,367
Equipment	367,868	27,774	395,643
Power and gasoline	284,229	11,356	295,585
Conducting transportation	1,699,268	34,359	1,733,627
Traffic	14,416	3	14,419
General and miscellaneous	551,444	32,201	583,645
Renewals and depreciation	215,000	19,401	234,401
Total operating expenses	$3,607,110	$126,580	$3,733,691
Net operating revenues (deficit)	$1,633,791	$37,310	$1,596,480
Auxiliary operating revenues	$3,023	.....	$3,023
Auxiliary operating expenses	3,776	.....	3,776
Auxiliary operating deficit	$753	.....	$753
Net revenue—All operations (deficit)	$1,633,037	$37,310	$1,595,726
Taxes assignable to operations	375,691	1,469	377,160
Operating income	$1,257,346	$38,779	$1,218,566
Non-operating income	10,261	.....	10,261
Gross income	$1,267,607	$38,779	$1,228,827
Return on investment	1,173,575	10,354	1,183,229
Service-at-cost operating surplus or deficit	$94,031	*$49,134	$44,897

* Deficit.

Passengers carried during the year totaled 95,499,202, a decrease of 2,333,395 over the preceding year. While trolley riders declined by 2,619,673, passengers on buses and trackless trolleys gained by 286,278. The fewer car riders were served by 132,764 more car-miles than in the previous year. The operating system, according to the report, now embraces 169.14 miles of railway trackage, 2.75 miles of trackless trolleys and 53.55 miles of bus routes.

Anent the automobile problem, the commissioner said that the trolley system was naturally affected more

New York Companies Merged

The Eighth & Ninth Avenue Railway, New York, N. Y., formed by consolidation of the Eighth Avenue Railroad and the Ninth Avenue Railroad, has been chartered at Albany with 58,000 shares non-par value. Joseph Tate, Plainfield, N. J.; William Henry Hays, New York City, and James G. Affleck, Yonkers, N. Y., are directors and subscribers. Michel Kirtland, New York, is attorney.

The joint petition for the consolidation was referred to in the ELECTRIC RAILWAY JOURNAL, issue of Dec. 18.

$8,672,135 Probable Expense in Cincinnati

The estimated expense for the operation of electric cars and motor coaches by the Cincinnati Street Railway, Cincinnati, Ohio, in 1927 aggregate $8,672,135. The budget of the company has been approved by Edgar Dow Gilman, Director of Utilities, with two reservations.

The budget shows a probable loss of approximately $126,000 in the operation of buses, and on that point the director says, "steps will be taken as soon as practicable so to change the condition as to make motor coach operations more nearly self-supporting." It was indicated that certain lines which parallel railway routes may either be discontinued or the fare increased so that the deficit in their operation will not be charged to the electric car riders. Mr. Gilman also comments upon the fact that no allowance is made in the budget for depreciation. It is understood, he said, that it is the purpose of the company to refund the Cincinnati Traction Company equipment trust certificates falling due in 1927 by the issuance of other securities as is provided for in the franchise. This is not in accordance with the policy of the director that the basic principle to be observed in making proper charges is to keep the capitalization as nearly as possible equal to the physical value. The refunding of these certificates does not reduce the liability of the company and the capitalization remains constant, although there is a continued depreciation in the physical value. The operating expenses as indicated in the budget are as shown in the accompanying table.

CINCINNATI STREET RAILWAY OPERATING EXPENSES

Way and structures	$ 926,122
Equipment	797,135
Power	951,472
Conducting transportation	2,990,438
Traffic	42,600
General and miscellaneous	631,481
Total	$6,339,248
Rental of viaducts	6,500
Taxes	734,798
Fixed charges	403,492
Return on capital	1,188,097
Total	$8,672,135

Chicago City Railway Hopes to Escape Receivership

Less than 24 hours after the Chicago Railways had passed into the hands of receivers Leonard A. Busby, president of the Chicago City Railway addressed a letter to the local transportation committee of the City Council in which he announced his company's willingness to accept a six months extension after Feb. 1, on whatever terms the city chooses to make. Mr. Busby made no direct comment on the receivership of the Chicago Railways. In illustrating his contention that a receivership for the south side lines would not be warranted, Mr. Busby pointed out that the Southern Street Railway—one of its component parts—had no indebtedness of any kind and that the present earnings of the other two units of his lines compared with

their bonded indebtedness created a favorable situation. Although the first mortgage bonds of these properties mature on Feb. 1, most of them have been deposited with protective committees which are a unit in not desiring a receivership, he said.

In expressing his willingness to negotiate with the city for an ordinance covering the extension, Mr. Busby said in his letter:

I consider this step necessary and desirable, both from the standpoint of the public and the security holders. The six months period will enable the city and the companies to complete their existing negotiations and will also give the city an opportunity to procure enabling legislation at the next session of the Legislature which will be necessary to make effective the ordinance now being drafted for a unified and comprehensive transportation system for the city.

Speaking for the south side lines, I wish to advise that we will accept an extension of our present ordinances for a period of six months.

With reference to a receivership for the south side properties, we desire to advise that it is the intention of the management of the various protective committees representing security holders to do everything in our power to prevent a receivership following the maturity of some of our securities next February. We feel that if the holders of these securities co-operate with us by depositing their securities we will be able to avoid a receivership.

One-Third of P.R.T. Stock Owned by Employees

The co-operative wage fund trustees of the Philadelphia Rapid Transit Company, Philadelphia, Pa., purchased 25,000 shares of the company's stock during 1926 at a cost of approximately $42 a share after crediting dividends received and paying four quarterly dividends. This statement was made by President Hauseman of the association in *Service Talks* of Dec. 17, 1926. The total company stock in possession of wage fund amounts to 221,500 shares, which added to 10,000 shares of co-operative association gives employees ownership of one-third of their work shop. A co-operative wage fund participation certificate similar to those issued for the years 1922 to 1925 will be given early in 1927 to each employee certifying the number of shares of P.R.T. stock represented by the amount of his 1926 co-operative wage and held in trust by the co-operative wage fund trustees who will vote the total amount of 221,500 shares at the stockholders' annual meeting next March. President Slook of the co-operative association saving fund said that the company's saving fund had just passed the $2,700,000 mark, an increase of $100,000 for the year, and now has 11,202 depositors, the largest number.

W. R. Smith was elected president of the saving fund for 1927 and James Shivers vice-president.

Commission Approves Sale.—Formal approval by the Indiana Public Service Commission of purchase by the Fort Wayne-Lima Railroad of the Fort Wayne, VanWert & Lima Traction Company, recently bid in at a receiver's sale at approximately $150,000, was asked in a petition filed with the commission by the former company. The petition also asked approval of $100,000 in first mortgage bonds, $441,000 in general mortgage bonds and 10,290 shares of no par value stock. Reference to the sale of the property was made in the ELECTRIC RAILWAY JOURNAL, issue of Dec. 11, 1926, page 1070.

Director Elected at Nashville. — James E. Carnes has been elected a director of the Nashville Railway & Light Company, Nashville, Tenn. He started with the corporation as messenger, and rose to the post of assistant to the vice-president.

More Money to Meet Indebtedness.— The California Railroad Commission has authorized the Key System Transit Company, Oakland, Cal., to use the proceeds from the sale of $777,161 of its first mortgage 6 per cent bonds, to pay indebtedness, instead of $770,161 as heretofore authorized.

Net Income Lower. — For the five months period ended Nov. 30, 1926, the passenger revenue of the Brooklyn City Railroad, Brooklyn, N. Y., was $4,687,521, against $4,687,117 for a similar period in 1925. Operating expenses and taxes showed a slight increase, being $4,011,721 for the five months ended Nov. 30, 1925, and $4,030,775 for the five months of 1926. After the consideration of income deductions, the net income for the 1926 period was $530,821, against $574,741 for the 1925 period.

Would Discontinue Last Trolley Line. —The City Council of Westfield, Mass., will take no action until 1927 on the petition of the Springfield Street Railway asking for permission to discontinue the one remaining trolley line in the city. No action by the bus license committee is expected, and as the railway plans to substitute bus service the matter will be shelved for the time being. A short time ago the Springfield Street Railway was granted licenses to operate several bus lines in Westfield, but experienced some difficulty in securing licenses. The service supplied by the bus lines since then has been excellent.

Would Discontinue Line.—The Portland Electric Power Company, Portland, Ore., recently filed a petition with the Public Service Commission asking permission to discontinue service on the Montavilla-Ruby Junction-Troutdale division of its lines. The company declared that this division was not profitable and that the deficit for the year 1925 was approximately $34,750; for the first ten months of this year the deficit was $34,074. It was also pointed out that the line was now in such a state that to continue it would require from $20,000 to $25,000 for roadbed and equipment repairs. If the petition was granted the company would care for its freight business through other connections.

Net Income Higher. — For the five months period ended Nov. 30, 1926, the total operating revenue of the Brooklyn-Manhattan Transit System, Brooklyn, N. Y., was $19,360,241, against $18,636,972 for a similar period last year. The total operating expenses increased from $12,044,740 to $12,347,806 in 1926. Following the consideration of total income deductions, a net income remained of $2,811,337, against $2,514,803 for the five months period ended Nov. 30, 1925.

Big Business in South Bend. — An indication of the large volume of business done during the Christmas holidays in South Bend, Ind., is given in figures compiled by the Chicago, South Bend & Northern Indiana Railway. The Saturday before Christmas all records were broken, with a total of 71,267 passengers handled, the day being the largest in the history of the company. Passenger traffic on interurban lines into the city also was very heavy.

Reports Loss.—Franklin T. Miller, receiver, has produced his seventh report on the operations of the Boston & Worcester Street Railway, Framingham, Mass. The operating revenues exceeded operating expenses from July 1 to Sept. 30 by $6,400. Taxes and interest, however, exceeded this amount by nearly $1,500. The receiver's report from Feb. 11, 1925, to Sept. 30, 1926, the total of the period of receivership, shows a net loss of $49,969.

Rainier Purchase Planned.—A campaign for the purchase of the Seattle & Rainier Valley Railway lines by the city of Seattle, Wash., has been undertaken by residents living in the Rainier Valley, who have started the groundwork for plans by which they hope to center the attention of every voter on the railway purchase issue at the election next March. The Rainier Railway Purchase League has been formed to handle the campaign, with Charles Weedin chairman. A purchase of the railway already has been authorized by the City Council and a deal consummated whereby the valley line is to become a part of the local municipal system in the city of Seattle, payable in fourth lien utility revenue bonds. A referendum was invoked soon after the purchase ordinance was enacted, and the Council's action must go to the people at the city election next March for ratification or rejection. Meantime, the citizens of the valley interested in the matter declare, real estate values are being held back because persons going into the valley on street cars have to pay 10 cents when they desire a transfer. D. W. Henderson, superintendent of the Seattle Municipal Railway, declares that $200,000 additional revenue would accrue to the department if it operated the valley line. It is also pointed out that the tracks on Fourth Avenue, now used exclusively by the valley line, are greatly needed in the downtown traffic system of the municipal railway.

Deficit on Interborough. — For the five months ending Nov. 30, 1926, the total revenue from all sources of the Interborough Rapid Transit Company, New York, N. Y., was $24,322,310, a decrease of $331,219 over the corresponding period of 1925. Expenditures for operating and maintaining the property increased $761,630. Taxes payable to the city, state and the United States increased $119,657. Rentals and other income deductions increased $36,120. The net results for the five months was a deficit of $1,292,097. This is $1,248,627 greater than the deficit for the corresponding period in 1925. The comparison with 1925 is influenced by the strike during the month of July, 1926, as well as the fact that in July, 1925, there was a lump sum payment of $770,000 on account of the new advertising contract, against which there was no similar payment this year.

Chicago Will Intervene

City Plans to File Petition in Chicago Railways Receivership—Mayor Insists Public Interests Be Protected

Alarm over the possible repudiation of the contract which insures the city of Chicago 55 per cent of the net earnings of the Chicago Surface Lines as a result of the receivership of the Chicago Railways evoked an immediate order from Mayor William E. Dever to Corporation Counsel Francis Busch to take whatever steps in this crisis were deemed necessary to protect the public interests.

Mayor Dever later seemed impressed with the sincerity of the receivers' statement that they would not take any action which would interfere with the present Surface Lines operation or tend to disrupt the existing contracts between the city and the companies as to unified operation, universal fares, paving and street cleaning obligations, etc.

City Attorney Busch subsequently announced his intention of filing before Jan. 1 an intervening petition with Federal Judge James C. Wilkerson, who appointed the three receivers, advising the court of the interests of the city in these features of the expiring franchises so that in event of proceedings relating to the receivership being started the city may be given a chance to present its side. Mr. Busch said:

The order of the court directs the receivers to continue the Surface Lines' joint operating agreements, including a single fare over the entire system and universal transfers. Also it authorizes the receivers to seek instructions from the court in regard to negotiations with the other surface lines for continuance of a unified service after Feb. 1. But it says nothing about the contract rights of the city under the 1907 ordinances.

Picturing the situation as it will probably stand on Feb. 1, when the present franchises expire and the bonds fall due, Mr. Busch said:

Of course the cars will be running, either with some agreement or without. The courses left open at the expiration of the 1907 ordinances 45 days from now are set up in the franchise as follows:

1. The city may buy the lines. But the city hasn't got the price.

2. The city can designate a purchaser to which the companies must sell the properties on the same terms upon which the city might purchase. This is, if such a sale is after Feb. 1. If before Feb. 1, 10 per cent is required to be added to the purchase price. The Lisman plan comes under this possible procedure.

3. The city can stop the running of the surface cars and decide to put on some other vehicle of transportation. The proposal of the Chicago Motor Coach Company to substitute buses for the trolley cars comes under this.

4. The city can grant a franchise to the companies, not exceeding twenty years. The proposed six months extension of the expiring contract ordinance comes under this. Or an ordinance could be passed subject to a referendum of the people of Chicago, subject to subsequent legislation modifying the twenty-year limitation.

If Feb. 1 comes without a six months extension the city could pass an ordinance allowing the cars to run from day to day subject to cancellation, or it could do nothing at all but let the cars run on suffrance. So far as concerns the west and north side lines under receivership, it would be up to the court to determine whether the city's rights, such as the 55 per cent of the income, the paving of the street car lines, and the street cleaning, should continue, while with the other companies it would be a matter of voluntary contract.

Then the question of acquired rights might enter. In cases in other states, it has always been claimed that by letting them run some rights are acquired by the companies. So it is far better to have a definite stipulation such as a six months extension of the present franchises would give. We hold no rights are acquired in any event.

Chairman Joseph B. McDonough of the local transportation committee pretended to see in the receivership "just another crack at home rule." He said that "the north side lines want to gum things up and deal with the State Legislature instead of with the City Council."

In the opinion of Alderman Jacob M. Arvey, administration leader in the City Council, the receivership of the Chicago Railways has reacted in favor of the plan of the F. J. Lisman interests of New York for the settlement of the traction problem. This plan, in the form of a tentative ordinance, is now before the local transportation committee.

Wage Increase Alone Outstrips Increased Fare Earnings

Increases in rates of fare between 1915 and 1925 from 5 cents to 7 cents, and in some cases even 8 cents or 10 cents, and an increase of 3 per cent in revenue passengers carried during that ten-year period were not sufficient by $268,000 to permit the sixteen electric railways in Missouri to meet increases in wages alone for the same period, although operating expenses, other than wages and taxes, were reduced $2,179,063 in 1925 under 1915, according to a statement made by the Missouri Committee on Public Information.

Item	Year 1915	Year 1925	Increase 1925 Over 1915	Per Cent Increase
Total operating revenue	$21,631,634	$30,565,527	$8,933,893	41.2
Total operating expenses	14,483,464	22,479,257	7,995,793	56.1
Net operating revenue	7,148,170	8,086,270	938,100	13.1
Total wages paid	7,022,809	16,224,408	9,201,599	131.0
Total taxes paid	1,464,633	2,437,790	973,157	86.5
Other operating expenses	5,996,022	3,816,959	(2,179,063)*	36.3*
Average number of employees	9,339	10,035	696	7.5
Average annual wage	752	1,617	865	114.0
Wages to total expenses, per cent	48.6	72.5	23.9	49.2
Taxes to total expenses, per cent	10.1	10.8	0.7	6.9
Total fixed capital investment	188,260,986	183,417,494	(4,843,492)*	2.6*
Net revenue in per cent fixed capital	3.8	4.25	0.45	11.8

* Decrease.

The survey covered all sixteen electric railways in the state. The data contained in it were taken from reports made by the companies to the Public Service Commission.

Comparisons brought out in the summarized figures for the two years are contained in the accompanying table.

"Due to the increased cost of living the increase of wages paid were, no doubt, fully warranted," the committee states, "but it is apparent that the fare charges did not permit, in 1925, a proper return over and above increased wages and taxes, even though the economies and improvements effected in all other operating costs, and in the service generally, produced a reduction in operating expenses of $2,179,063, or 36 per cent during this ten-year period."

The increase in total revenue of $8,934,000 was insufficient by $268,000 to meet the increase of wages alone of $9,202,000 during that period, while increases in taxes added a further deficit of $973,000 during the same period.

Diminishing Traffic Forces Indiana Line to Cut Service

The Hammond, Whiting & East Chicago Railway, which operates approximately 33 miles of track in the city of Chicago and adjoining communities in Lake County, Ind., has announced its intention to reduce service on the line between Hammond and East Chicago, Ind. This line has been making a valiant fight against jitney and motor coach competition for several years, but riding has become so light the company is compelled either to alter the service or suspend operations altogether. The present ten-minute service during morning and evening rush hours will be maintained, but during the rest of the day the present twenty-minute service will be cut to a car every hour.

According to Charles E. Lawrence, general manager of the road, riding fell off sharply five years ago when the streets of Hammond were swarming with jitneys and for a time the company could not make expenses. Conditions improved slightly after jitneys were ruled from the streets and an orderly motor coach service was installed, but by no means approached the old pre-jitney status. Most of the day's business is done during the morning and evening shifts at local industries, with a slight pick-up around noon. Mr. Lawrence believes that by cutting down off-peak service the company can minimize costs without any appreciable decrease in gross business.

Hearing on Abandonment Concluded

Hearing upon that part of the petition of the Hudson Valley Railway for permission to abandon the Lake George-Warrensburg part of its road was closed before the Public Service Commission recently and James McPhillips of Glens Falls, representing the company, and James E. Kiley, also of Glens Falls, representing the town of Warrensburg, were given three weeks in which to file briefs. Evidence by officials of the electric railways was to the effect that the Delaware & Hudson Company's last dividend was 9 per cent; that the controlling interest in the Hudson Valley Railway was held by the United Traction Company, and that controlling interest in the latter was held by the Delaware & Hudson Company. J. King Gillingham, an employee of the electric railway, said that with slight replacements the track of the railway would be in fairly good condition. Final hearing was also held on the company's petition for abandonment of that portion of its line between Thompson and Greenwich.

Legal Notes

ALABAMA.—*Ejection of Passenger After Time Limit on Transfer Ticket Has Expired.*

A passenger who attempted to ride on a transfer ticket whose time limit had expired was ejected, without unnecessary violence, by the conductor. He claimed that he had been unable to secure passage upon any car passing the given point within the life of the transfer. It was held that this failure did not entitle him to ride on an expired transfer and he could not sue for wrongful eviction. His remedy was to sue for the negligence of the company in issuing an improper transfer or in failing to furnish cars on which the transfer might have been used within its time limit. [Birmingham Electric Co. vs. Putnam, 109 Southern Rep., 890.]

ILLINOIS.—*Application for Relocation of Railroad Should Prove Convenience and Necessity for Road Actually Giving Service.*

The North Shore Connecting Railroad was organized by the Chicago, North Shore & Milwaukee Railroad to unite two existing sections of its line by a cut-off which would eliminate the necessity of the latter road operating over certain city streets in Evanston. Its petition for right to build this line was granted by the Illinois Commerce Commission, but the action of the commission was reversed by the Illinois Supreme Court on the ground that the North Shore Connecting Railroad itself was not authorized to serve the public by operating trains and that it could not remove the tracks now on the city streets in Evanston. The proper method for securing the change would be for the operating railroad in its own name to petition the Commission for relocation and to prove that the relocation would serve the public interest. [Roy et al., vs. Illinois Commerce Commission, 153 Northeast. Rep., 648.]

MONTANA. — *Legal Speed of Cars Changed by Ordinance.*

A city council passed an ordinance permitting trolley cars to operate at a higher speed than was originally allowed in the company's franchise. After an accident, the plaintiff charged that the trolley car was running at a higher speed than was permitted in the franchise, but as this speed was not greater than that allowed by the ordinance, the latter was held to be controlling and the company was not responsible. [Varn vs. Butte Electric Railway, 249 Pacific Rep., 1070.]

OHIO.—*Low Revenue of Traction Company Should Be Considered in Grant of Parallel Route.*

The East End Traction Company protested against the grant of a motor bus franchise in the territory served by it, and proved that it had made no net revenue over operating expenses and taxes for the previous five years. The Public Utilities Commission should have given some consideration to this fact, in so far as the depletion of the company's revenue might necessitate a further abandonment of the traction line altogether. Hence, the grant of the motor bus franchise by the commission was reversed. [East End Traction Co. vs. Public Utilities Commission, 152 Northeast. Rep., 20.]

NEW JERSEY.—*Collision of Automobile with Pillar of Elevated Railway.*

A person driving an automobile at night collided with the pillar of an elevated railway structure, and brought suit against the company on the ground that the pillar was a nuisance and should be illuminated at night. The Court decided that as the elevated road was built pursuant to authority, it was not a nuisance and the public must take note of the presence of the pillar in the street, and in the absence of any requirement by statute or ordinance requiring illumination, the railroad was not obliged to illuminate them. [Lorentz vs. Public Service Railway, 134 Atlantic Rep., 818.]

NEW YORK.—*Bus Franchises Upheld.*

An injunction restraining the city of Yonkers from awarding certain franchises or consent for the operation of motor bus routes was denied in spite of various objections raised by the Yonkers Railway Company, including the following: That the Board of Estimate should approve the grant, that all bidders were asked to waive objections to the reasonableness or legality of any provisions of the contract, that at the expiration of the franchise there could be renewal for ten years under certain conditions, that the city may take over the franchises for municipal operation, that certain clauses provide for summary forfeiture of the franchise without recourse to proceedings at law or equity and that approval must be received from the Public Service Commission. [Yonkers Railways vs. City of Yonkers, 217 N. Y. Supp., 686.]

OREGON. — *Power of Public Service Commission over Carriers.*

In 1921 the state passed an act regulating motor vehicles operated for compensation over public highways, defining what constitutes transportation, compensation and transportation companies. A section of the act forbids any concern, as defined in the act, to operate any motor vehicle for transportation of person or property, for compensation, on any public highway of the state, without first having obtained a permit from the Public Service Commission but authorizes the commission to exempt from the operation of the act the transportation of freight or passengers by motor vehicles in rural communitites if not done on a commercial basis. The court held that on the basis of a reasonable classification in the exercise of the police power, the legislature may regulate the use of highways and may even forbid the use of them for some purposes, but in the present act there is nothing in the statute relating to the use of the highways. The commission is given arbitrary power to apply the act when and where it will be governed only by its own discretion. Hence, the commission was enjoined against interfering with the business of the defendants. [Purple Truck Garage Co. et al., vs. Public Service Commission. 250 Pacific Rep., 213.]

PENNSYLVANIA. — *Municipal Railway Property Taxable.*

The city of Philadelphia built an elevated railway on Frankford Avenue and a surface line to Bustleton and leased them to the Philadelphia Rapid Transit Company for five years at a fixed rental. A tax assessment in favor of the Commonwealth against the Philadelphia Rapid Transit Company for these properties was upheld on the ground that the property of a municipality used for purely private purposes is not exempted from tax, although that used for governmental purposes is not taxable. [Commonwealth vs. Philadelphia R. T. Co., 134 Atlantic Rep., 452.]

RHODE ISLAND.—*Right-of-Way at Street Intersections.*

The driver of a carriage or automobile, proceeding at a reasonable speed, who reaches a street intersection in time to go safely across the tracks in advance of an approaching car, has the right-of-way. Hence, a railway company was held responsible when its trolley car ran into an automobile which became stalled on the track while trying to cross when the electric car was about 100 feet away. [Hassam vs. United Electric Railways, 135 Atlantic Rep., 36.]

TEXAS.—*Duties of Street Railway to Keep Boarding Places for Cars in Good Condition.*

The charge by the trial court, that it is the duty of a common carrier to maintain a boarding place or platform "in a reasonably safe condition and repair," places upon it greater responsibility than the law requires. For all accidents occurring at a boarding or alighting place outside of the area which the railway company was required by law to keep in repair, it was not responsible. [Eastern Texas Elec. Co. vs. Tucker. 287 Southwest Rep., 71.]

WASHINGTON.—*Test of a "Public Carrier."*

The state sought to recover penalties because the defendants (a tug and barge company) did not charge for services rendered by it in accordance with the tariff on file with the Department of Public Works. It claimed to be a private carrier and, therefore, not bound by the tariff rates. The court held that a common carrier is one whose occupation is the transportation of persons or things from place to place for hire or reward and is willing to serve the public indiscriminately in the lines or departments in which he is engaged. The fact that a company has no fixed schedule of rates and reserves the right to refuse to give service whether its vehicle is engaged or not, is immaterial; its character is determined by its public profession. [State vs. Washington Tug & Barge Co., 250 Pacific Rep., 49.]

Personal Items

Lionel J. Bourke Promoted in Seattle

Lionel J. Bourke, secretary to William H. McGrath, vice-president of the Puget Sound Power & Light Company, Seattle, Wash., has just been appointed assistant to the vice-president. In the same year that he was graduated from the Texas Agricultural & Mechanical College, namely, in July, 1922, he entered the employ of the Stone & Webster Company, Boston, Mass. The following March he joined the Puget Sound Power & Light Company as a student engineer and was appointed resident manager at Elma, Wash. He

L. J. Bourke

was appointed secretary to Mr. McGrath in the executive offices in Seattle on Dec. 1, 1924.

Mr. Bourke, the new assistant, was born at Yoakum, Tex., Feb. 19, 1900. At the Texas Agricultural and Mechanical College he took a B.S. degree in electrical engineering.

Personnel Changes in New York Companies

Further changes are announced in the personnel of the New York Railways and the Fifth Avenue Coach Company, New York, N. Y., the operating organizations of which are now more closely affiliated. Appointments made by the New York Railways effective Jan. 1, 1927, are as follows:

Henry J. Smith is made general attorney, reporting to the president, vice R. B. Hull, resigned.

F. B. Gordon, in addition to his present duties as secretary of the corporation, will take over the duties of treasurer, reporting to the president, vice J. S. Dunham, treasurer, transferred to the law department.

T. G. Walker is appointed assistant secretary and assistant treasurer.

Joseph A. Clair is appointed claim agent, reporting to the general attorney.

C. A. Wittcke is appointed assistant purchasing agent, reporting to the vice-president.

Changes made by the Fifth Avenue Coach Company effective Jan. 1, 1927, are as follows:

Henry D. Cruger has submitted his resignation as auditor. He will be retained in a consulting capacity.

George V. Owen is appointed auditor, reporting to the president.

Worthington G. Strait is appointed purchasing agent, reporting to the vice-president and general manager.

C. A. Wittcke is appointed assistant purchasing agent, reporting to the purchasing agent.

Mention was made in the ELECTRIC RAILWAY JOURNAL for Dec. 25, 1926, of the election of officers of the Fifth Avenue Coach Company to the board of directors of the New York Railways.

James Dalrymple— Tramway Internationalist

The Scotsman Who Held True to the Trust Reposed in Him—To Act as Consultant

James Dalrymple retires as of Jan. 1. Those who have known only the achievements of Mr. Dalrymple as tramways manager must have often wondered why an operator of world-wide reputation remained in Glasgow for 46 years when much more tempting positions had been open to him for a generation, but those who know James Dalrymple the man realize that loyalty to an ideal meant far more to him than money.

That ideal was, first, to give Glasgow a transport system that would stand forth to the world as the best of its kind and then to retain that reputation for the city. It was not until changing political conditions threatened to make continuance of this ideal impossible that James Dalrymple resigned.

Even those who follow British politics only slightly must be aware of the new alignments that are taking place. Since the rise of the Labor party, the old principles in municipal operation of utilities seem to be going by the board. With the middle-class parties in power, municipal tramways frankly were run on business principles in the expectation that their profits would go toward the reduction of taxes. With the Labor party in power, the tendency is toward making the service so cheap for the user that, if necessary, taxes are raised instead of lowered. The workingman sees only the direct personal charge of the fare, and does not see the inevitable but indirect charge of an inadequate fare reflected in higher rent and other living costs due to higher taxation.

To practical, conscientious men of the Dalrymple type, this change of attitude on the part of the councils to whom they report is most disturbing. They do not want to retain their jobs at the sacrifice of principle. In Mr. Dalrymple's case, the matter of fares was not the immediate issue, although that question was always in the background. It was a matter of asking him to break his word that strikers who failed to return by a given day would not be restored to their positions at the expense of those who replaced them. When Mr. Dalrymple stood upon his disciplinary powers as manager with an "M," the Council indorsed his opposition to the tramways committee and asked him to withdraw his resignation. This he declined to do, offering his resignation as of Dec. 31, 1926, with no prejudice to his well-earned rights for superannuation pay.

But James Dalrymple is far from superannuated. His keen Scotch brain is brighter than ever. Even in earlier days, when it was no easy task to borrow him from Glasgow, his services as a consultant were sought far and wide. Perhaps his most famous consultation

James Dalrymple

was that for Mayor Dunne of Chicago in 1905. When the Chicago Mayor refused to make public the outcome of Mr. Dalrymple's widely heralded study, on the plea that it was a private report, the Glasgow Council properly insisted that Mr. Dalrymple had been loaned only as a courtesy to the people of Chicago and not to an individual. The people were entitled to know Mr. Dalrymple's conclusions. Whereupon the whole report was printed as a portion of the Council's minutes.

This report contained a letter, dated June 29, 1905, from Mr. Dalrymple to Mayor Dunne, in which occurred the bluntly honest passage that had been found so distasteful, viz.

> There would undoubtedly be a very grave danger in your city attempting to operate what would be the largest street railway undertaking in the world without making a very radical change in the methods usually employed in carrying on municipal work by the cities of the United States.

Tableau!

In all likelihood, Mr. Dalrymple will continue his globe-encircling consultations on a larger scale than has been practicable heretofore. Within the last two years he went to Bombay, India, and now São Paulo, Brazil, has put in a call for him. Glasgow has lost James Dalrymple through class politics, but the transport world at large has won him for still greater triumphs.

Changes in Day & Zimmermann

Well-Known Firm Honors Three Employees Who Have Risen from the Ranks—Distinction for Two Executives

A recent move by Day & Zimmermann, Inc., an engineering and management corporation, has resulted in the promotion of five employees, two of whom are executives and the three others promoted from the ranks. Charles Day, president, becomes chairman of the board of directors; John E. Zimmermann, vice-president, becomes president. Three long-term employees assume the duties of vice-president; they are Floyd W. Woodcock, in charge of public utility management; Col. E. M. Chance, in charge of the engineering and construction work, and W. Finlay Downs, who is in charge of engineering reports and valuations of utilities and industrials. All three were placed on the board about two years ago. These changes are noteworthy in that this firm has not only managed and operated many utility properties, including railways, for its own account but also has participated in the management and reorganization of properties for others.

Charles Day, the new chairman of the board, is one of the country's foremost engineers and business advisers. His early career included participation in the introduction of scientific management with the Link Belt Company. Under the firm name of Dodge & Day he then offered to industry, as a consultant, the experience that he had acquired. He specialized in the introduction of mechanical equipment. This led him to engage in the planning and construction of industrial plants, then the construction of electric properties, railways and transmission lines. Mr. Dodge withdrew in 1911 and the firm became Day & Zimmermann. In rapid sequence the firm's activities were extended to embrace the management of public utilities and industries and the scope of its investigation and report work was broadened to embrace not only the mechanical and operating problems, but those concerned with financial matters as well.

Many Activities During the War

His services during the war were readily accepted by the government and he became affiliated with the general munitions board and of the depot board of the War Department; he served on an observation committee and on the shipping board. He visited all ports, storage and terminal facilities and lines of communication reached by American forces and reported on the adequacy of these facilities. He lectured for many years in special courses at the Graduate School of Business Administration in Harvard University and Columbia and Lehigh on the planning and building of industrial plants. His interest in his alma mater led him to accept the trusteeship of the University of Pennsylvania and he has been actively engaged on various phases of the work of that busy board. In addition he has served as director and officer in many of the public utilities managed by his company and on the boards of the Interborough Rapid Transit Company of New York, Pennsylvania Railroad and the Fidelity-Philadelphia Trust Company.

His associate, John Edward Zimmermann, was for a time surveyor on the Pacific Railroad and superintendent in the Great Southern Railroad shops in the Argentine Republic. In 1907 he became a member of the engineering organization now known as Day & Zimmermann, Inc., Philadelphia, of which he became vice-president. He has participated actively in the construction work of the company, but his most valuable contribution to the firm's success and the one for which he is best known in the business world is his contribution to public utility management. This branch of the company's activities was under his direct supervision. It now embraces, among other projects, the electric light and power, bus, electric railway and refrigeration properties in eight states, serving more than 100 communities and many of the most prominent industries of the Eastern states. Under his guidance these facilities have been developed physically and economically and extended to meet changing conditions. Mr. Zimmermann is a member of the American Society of Mechanical Engineers, American Institute of Electrical Engineers, Franklin Institute, Pennsylvania Historical Society, Pennsylvania Museum and School of Industrial Arts.

F. W. Woodcock's Rapid Rise

Floyd W. Woodcock is one of the new vice-presidents. He rose from messenger and general utility clerk in the home office in 1908 to manager of the public utility management department and right-hand man to Mr. Zimmermann in 1922. He has learned the business from the ground up. When the first management job went into the office Mr. Woodcock followed Mr. Zimmermann's work and methods. When Mr. Day began to apply the principles of scientific management to public utilities he gave close attention to that, too. He firmly made up his mind what he wanted to do and prepared for it by studying electrical engineering at Drexel Institute at night. Afterward, when a definite, responsible assignment was intrusted to him, he installed the company's system of classification and of records and store keeping and planning on the Penn Central property and later extended it to others.

In this way he became a sort of general "trouble" man and was shifted from one place to another to combat disagreeable and difficult jobs. All through these years he kept on with his engineering studies, getting the practical application of the principles in his daily contact with construction and operation in the field. Then the Eastern Shore properties needed a general superintendent and he was given the chance to put into practice all the experience he had obtained. He studied the personnel available for a successor to himself. Thus it was that when Mr. Zimmermann decided that for his own relief and the good of the service he would bring Mr. Woodcock from the home office another was ready to step into his position.

Col. Edwin M. Chance, another of the new vice-presidents, was a chemist and engineer with the Reading Coal & Iron Company and consulting engineer for a group of coal mining industries before the war. In 1917 he was commissioned captain by the Ordnance Department, charged with the responsibility of filling shells with poison gas. He designed and built the plant at Gun Powder Neck in Maryland known as the Edgewood Arsenal. The total cost of the plant was about $38,000,000. Over this plant he had complete charge. The Edgewood Arsenal supplied not only the gas for filling American shells, but shipped great quantities of bulk gas to France and Great Britain to supplement their production. Colonel Chance was in charge of all design and construction work and later was in charge of operations.

W. Findlay Downs Conspicuous in Valuation Work

W. Findlay Downs, the third newly appointed vice-president, started his career doing forestry service in the Maine woods. Later he became affiliated with the United Construction Improvement Company, Philadelphia, as an engineer. His activities include service with J. G. White Engineering Corporation, assistant engineer of the Pennsylvania Public Service Commission and valuation work with the New York Telephone Company. With Day & Zimmermann he was engaged in valuation of utilities and industrials.

F. C. Lynch Heads Kansas City Safety Council

F. C. Lynch, superintendent of bus maintenance of the Kansas City Public Service Company, Kansas City, Mo., has been elected director of the Kansas City Safety Council by the executive committee of that organization, succeeding Julien Harvey, former director, who resigned to become affiliated with the National Safety Council in Chicago.

Mr. Lynch, better known to his friends and associates as "Mike," entered the service of the Kansas City Railways, predecessor of the Kansas City Public Service Company, on Sept. 20, 1922. His duties with the Kansas City Railways brought him in close touch with safety matters and he has been prominent in the activities of the Kansas City Safety Council.

Obituary

E. M. Walker

Edwin M. Walker, president of the Schenectady Railway, Schenectady, N. Y., died very suddenly on the morning of Dec. 30 of a heart attack suffered as he was attending to his automobile in his own garage.

Mr. Walker had been at Schenectady as president since September, 1923. Before that he had, since 1917, been general manager of the Terre Haute division of the Terre Haute, Indianapolis & Eastern Traction Company. He was born at Workshop, England, in 1875, but was educated in the United States.

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

Extensive Equipment Exhibit for American Road Builders

Final arrangements have been completed for the annual convention and road show of the American Road Builders' Association, which is to be held in the coliseum at Chicago, Jan. 10 to 14, 1927.

Already more than 300 carloads of machinery and materials have been arranged for display. More manufacturers have applied for space this year than ever before, which necessitated extra space being acquired in the Wilson Building, adjacent to the coliseum. The exhibit of the United States Bureau of Public Roads will depict all conditions in the road field and finally finish with an exhibit by a mythical Highway Commission of Utopia.

As the convention is coincident with Good Roads Week, officials of the association have made elaborate plans for speakers. They have also invited the Governors of all the states in the Union to appear. Former state executives who were especially active in sponsoring a highway program have been invited, as have leading road promoters from foreign countries.

General Electric Reviews Activities During 1926

Scheduled for distribution Jan. 1, the General Electric Company announces that the annual review of its activities in the electric railway field has been prepared by W. B. Bearce of the railway engineering department.

An advance copy reveals that Mr. Bearce, in addition to making a comprehensive résumé of the developments in the railway field, has reviewed at some length the progress of and results obtained from railroad electrification, giving generous space to the work undertaken by the Anglo-Chilean Consolidated Nitrate Corporation, Tocopilla, Chile; the Great Northern, Illinois Central, New York Central, New York, New Haven & Hartford and Pennsylvania systems.

Under this subject are included some figures which were the result of a study made by the Spanish Northern Railway with respect to the merits of steam and electric locomotives on the Pajaras grade, where the larger portion of the tonnage is hauled in an up-grade direction.

Incidentally these figures show a 55 per cent saving in the cost of electric power as compared to coal, a reduction of 47 per cent in the number of engine-miles for the same traffic handled, 73½ per cent saving in the cost of repairs and upkeep for locomotives, a saving of 63 per cent in crew expense and a reduction of 31 per cent in the cost of moving a ton-kilometer of freight.

The author also gives some interesting sidelights on oil and gas-electric motive power, railway substations and mercury arc power rectifiers.

Coincident with the appearance of this review the company has released a 38-section article by John Liston on "Some Developments in the Electric Industry During 1926," several sections of which are devoted to pertinent subjects in the electric railway field. Numerous illustrations add interest to both releases.

Westinghouse Achievements Outlined in Year Book

Engineering achievements of the Westinghouse Electric & Manufacturing Company for the past year are attractively set forth in a 42-page booklet by H. W. Cope, assistant director of engineering. The publication, which covers a wide range of subjects, is expected from the press in about three weeks.

In the opinion of the author, the outstanding contribution of his company to the light traction field was the dual ventilation for railway motors, a problem that was only solved after lengthy and extensive tests which definitely determined that dust and sand carried by the ventilating air in previous models was the sole cause of excessive brush and commutator wear.

To obviate this trouble, there has been perfected a dual ventilating system which retains all of the advantages of the ventilated type and in addition practically secures the brush and commutator life of the non-ventilated motor. As a result, where sand conditions are serious, brush and commutator life has been more than quadrupled.

In the new design the armature and fields are separately ventilated and the ventilating air for each is kept out of the commutator space by means of baffles. The exclusion of the air from the commutator space keeps out the dust.

Other subjects discussed of interest to the field are: Gas-electric equipment, buses, current collection, railroad electrification, circuit breaker tests, railway motor test dynamometers, electric welding, controls, etc.

Mr. Cope also gives a very interesting description of the system for ventilating the Holland vehicular tunnels under the Hudson River.

Metal, Coal and Material Prices

Metals—New York	Dec. 28, 1926
Copper, electrolytic, cents per lb.	13.20
Copper wire, cents per lb.	15.50
Lead, cents per lb.	7.80
Zinc, cents per lb.	7.35
Tin, Straits, cents per lb.	66.25
Bituminous coal, f.o.b. Mines	
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons	$5.275
Somerset mine run, Boston, net tons	2.75
Pittsburgh mine run, Pittsburgh, net tons	2.125
Franklin, Ill., screenings, Chicago, net tons	1.75
Central, Ill., screenings, Chicago, net tons	1.375
Kansas screenings, Kansas City, net tons	2.325
Materials	
Rubber-covered wire, N. Y., No. 14 per 1,000 ft.	$6.00
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.	11.3
White lead in oil (100-lb. keg), N. Y., cents per lb.	14.50
Turpentine (bbl. lots), N. Y., per gal.	$0.88

Large Orders for Buses Soon to Be Placed in New York

Some idea as to the extent of the orders for buses and equipment incident to the pending franchises now before the Board of Estimate and the Mayor of New York city may be gained from the fact that the Equitable Coach Company may operate 352 buses in Manhattan, 224 in Brooklyn and 196 in Queens, for which purpose it expects to invest about $20,000,000 in equipment.

In addition to this it is reported that the Surface Transportation Company, which may operate 81 buses in the Bronx, contemplates an investment of $1,500,000. Should the Manhattan Surface Coach Company succeed in wresting from the Equitable company the franchise rights for the Borough of Manhattan its bus requirements will exceed 300 units.

It is understood that the buses for the Equitable company are to be built by the American Car & Foundry Company or its subsidiaries. The Equitable Coach Company is sponsored by J. G. White & Company, Inc., New York; the Surface Transportation Company by the Third Avenue Railway, and the Manhattan Surface Coach Company, Inc., by the New York Railways.

Incidentally, the proposed awards have met with strong opposition from subway officials.

General Electric Names Three New Commercial Vice-Presidents

Three district managers of the General Electric Company were elected commercial vice-presidents at a meeting of the board of directors in New York on Dec. 30. The men thus signally honored were Theodore Beran of the New York district, J. A. Cranston of the Pacific Coast district and H. L. Monroe of the Chicago district.

The newly elected vice-presidents will continue their supervision of the commercial activities of the company in their respective districts.

Track and Line

Memphis Street Railway, Memphis, Tenn., will likely extend its Jackson Avenue line from Watkins Street to University Place by 1928, if plans promulgated by the city are carried out. Active efforts to that end have been promised by Mayor Rowlett Paine and Commissioner Horace Johnson with a committee representing the property owners along the 2-mile route.

Modern One-Man Cars in Nation's Capital also equipped with

Peacock Staffless Brakes!

In rendering "real street railway service" to the citizens of the Nation's Capital, the Washington Railway & Electric Company recently placed in service fifteen de luxe one man cars.

These cars are the last word in Modern car construction and practically every type of safety device has been incorporated in them with a view to demonstrating that one-man operation is fully as safe as two-man operation.

Naturally Peacock Staffless Brakes were chosen as part of this equipment.

We will be pleased to send full particulars of the many advantages which particularly adapt Peacock Staffless Brakes to the modern car—their light-weight—minimum platform space occupation—a chain winding capacity of 144 inches enabling them to develop maximum braking power under all conditions—etc. Write today.

National Brake Company, Inc.

890 Ellicott Square, Buffalo, N. Y.

Canadian Representative

Lyman Tube & Supply Co., Ltd., Montreal, Can.

Over the highway of progress

Pioneers and specialists in air brake development and manufacture since 1869.

With the passing of another year comes a new era of progress, of advancement in the field of motor coach transportation. Coach builders have forged ahead, overcoming modern obstacles with modern engineering prowess, into a new field of refinement.

To us, the coming of the new year means new responsibilities. Our appreciation of the modern retardation problems confronting motor transport builders has been reflected by their adoption of our equipment.

The illustration pictures a product of the American Car and Foundry Motors Company. A. C. and F. have accepted the Westinghouse Automotive Air Brake as standard equipment, enhancing the flexibility of the gas electric drive, which has marked their progressive step for the new year.

WESTINGHOUSE AIR BRAKE CO.
Automotive Division, Wilmerding, Pa.

6167

WESTINGHOUSE
AUTOMOTIVE AIR BRAKES

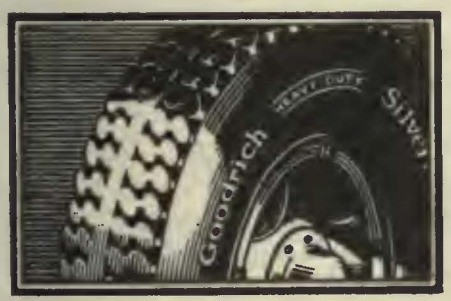
Advancing a Great Public Service!

ONWARD moves the fine work of co-ordinated transportation.

From 16 electric railway companies operating motor buses in 1921 — the figure has advanced almost to 350 today!

From 73 buses six years ago—the figure has grown to near 8,000 today!

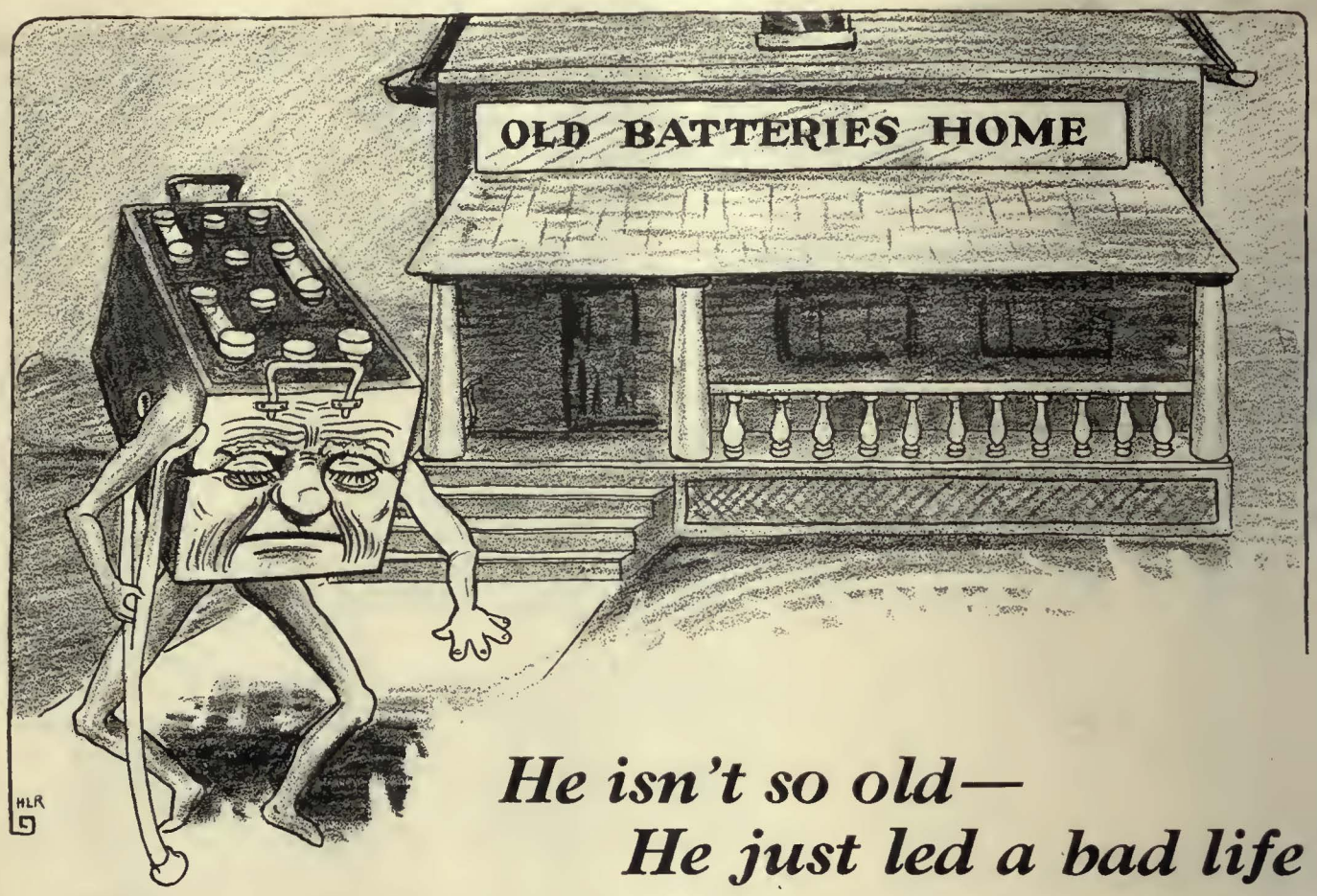
Thus Electric Railway Management has demonstrated its foresight—and given the public the advantages of improved service—the simplification of traffic—the economies of unified administration.



It is significant that many leaders of this great movement are using Goodrich equipment—and the advance of Goodrich has outreached the advance of the industry!

THE B. F. GOODRICH RUBBER CO., Akron, Ohio
In Canada: Canadian Goodrich Company, Kitchener, Ontario

Goodrich
HEAVY DUTY
Silvertowns



He isn't so old— He just led a bad life

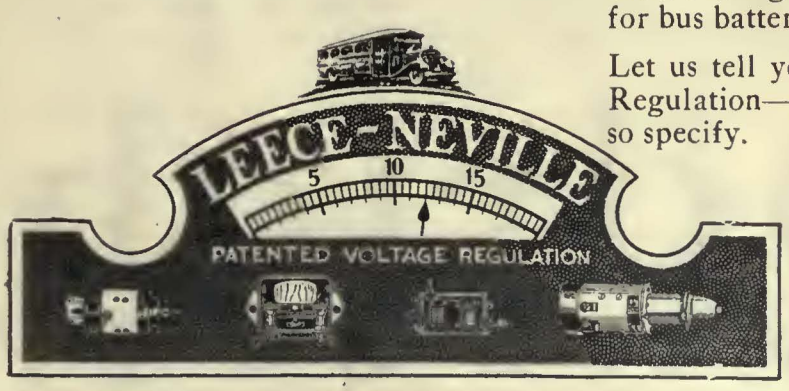
The dissipations of his youth broke him down, and made him old before his time.

But, poor duffer, it wasn't his fault—bad company—overcharge—undercharge—what battery could stand a life like that.

Now, he's no good for anything, and somebody has had to dig up the money to buy a new battery for his place.

Leece-Neville Patented Voltage Regulation discourages dissipation among young batteries. It keeps them from being broken down in youth—preserves them to a vigorous old age—many times the usual life for bus batteries.

Let us tell you more about Leece-Neville Patented Regulation—you can have it on any good bus if you so specify.



THE LEECE-NEVILLE CO.

5353 Hamilton Ave., Cleveland, Ohio

Just as in the Olden Days Lang Craftsmanship has added charm and romance to the modern Bus!

Lang Craftsmen are graduates both of the old and the new schools, Out of their experience they have built into the modern motor coach the friendly goodwill, which won steady patronage for the stages of a past generation.

LANG BODIES

create new passengers

The entrance to a bus is the first impression that the passenger receives, . . . it is also the last to be carried away. A low step, a deep, draught-proof well, doors even a little wider than necessary, and a step spotlight, . . . such carefully planned details as these build patronage by leaving the right impression on passengers. People who ride once in a Lang Body invariably "ask for more."

Operators of buses with bodies by Lang know that this passenger attractiveness will last through years of gruelling service.

THE LANG BODY COMPANY
CLEVELAND, OHIO

"After all— it's the Setting that counts!"

A FEW OF OUR PROMINENT USERS

Northern Ohio Power & Light Co.
New England Company
P.R.T. Co.
Yelloway Co., Inc.
Gary Street Rwy
Yellow Cab Co., Montreal
Capital Traction Co.
Denver Rio Grande Interurban Line
O. Townsend, Hastings, Nebr.
White Star Transportation Co., Toronto
North Texas Coach Co.
Auto Tours, Los Angeles, Cal.

International Harvester 6-Cylinder Motor Coaches

are the product of one dominant idea—to give the coach route operator a quality vehicle at low cost. The idea is not uncommon but *the coach is.* It is built on a long, low, fast and sturdy chassis. It has attractive lines. Its inviting interior holds perfect comfort for 15 passengers in the Club Coach and for 17 in the Sedan-type Coach. The tremendous value at the outset is more and more apparent as the coach reaches big-figure mileage. Build patronage and profit with International Harvester 6-Cylinder Coaches.

INTERNATIONAL HARVESTER COMPANY
of America
(*Incorporated*)
606 So. Michigan Ave. Chicago, Ill.

INTERNATIONAL AUTOMOTIVE SERVICE *is rendered through* 125 COMPANY-OWNED BRANCHES

Nitro-Valspar Keeps Your Cars On the Road

TO refinish cars completely without losing a single hour from daily schedule service may *sound* fantastic. It's not only possible — it's being done, thanks to Nitro-Valspar, the fastest and finest of modern finishes. And it's being done not as a stunt or under specially favorable conditions, but as a matter of regular routine.

Here's the way the Calumet Motor Coach Company of Hammond, Ind., does it:

First Night: After the day's service is completed, coach enters finishing room, is washed and old finish is quickly removed. On the clean bare surfaces then is sprayed Nitro-Valspar Primer, which dries *hard* in 30 minutes. Successive coats of Nitro-Valspar Gunglaze are next sprayed on to build up the desired smooth surface. These coats, usually three in number, are applied as rapidly as spray-gun operator can work around the car and are dry in a few minutes.

If needed the following morning, the coach is used in the Gunglaze coats for one day and returns to paint shop that evening.

Second Night: The coach is water-sanded and washed. After a half hour's drying to evaporate moisture, the three finishing coats of Nitro-Valspar Enamel are sprayed on as rapidly as operator can work around the body. The coach is again placed in service the following morning.

Third Night: Any desired striping and lettering is completed and the coach is ready for service next morning.

Thus no time at all is lost from schedule service.

This remarkable speed in finishing is feasible only with an *all*-Lacquer finish. As Nitro-Valspar is the only successful All-Lacquer System on the market today, it follows that no other finish can equal Nitro-Valspar in economy of time, labor and money.

NITRO-VALSPAR

The Valentine Lacquer Finish

VALENTINE & COMPANY · NEW YORK · CHICAGO · BOSTON

29-Passenger City Type, Mounted on Mack Chassis.

The "Duralyte" ALL METAL Body

After three years of successful operation on the Pacific Coast, increased production facilities permit us offering this unit for the consideration of manufacturers and operators nationally.

Built throughout of "Duralyte" (Aluminum Alloy). No Wood.

All Riveted Construction.

The Perfect All Metal Body
Combining
Light Weight—Strength—
Long Life—Safety
Low Maintenance Cost.

Inquiries wired or mailed to us will have the immediate attention of our representative who is now visiting all the principal cities with a complete bus body.

General Aluminum Products Co.

OFFICES AND FACTORY, 4536 East District Boulevard, Los Angeles, California

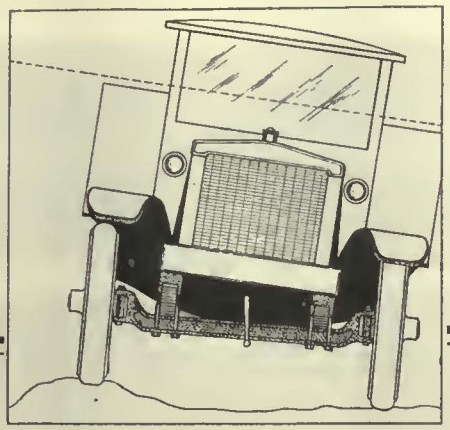


Figure 1, illustrating how chassis of truck not equipped with air springs, is wrenched and twisted.

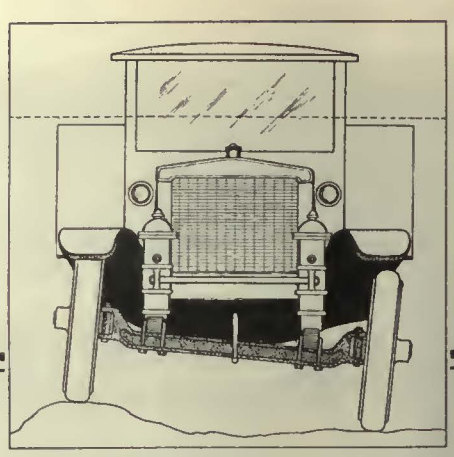


Figure 2, illustrating how air springs absorb the uneven road conditions and prevent wrenching and twisting of frame.

In Winter, Particularly, Buses Need This Protection

Against Road Shocks and Vibration

THESE winter months are hard on buses. Frozen ruts and snow-piled roads make road conditions doubly brutal.

Protect your buses from these destructive shocks and the resultant vibration by equipping them with Gruss Air Springs.

Note the illustrations above. See how the Gruss air cushions absorb uneven road conditions and keep the chassis level. Mark how Gruss Air Springs protect the regular steel springs against the punishment they otherwise must undergo. Think of the maintenance saving you can effect by preventing steel spring breakage, alone.

Consider, too, the other benefits that air springs bring: Supreme riding comfort regardless of road conditions; maintenance of regular schedules—a score of other profit paying results.

You need Gruss Air Springs now. Write for complete details.

THE CLEVELAND PNEUMATIC TOOL CO.
Cleveland, Ohio

GRUSS AIR SPRINGS

for Trucks, Buses Passenger Cars ~

Versare equipped with Waukesha "Ricardo Head" six cylinder engine

America's First Gas Propelled Street Car

When fully loaded with ninety-six passengers this bus and its load weighs over 31,000 pounds, yet the Waukesha 120 horsepower engine handles it with ease. Waukesha "Ricardo Head" engines are ideal for such heavy duty because of their unequalled economy, smooth running characteristics and longevity.

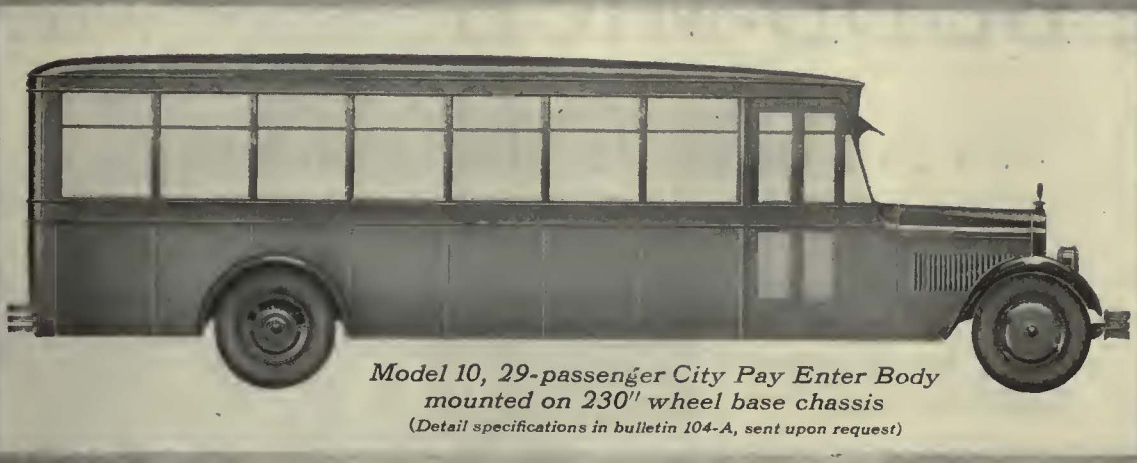
Power and economy are obtained from the "Ricardo Head" type of combustion chamber—smoothness from six cylinders, with a big crankshaft mounted in a rigid "Girder" type crankcase—longevity because the cylinders are fed with "Fresh Oil" and the bearings lubricated with constantly renewed oil. Write for "Six Cylinder" Bulletin describing this engine.

AUTOMOTIVE EQUIPMENT DIVISION

WAUKESHA MOTOR COMPANY

Waukesha Wisconsin

Eastern Sales Office Aeolian Building, 33 W. 42nd Street New York City



Model 10, 29-passenger City Pay Enter Body mounted on 230" wheel base chassis
(Detail specifications in bulletin 104-A, sent upon request)

THESE advertisements will feature, from month to month, bus bodies of standard types and sizes which are the product of the exceptional experience and facilities of this company.

THE BAKER-RAULANG COMPANY
Bus Body Division Cleveland, Ohio

Baker Raulang Bus Bodies

In Toronto Canada —

43 YELLOW COACHES

operate half a million miles without engine trouble

The Toronto Transportation Commission knows the meaning of successful motor coach performance.

"Half a million miles spread over eight months of service *without a single repair to* 43 *Yellow-Knight, 6-cylinder sleeve valve engines.*"

"That's performance," they say, and they should know because—

YELLOW KNIGHT

YELLOW COACH

reserved by the

Toronto Transportation Commission *for* Deluxe and Special Service

—In one year, from August 31, 1925, to August 31, 1926, 43 Yellow Coaches carried 1,279,914 passengers on premier routes like the Hill Route, which operates on a fifteen-cent fare, and carries approximately 5,000 passengers daily.

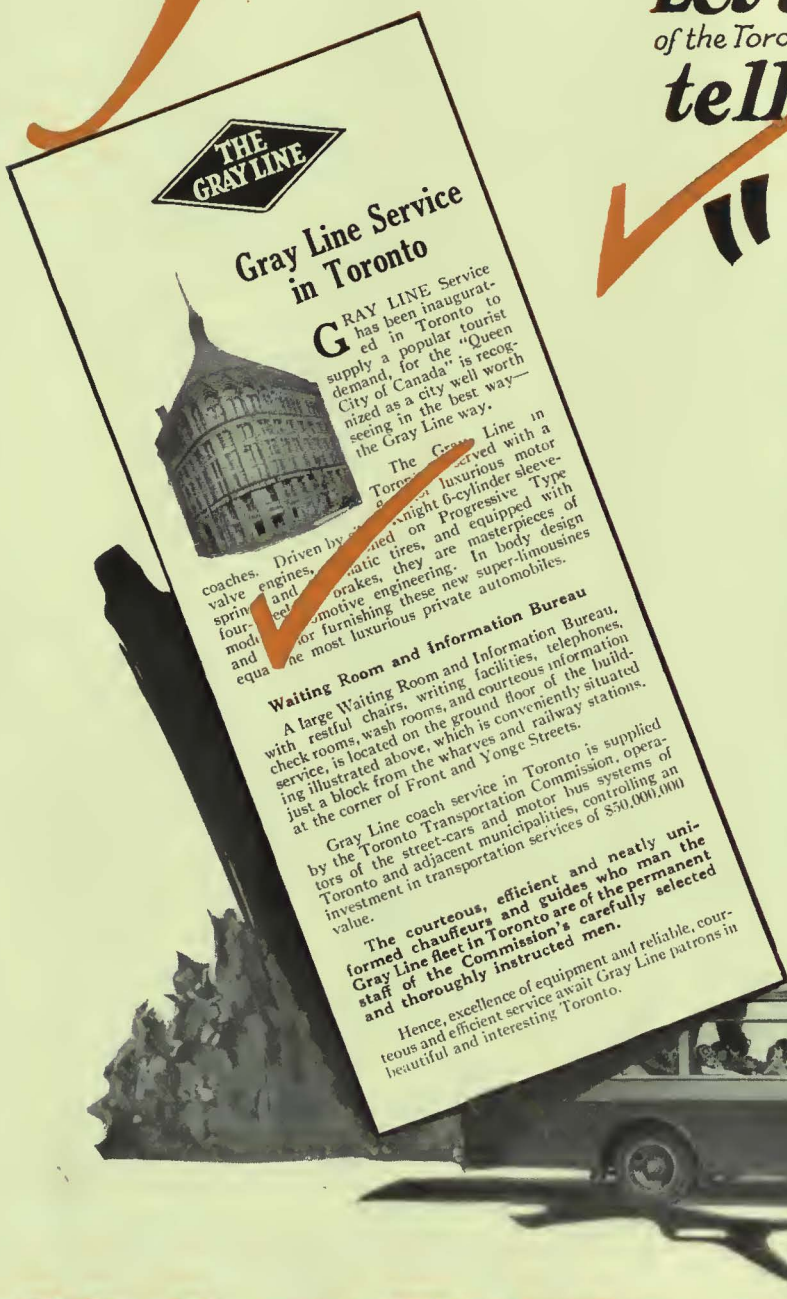
And on other critical residential routes, and for the famous Gray Line sightseeing service, Toronto-Niagara Falls-Buffalo service, special service to races, Orthopedic School service and for private charter service—there are Yellows—providing in each case the utmost in dependable service and in comfort.

The Toronto Transportation Commission has learned to rely on Yellow Coaches for those places where extreme luxury, comfort, safety and dependability are needed to successfully compete for high class patronage. Miscellaneous motor coaches of other makes are used on what the company calls "bus routes," but Yellow Coaches are reserved for De Luxe and Special service.

In Toronto, as in most of the cities of America, *Yellow Coaches* lead in attracting patronage, in low maintenance costs and in all-round transportation *satisfaction*.

YELLOW COACHES

Let the Gray Line
of the Toronto Transportation Commission
tell the story



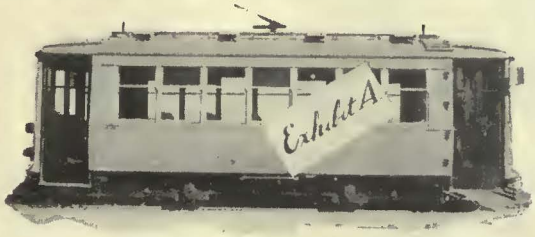
"The Gray Line in Toronto is served with a fleet of luxurious motor coaches. Driven by silent Knight 6-cylinder sleeve-valve engines, cushioned on Progressive Type springs and pneumatic tires, and equipped with four-wheel air brakes, they are masterpieces of modern automotive engineering. In body design and interior furnishings these new super-limousines equal the most luxurious private automobiles."

Constant good service! Reliability with comfort! That is the reputation which the Gray Line has been building for itself in Toronto as a result of its consistent week-in, week-out performance, through good weather and bad, winter and summer.

Yellow Coach *plus* General Motors assures consistent reliability — financial, research, transportation experience, manufacturing and equipment. All these, welded together, are at your service.

YELLOW TRUCK & COACH MANUFACTURING CO.
SUBSIDIARY GENERAL MOTORS CORPORATION
5801 WEST DICKENS AVENUE, CHICAGO, ILL.

Some of the important exhibits in the case of HASKELITE and PLYMETL VS. X. S. WEIGHT



Southern Ohio Public Service Company's car built by G. C. Kuhlman Car Co.

Grand Rapids Railway car built by St. Louis Car Co.

Chicago & Joliet Railway car built by Cummings Car & Coach Co.

Montreal Tramways car built by the Canadian Car & Foundry Co., Ltd.

THE verdict in this case is based on conclusive evidence. Wherever the modern lightweight car has been used, it has proved its superiority to the old heavy equipment which it displaced.

A typical car in which HASKELITE and PLYMETL have been fully utilized weighs 935 lbs. less than the same car with steel, wood and composition construction. This 935 lbs. dead load at 6c. a lb. adds $56.10 a year to the operating cost of each car. On the basis of a 7c. fare, this is equivalent to hauling 801 passengers free.

One city property with 20 new HASKELITE-PLYMETL cars made a saving in operating cost the first year of $48,897 of which $13,701 was a reduction in power consumed. Probably at least 10% of this amount is directly attributable to the decreased weight.

Another urban line with 27 new HASKELITE-PLYMETL cars reports increases in revenue amounting to as much as 8% and a saving in weight which at the standard figure of 6c. per lb. means a reduction in operating cost of $750 per year.

An interurban road with 10 new cars embodying HASKELITE in their construction has cut the weight and the energy consumption approximately 40%, as compared with the old equipment. It is also estimated that the improved appearance of these cars will attract an average of one round trip fare for each trip or an increase of revenue of more than $10,000 per year.

Others have remodeled old equipment with important savings and noticeable improvements in revenue.

The conclusion based on all this evidence is clear. Modern operating conditions demand modern equipment. Excess weight is doomed. The HASKELITE-PLYMETL car is the accepted standard. Send for complete information.

Haskelite Manufacturing Corporation

133 West Washington Street, Chicago

Canadian Representatives:

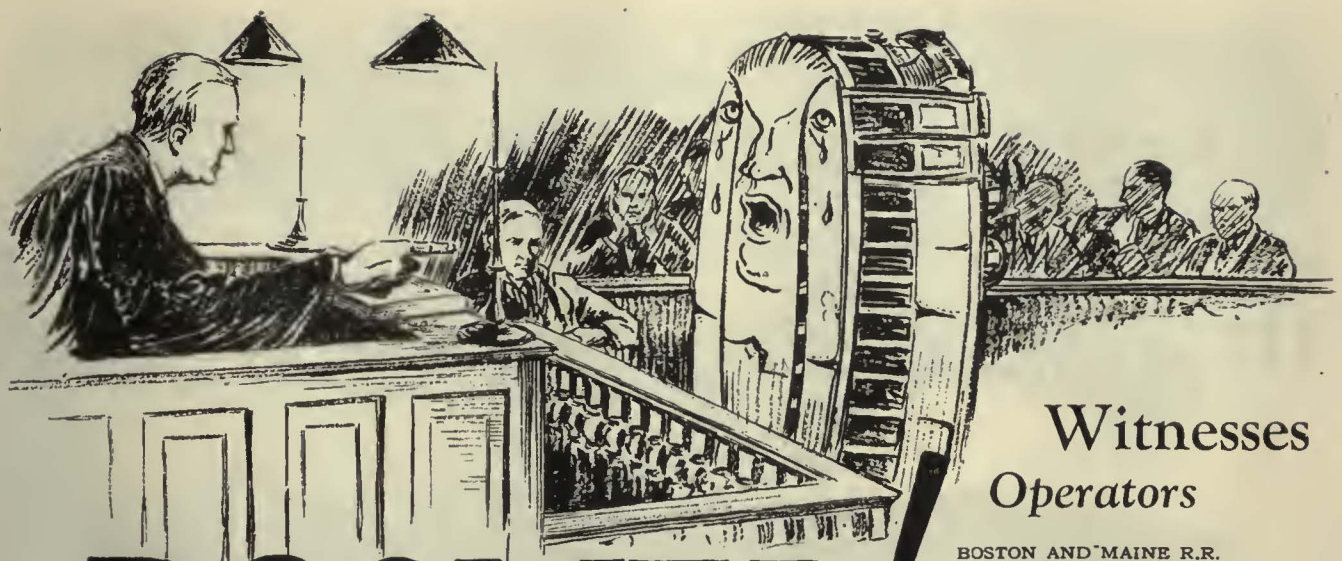
Railway and Power Engineering Corporation, Ltd.
Montreal Toronto Winnipeg

PLYMETL

PLYMETL, a plywood core with thin sheets of stretcher leveled steel glued to one or both faces. Maximum strength and minimum weight make it the ideal material for side panels for bus or street cars.

PLYMETL

ERJ1-1Gray



DOOMED!

Excess weight is doomed.

The electric railway industry has rendered its decision.

Modern car construction has won its case.

While scarcely a voice is raised in defense of the old style heavy equipment, witness after witness testifies to the decreased operating expense and increased revenue made possible through the adoption of the HASKELITE-PLYMETL car.

Note the partial list of builders and operators who express their approval of these champion lightweight materials with orders. The evidence supporting the claims made for HASKELITE and PLYMETL in street car and bus construction is yours for the asking.

Witnesses

Builders

CINCINNATI CAR CO.
Cincinnati, Ohio

THE J. G. BRILL COMPANY
Philadelphia, Pennsylvania

OTTAWA CAR AND MFG. CO.
Ottawa, Canada

ST. LOUIS CAR COMPANY
St. Louis, Missouri

G. C. KUHLMAN CAR COMPANY
Cleveland, Ohio

WASON MANUFACTURING CO.
Springfield, Massachusetts

CUMMINGS CAR AND COACH CO.
Chicago, Illinois

PRESSED STEEL CAR COMPANY
Pittsburgh, Pennsylvania

LIGHT WEIGHT NOISELESS CAR CO.
Chicago, Illinois

AMERICAN CAR COMPANY
St. Louis, Missouri

OSGOOD-BRADLEY COMPANY
Worcester, Massachusetts

NATIONAL STEEL CAR CORP., LTD.
Hamilton, Ontario, Canada

Witnesses

Operators

BOSTON AND MAINE R.R.
Boston, Mass.

THE CHICAGO, NORTH SHORE & MIL. R.R., Highwood, Illinois

CHICAGO SURFACE LINES
Chicago, Illinois

THE CINCINNATI TRACTION CO.
Cincinnati, Ohio

COLUMBUS RY., POWER & LIGHT CO.
Columbus, Ohio

THE DENVER TRAMWAY COMPANY
Denver, Colorado

DETROIT UNITED RAILWAY
Detroit, Michigan

FORT SMITH LIGHT & TRACTION CO.
Fort Smith, Arkansas

GALVESTON-HOUSTON ELEC. CO.
Galveston, Texas

GRAND RAPIDS RY. CO.
Grand Rapids, Michigan

GEORGIA RY. & POWER CO.
Atlanta, Georgia

ILLINOIS TRACTION, INC.
Chicago, Ill.

INDIANA SERVICE CORP.
Fort Wayne, Indiana

LOS ANGELES RAILWAY CORP.
Los Angeles, California

MILWAUKEE ELEC. RY. & LIGHT CO.
Milwaukee, Wisconsin

MONONGAHELA-WEST PENN PUBLIC SERVICE CO., Fairmont, West Virginia

MONTREAL TRAMWAYS CO.
Montreal, Quebec, Canada

MUNICIPAL RAILWAY OF SAN FRANCISCO, San Francisco, Cal.

PACIFIC NORTHWEST TRACTION CO.
Seattle, Wash.

THE PENNSYLVANIA-OHIO ELEC. CO.
Youngstown, Ohio

PHILADELPHIA RAPID TRANSIT CO.
Philadelphia, Pa.

THE PINE BLUFF COMPANY
Pine Bluff, Arkansas

PITTSBURGH RAILWAYS CO.
Pittsburgh, Pennsylvania

PUBLIC SERVICE RAILWAY CO.
Newark, New Jersey

SAN FRANCISCO-SACRAMENTO R.R.
Oakland, California

TORONTO TRANSPORTATION COMMISSION, Toronto, Ontario, Canada

UNION TRACTION COMPANY
Anderson, Ind.

UNITED TRACTION COMPANY
Albany, New York

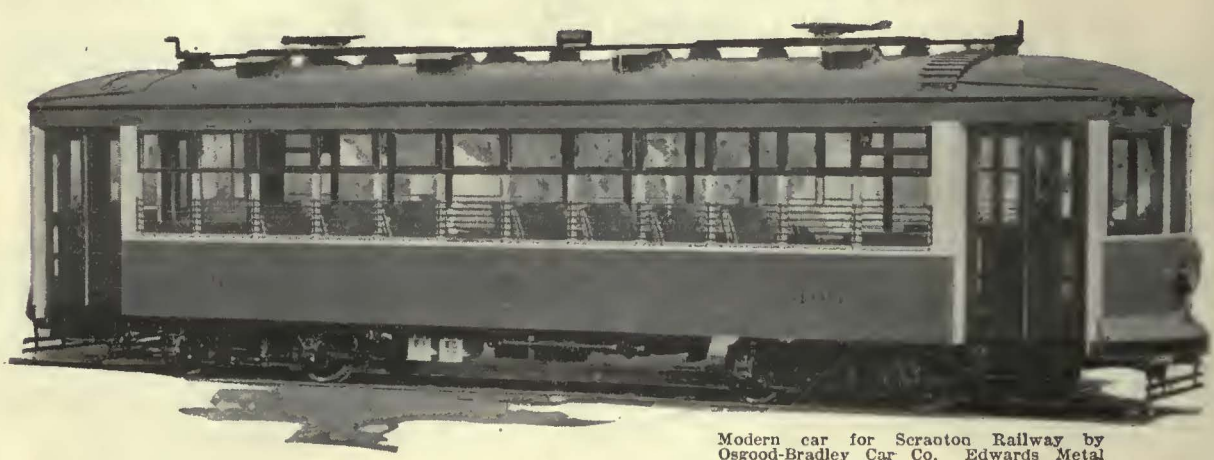
YORK RAILWAYS CO.
York, Pennsylvania

HASKELITE

HASKELITE, the structural plywood, cemented with blood albumen glue producing a waterproof and practically unbreakable bond. Ideal for bus and street car roofs, floors and interior trim.

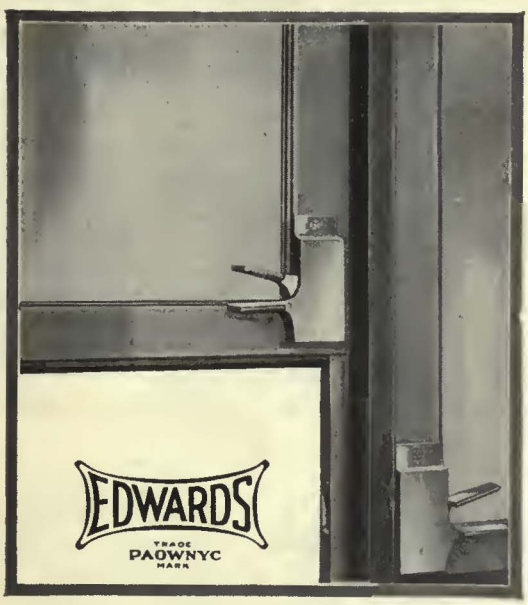
E. R. J. 1-Gray

Windows DO MAKE A DIFFERENCE in *attracting* passengers



Modern car for Scranton Railway by Osgood-Bradley Car Co. Edwards Metal Sash is used.

Air-tight
Light in Weight
Easy to Operate
Noiseless
Durable



It's a proven fact!

Modern cars, with their clean lines and ample glass area, attract **more** passengers, stimulate more frequent riding.

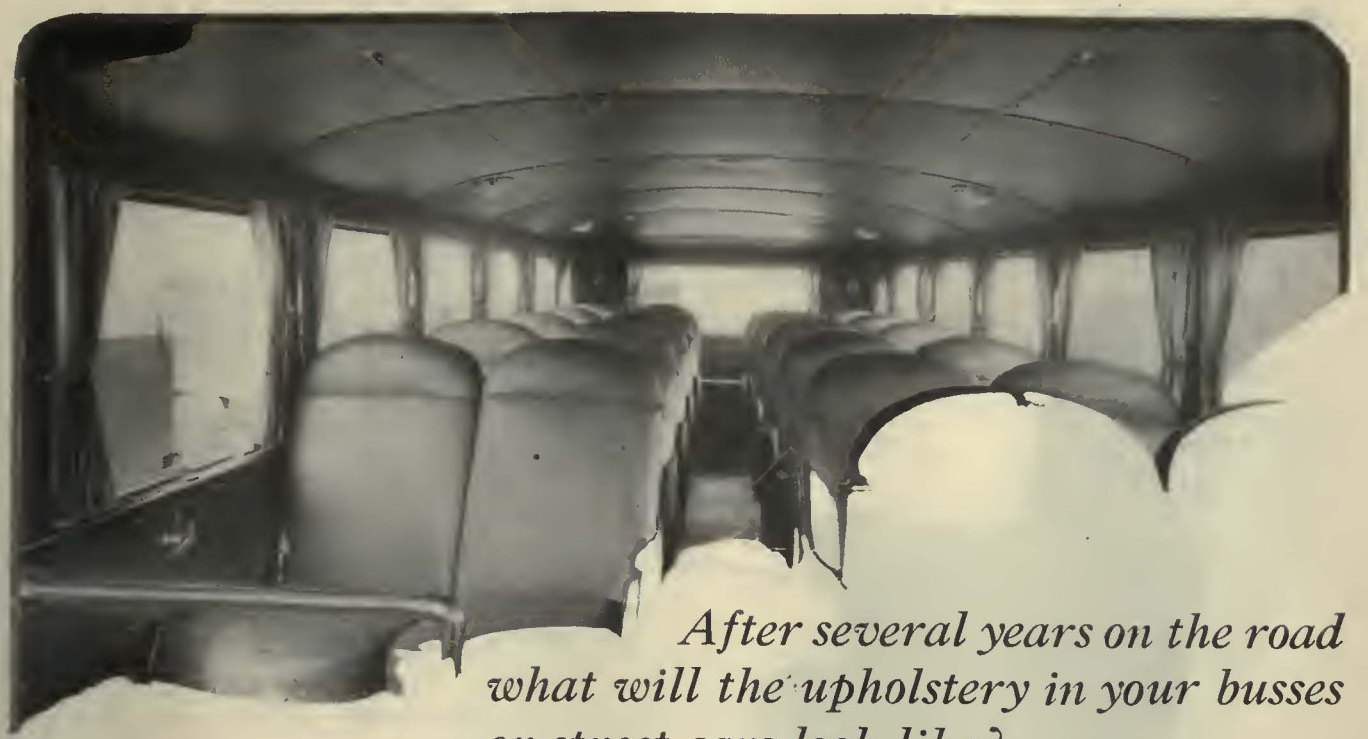
And Edwards Metal Sash goes a long way in making cars **modern.** Here's silent, air-tight, easy-to-operate sash that gives a maximum of clear vision, that makes a warmer car in winter, and airier car in summer, and a quieter car at all times.

Car builders will furnish Edwards Metal Sash on specification. Put it on your next order, and in the meantime, send for Catalog S, describing all types of Edwards Metal Sash.

O. M. EDWARDS CO.
Syracuse, N. Y.
New York **Chicago**

Canadian Representatives: Lyman Tube & Supply Co., Ltd., Montreal and Toronto

Edwards Metal Sash



After several years on the road what will the upholstery in your busses or street cars look like?

As rich as new if it's REAL LEATHER UPHOLSTERY

Booklets containing samples and description of our many grades and finishes of leather gladly sent upon request.

Age doesn't punish leather. It mellows it. Years after it is put into service real leather upholstery will be selling rides for you. It will look rich, comfortable and will still be easy to keep clean. Hand Buffs, Machine Buffs and Special Machine Buffs made from selected packer steer hides and available in several finishes will KEEP your bus and car interiors looking their best. We are in a position to offer quotations on complete hides or on leather cut to pattern.

"Nothing takes the place of leather"

The Cleveland Tanning Company

Dennison Avenue & Jennings Road, Cleveland, Ohio

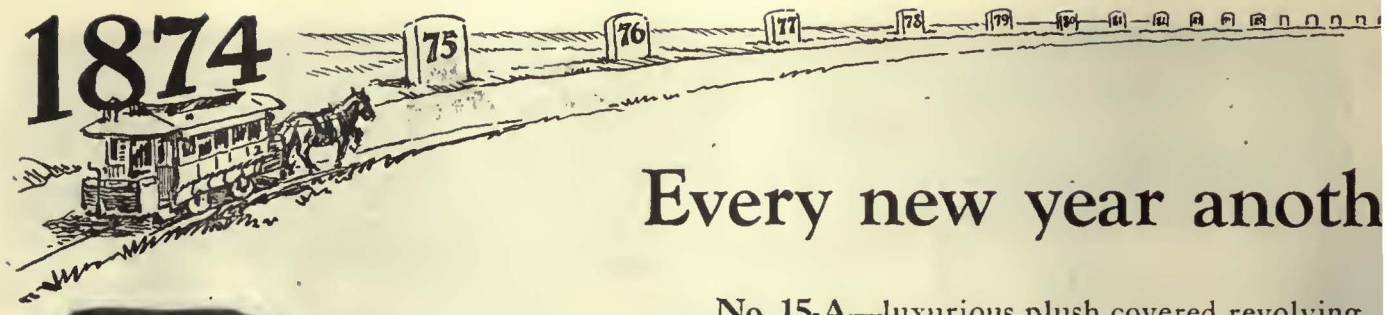
Western Representative:
Midgeley & Borrowdale,
McCormick Building,
Chicago, Ill.

©

Eastern Representative:
L. D. Rockwell Co.,
National City Building,
New York City

HYALINE

The Finest Coach Leather Obtainable



Every new year anoth

No. 15-A

No. 15-A—luxurious plush covered revolving chair with special patented features for finest type of interurban cars.

No. 900-A—de luxe, comfortable double chair for buses or cars.

No. 208—de luxe divided seat with air spring cushion pads upholstered in leather or fabric.

No. 900-D—double chair for bus or car with air spring cushion pads, attached to prevent promiscuous removal.

No. 199-F—special type, inexpensive but comfortable seat for suburban and light-weight interurban cars.

No. 392-EE—finest type of interurban car seat with extra high three part head-roll.

No. 900-A

Can also be made with rotating feature for double end cars.

No. 208

Hale and Kilburn SEATS

nilestone of progress

in H-K Seats for cars and buses

More than fifty years have passed since Hale & Kilburn started to make vehicle seats. Since then they have served continuously—each year guiding and leading the way toward better transportation by means of more comfortable and more practical seats.

H-K Seats today are found in every type of modern electric railway car and bus service—where they have established an enviable reputation for their comfort, appearance and excellent wearing qualities.

A request will bring full particulars of our many types for both cars and buses.

No. 392-EE

No. 199-F

No. 900-D

Can also be made with rotating feature for double end cars.

HALE-KILBURN COMPANY

General Office and Works:

1800 Lehigh Avenue, PHILADELPHIA

SALES OFFICES:

Hale-Kilburn Co., 30 Church St., New York
Hale-Kilburn Co., McCormick Bldg., Chicago
E. A. Thornwell, Candler Bldg., Atlanta
Frank F. Bodler, 903 Monadnock Bldg., San Francisco
Chris Eccles, 320 S. San Pedro St., Los Angeles
T. C. Coleman & Son, Starks Bldg., Louisville
W. L. Jefferies, Jr., Mutual Bldg., Richmond
W. D. Jenkins, Praetorian Bldg., Dallas, Texas
W. D. Jenkins, Carter Bldg., Houston, Texas
H. M. Euler, 46 Front St., Portland, Oregon

Hale and Kilburn SEATS

You never heard of a Mack rear-end failure

Rugged strength—
Generous road clearance—
Unfailing reliability—

These are vital to a bus rear axle—


The strongest steel in its stoutest form—That's heat-treated chrome-nickel steel, drop-forged.
For permanence, reliability and ability to hold its shape nothing equals a one-piece drop-forging.
Maximum strength in the plane of greatest shock; room for the largest size of Bull Gear; generous road clearance—combined only in a banjo type axle inclined at 45 degrees.
Also in the Mack rear axle banjo, the following vital features are combined.
No welds, no shrunk, or bolted joints, no truss rods, no brittle, heavy, low-strength castings. Wheel spindles, axle beam, gear carrier mounting, brake flange bases and spring perches all integral.
No wonder the Mack rear axle stands the gaff!

The Capitol District Transportation Company of Albany, N. Y.,
subsidiary of the United Traction Co., use
6-cylinder Mack Gas-Electric Buses

Indeed, Performance Counts!

Cobblestone pavements; steep grades—as steep as 9.17 per cent; city traffic; fast schedules. Such conditions demanded the unusual. The Capitol District, after their previous experiences, felt that such obstacles could best be met with Mack.

Here, indeed, was the test for a rear axle—and it has never failed them yet.

These 27 6-cylinder Mack Gas-Electrics supplement the work of the Mack 4's which are in service—constantly—in Troy, Rensselaer and Albany for the Capitol organization. And they work where there is hard work to be done.

Albany can tell you what it means to have freedom from rear end trouble. They know just how many more days each year such buses stay on the road—and how much more they can earn.

They know—Performance Counts.

Mack Trucks, Inc.

International Motor Company
25 Broadway, New York City

The spacious team yard of the Atchison, Topeka and Santa Fe Railway, Chicago, completed 1926. Paved with concrete 10 inches thick.

Scientific Planning and Concrete Makes Team Yards Convenient and Efficient

Busy team yards must be ever in service—space between tracks and elimination of "bottle necks" are important. But well planned team yards must be well paved, too. Concrete does it. Smooth, easily cleaned, light colored for economical illumination at night, rugged and unyielding, this modern paving material meets every requirement for heavy hauling.

PORTLAND CEMENT ASSOCIATION
CHICAGO
A National Association to Improve and Extend The Uses of Concrete

CONCRETE *for permanence*

Sailing Ahead With Time

FOR CENTURIES the passage of time on ship-board has been marked in the same way—the twelve hour cycle divided into three periods of eight bells each. Regardless of the most modern chronometer in the Captain's cabin or the watch in his pocket, this ancient method is established and endures.

Time means progress. And *Consolidated* keeps step with time by continual modernization of its devices. Every modern advance in electrical development, as applied to car heating, door control or signalling, is reflected—usually first—in *Consolidated* equipment.

Sail Ahead With Time—Specify CONSOLIDATED

ELECTRIC HEATERS	PNEUMATIC DOOR OPERATORS	THERMOSTATIC CONTROL	BUZZERS AND BELLS

CONSOLIDATED CAR-HEATING CO.

NEW YORK ALBANY, N. Y. CHICAGO

stronger argument

in favor of silent, vibrationless low cost helical gears

Car designers have stressed safety, comfort and appearance, and the public is educated to a new standard of electric railway service.

Certainly in this new conception of the electric car as the most *popular* of public transportation agencies, there is no place for the noise and vibration of spur gearing, even though it be reduced, *when the equipment is new*, by accuracy of design and fit.

Every year has seen a steadily increasing number of Nuttall Helical Gears on modern cars ordered by successful roads all over the country. And many a retiring veteran of the rails has made its last trip on Nuttall Helicals with half a million miles to their credit.

The meshing of helical gears is like the engagement of a screw, no grinding, and no chattering. Helicals save wear and tear on motors, car bodies and passengers' nerves. Their use results in really quiet cars.

NUTTALL
Standard Helical
GEARS

have the added advantage of the famous Nuttall BP Heat Treatment. They're guaranteed for 300% greater wear and breakage resistance than gears of standard untreated cast steel.

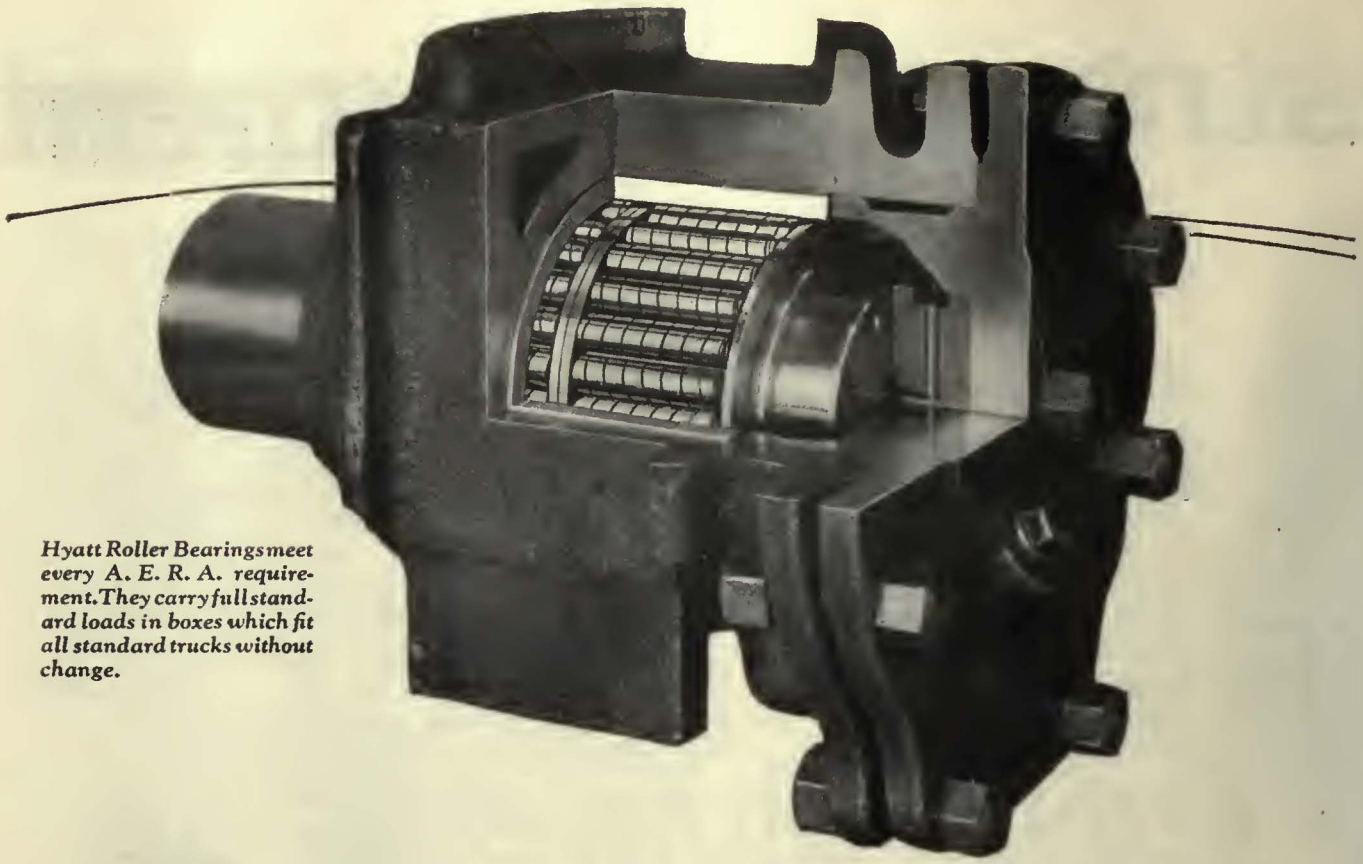
Actual operating data containing some very illuminating figures on gear cost will gladly be furnished on request.

R. D. NUTTALL COMPANY

PITTSBURGH PENNSYLVANIA

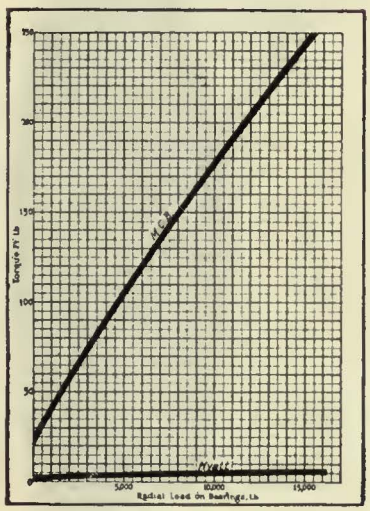
All Westinghouse Electric & Mfg. Co. District Offices are Sales Representatives in the United States for the Nuttall Electric Railway and Mine Haulage Products. In Canada: Lyman Tube & Supply Co., Ltd., Montreal and Toronto.

Nuttall



Hyatt Roller Bearings meet every A. E. R. A. requirement. They carry full standard loads in boxes which fit all standard trucks without change.

Acceleration



Quick get-aways help maintain schedules. No sticking bearings — even in zero weather.

Easier Hyatt acceleration is shown above — the record of comparative tests using Hyatts and standard bronze.

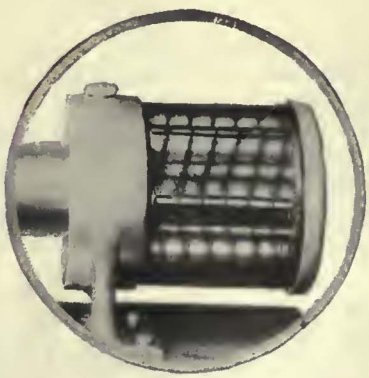
Loads up to the maximum axle rating and speeds were used.

Lubrication

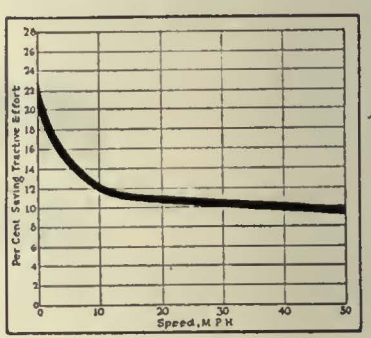
Check up the oil level every four or five thousand miles. Addition of a gill or two of lubricant is the usual requirement.

Your standard journal lubricant will do. It is not necessary to stock special grades.

Boxes are leak proof and dirt tight. The oil stays clean —and is kept in motion over every part of the bearing surface. Note oil tracks on the model below.



Power Saving

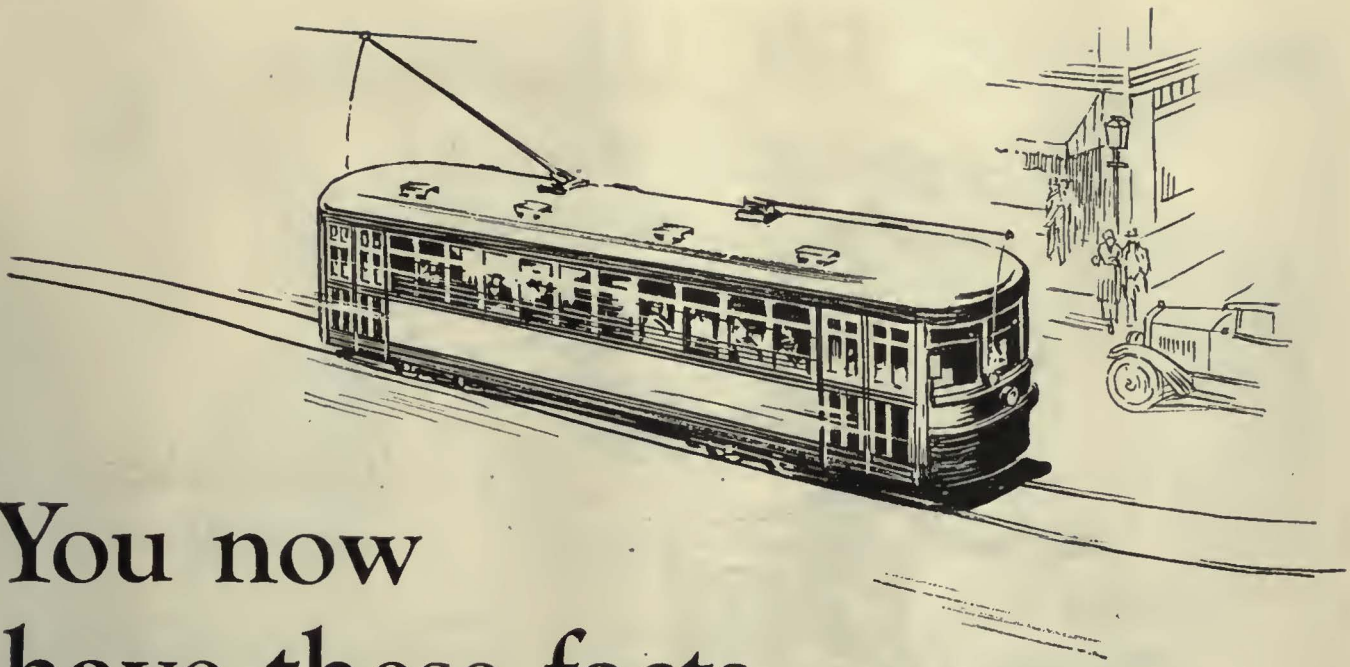


Again it is a matter of free rolling motion as against sliding friction. The difference in power consumption is apparent.

If power saving were the only virtue of Hyatt Roller Bearings, the economy is so big that no car can really be called modern unless so equipped.

The chart tells its own story—study it.

Saving one-fifth on power and lowering peak load is measurable economy.



You now have these facts on roller bearing operation

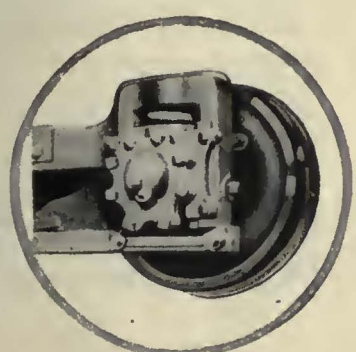
Maintenance

A Hyatt equipped car is not subject to chronic journal trouble.

Positive lubrication eliminates hot boxes. There is no waste or other packing to replace.

Life of Hyatts is measured in hundreds of thousands of miles against 50-60 thousand mile replacement of standard brass bearings.

Journal maintenance is reduced to checking for loose nuts. The savings promoted are readily appreciated.



YOU now have these proved facts upon which to base your judgment.

Hyatt Roller Bearings have 1,500,000 car miles behind them in every condition of service—1,500,000 miles of such economy and dependability as to leave no room for speculation.

Individual cars so equipped have reached the 180,000 mile mark without showing a sign of journal bearing wear. And without requiring bearing repair or replacement.

Axles turned below the scrap limit may be salvaged—returned to service, for Hyatt inner races make up the difference.

The question that naturally will occur to *you* is, "In the face of these astonishing economies and advantages, how can any car be 'modern' without them."

HYATT ROLLER BEARING COMPANY
Newark, N. J.

The Canadian Fairbanks-Morse Company, Ltd.
Distributors of HYATT RAILWAY BEARINGS in Canada

HYATT
QUIET ROLLER BEARINGS
PRODUCT OF GENERAL MOTORS

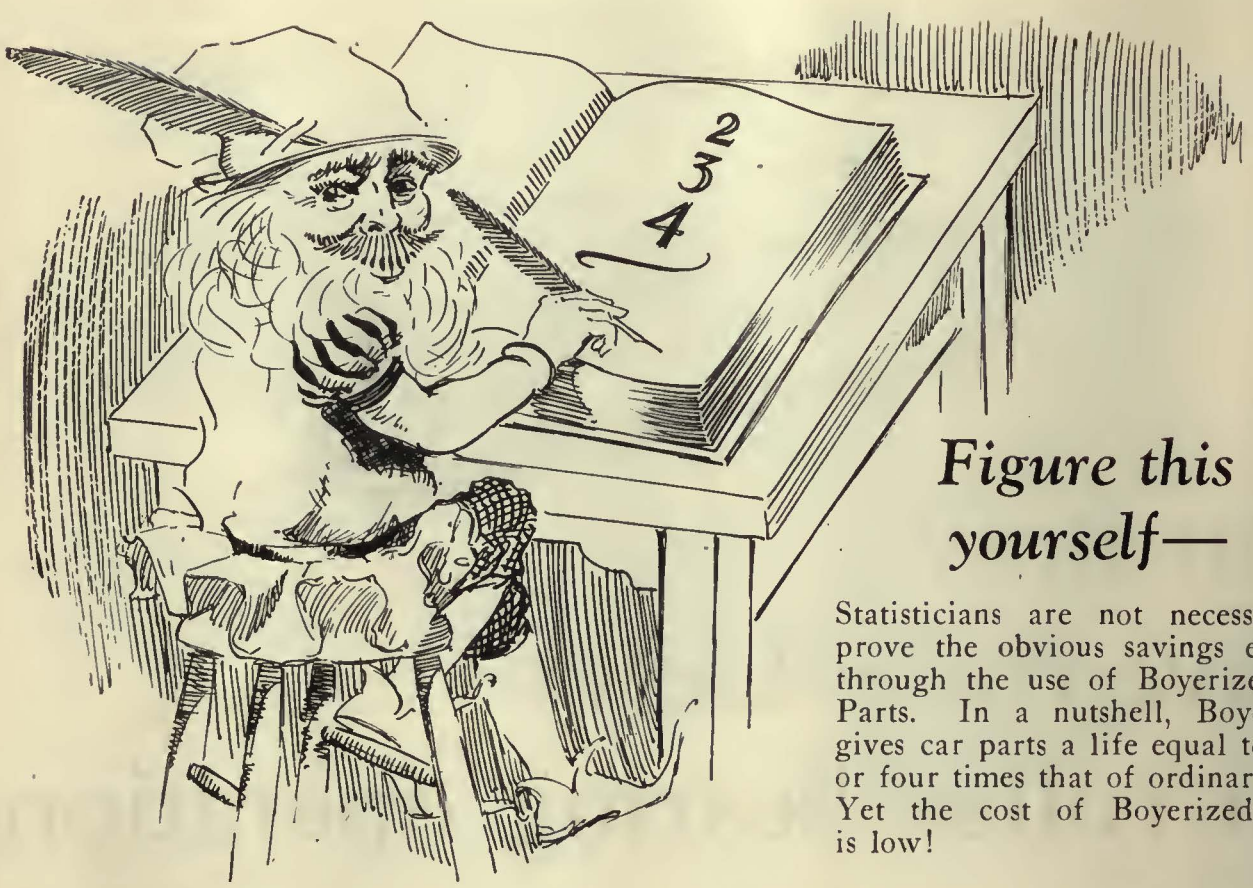


Figure this yourself—

Statisticians are not necessary to prove the obvious savings effected through the use of Boyerized Car Parts. In a nutshell, Boyerizing gives car parts a life equal to three or four times that of ordinary steel. Yet the cost of Boyerized Parts is low!

BOYERIZE

Brake Pins	Bolster and Transom Chafing Plates
Brake Hangers	McArthur Turnbuckles
Brake Levers	Manganese Brake Heads
Pedestal Gibs	Manganese Truck Parts
Brake Fulcrums	Bushings
Center Bearings	Bronze Bearings
Side Bearings	
Spring Post Bushings	
Spring Posts	

one or more cars for a test. Keep actual comparative cost and performance records—then figure yourself what the actual result is. You will agree that to Boyerize is to Economize.

And ample proof that to Boyerize is to Economize will be found in the performance records of all *Boyerized* railways.

Write today for detailed information and quotations. Or pick from the list such Boyerized Parts as you may need immediately and let us ship you a trial order.

"Boyerize to Economize"

Bemis Car Truck Company

Electric Railway Supplies

Springfield, Mass.

Representatives:

Economy Electric Devices Co., Old Colony Bldg., Chicago, Ill.
F. F. Bodler, 903 Monadnock Bldg., San Francisco, Cal.
W. F. McKenney, 54 First Street, Portland, Ore.
J. H. Denton, 1328 Broadway, New York City, N. Y.
A. W. Arlin, 772 Pacific Electric Bldg., Los Angeles, Cal.

GILBERT'S

Quality Babbitts

Street Railway Specialties

Gilbert "C" Grade Nickel Metal. A composition especially designed for lining Electric Street Car Armature Bearings. It is a tin base metal with nickel, antimony and copper and is by far the most dependable metal for use under heavy loads and excessive vibration.

The rendering of maximum service to the electric railways was the prime factor in the development and our final selection of the metallic composition of Gilbert's Quality Babbitts—Street Car Armature, Axle and Journal Bearings—Trolley Wheels and Harps.

These compositions were made our standards only after 26 years of engineering and metallurgical experimentation during which many compositions were tested in actual service and their performances compared with that of similar products of other leading manufacturers in the country.

The compositions which gave the best results were adapted as Gilbert's Standards, and are known today as follows:

Gilbert Velox Bronze—for armature, axle, and journal bearings.

Gilbert "C" Grade Nickel Babbitt Metal — for linings of armature bearings.

Gilbert "I" Grade Anti-friction Metal for linings of journal bearings and Axle Bearings.

Gilbert Phosphor Bronze—for check plates.

Gilbert Trolley Bronze—for trolley wheels.

Gilbert Quality Babbitts and Street Railway Specialties are "Best by Test."

Gilbert Velox Bronze Armature Bearings for Street Car Motors. Made up in Solid Bronze or lined with "C" Grade Nickel Babbitt. Tests show as high as 88,000 car miles. Far superior to anything in the way of a bearing on the market today.

A. GILBERT & SONS BRASS FOUNDRY CO.

ST. LOUIS, U. S. A.

The Big Parade

The Big Parade in 1918, when our fighting boys came back from France, was a welcome sight indeed, but now it's different when you see a big parade of electric railway cars headed for the repair shop, and the responsibility of repair and maintenance rests on *you*.

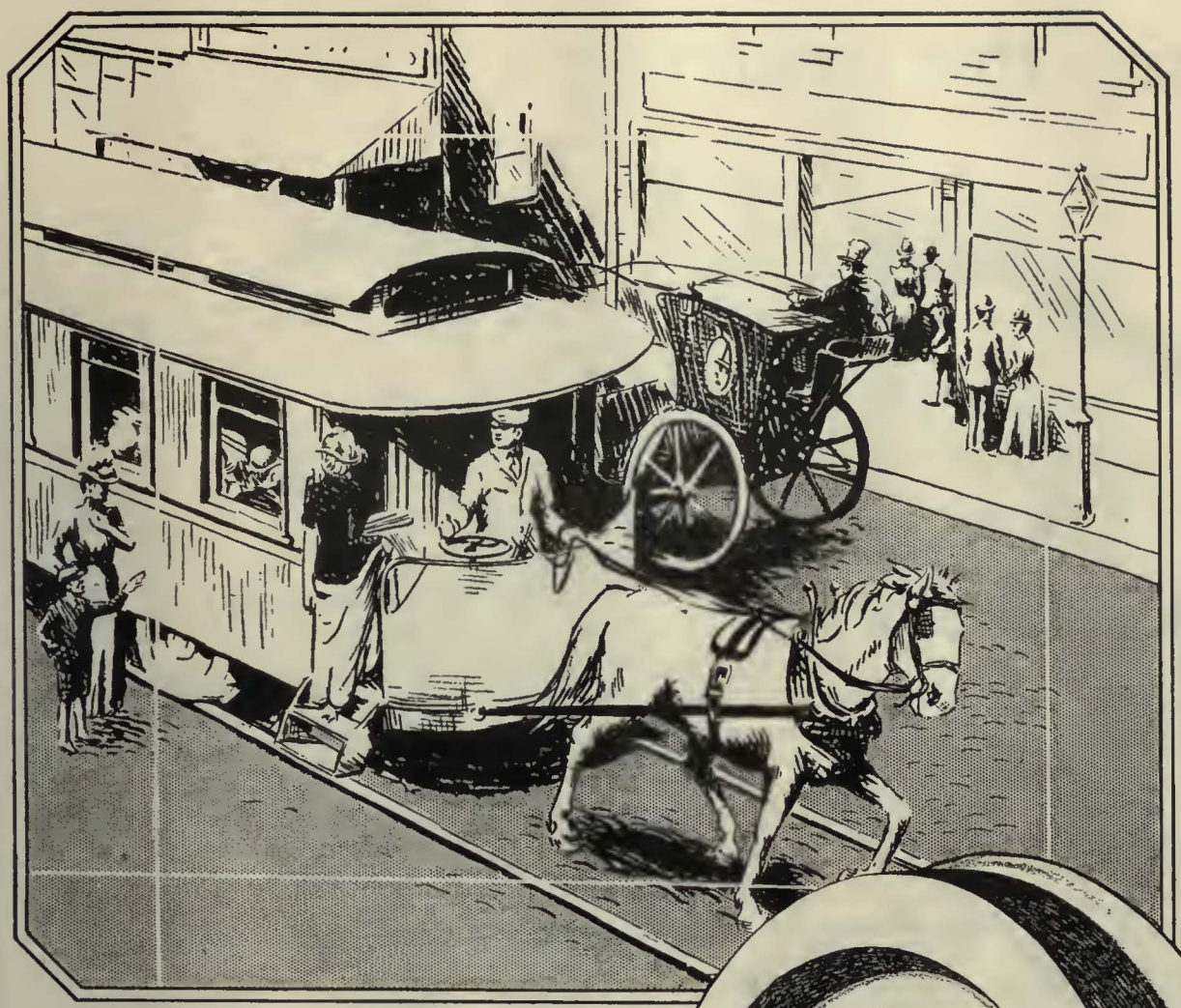
Cars that are shopped because the carbon brushes wear out prematurely is a nuisance that can be eliminated by installing Stackpole Brushes made for the job.

For all Stackpole Brushes are self-lubricating, the carbon being compounded to a scientific degree of hardness to assure minimum brush wear, yet soft enough to maintain a smooth, efficient contact that remains uniform right down to the holder.

Try reducing the Big Parade to the Repair Barn
By installing Stackpole Brushes.

STACKPOLE CARBON COMPANY
St. Marys, Penna.

Stackpole carbon brushes



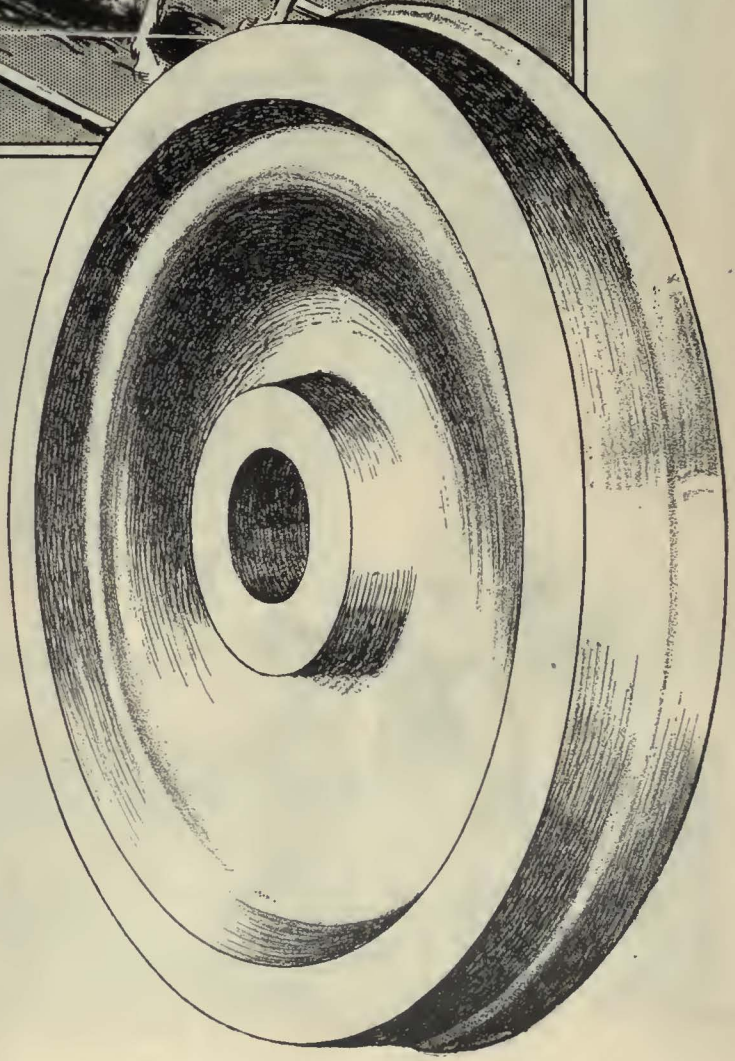
Gary Wheels Weren't Needed in These Days

But Times Have Changed As You Will Agree

It was a leisurely life in the days when this picture was taken. Time was plentiful, car schedules lenient. If you happened to forget your bundle, a good natured conductor would stop the car and go after you.

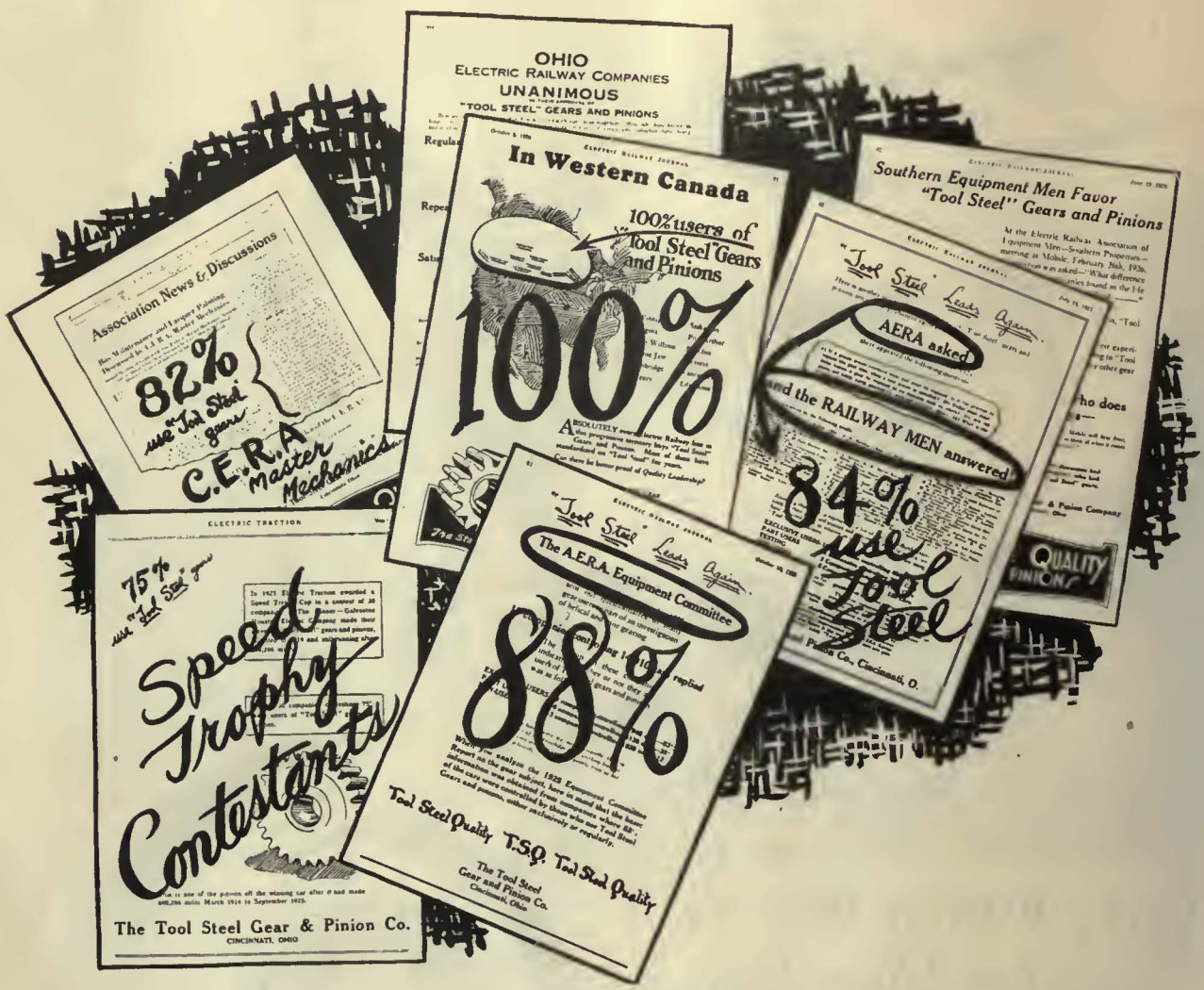
But today—speeding automobiles .. hurried commuters .. long car runs .. fast, stringent schedules .. sudden stopping .. quick starting .. and always a necessity for lowest possible mileage costs.

No wonder Gary Wrought Steel Wheels carry so much of the rolling stock of present day electric railroads.



Illinois Steel Company
208 South La Salle Street
Chicago, Illinois

Here's the Evidence



What's *Your* Verdict?

The figures shown above indicate the extent of "Tool Steel" Gear acceptance.

They pay more for "Tool Steel" gears—they get more—in long life and care-free service.

We have available, detailed facts covering the above figures.

The Tool Steel Gear & Pinion Company
Cincinnati, Ohio

Operators *and* Public agree on the Motor Coach of Medium Capacity

Not too big —

GRAHAM BROTHER

SOLD BY DODGE BROTHER

but big enough

Growing Traffic Congestion, Costs, Schedule Flexibility, Public Demand—all these factors are increasing the popularity of the 21-Passenger Motor Coach

Sales of Graham Brothers 21-Passenger Motor Coaches have been increasing steadily. Repeat orders are increasing the sizes of successfully operating fleets.

Graham Brothers Coaches are being selected in preference to the large, heavy type buses for numerous operations where service is essential and costs must be kept down.

Increased patronage indicates public appreciation of the more frequent service operators are able to furnish with Graham Brothers Coaches—of medium capacity and inexpensive to operate and maintain.

Correct in size, attracting patronage by their trim appearance, safe and comfortable to ride in—Graham Brothers Motor Coaches are a safe, practical investment wherever passengers are to be carried.

Dodge Brothers Dealers everywhere sell and service them.

PRICES—Standard 21-Passenger Street Car type, complete, $3815; 12-Passenger Parlor Coach, complete, $3750; f. o. b. Detroit.

MOTOR COACHES

EALERS EVERYWHERE

SERVICE

Always—and Everywhere

For completeness and accessibility the service facilities for Graham Brothers Motor Coaches are not equalled by any other motor coach organization—either manufacturing or selling. When repair is necessary on a Graham Brothers Motor Coach the mechanic is right there. Any needed spare part is right there. The coach is laid up only long enough for the actual work to be done—no waiting, no delay.

Every Dodge Brothers Dealer is equipped to give immediate service. He knows Graham Brothers Motor Coaches. He always carries a complete stock of repair parts. He is right there where you bought your motor coach this year, next year, whenever you need him.

Each Graham Brothers Coach is the tried and tested product of a great manufacturing institution—famous as a builder of high quality motor vehicles. The skill of thousands of workers, the best of materials, the results of years of experience—all assure you a dependable motor coach that will work with the minimum of interruption year after year and mile after mile.

Then, to further safeguard your investment and your service to your patrons, you have at your call the great nation-wide organization of Dodge Brothers Dealers.

GRAHAM BROTHERS

Evansville — DETROIT — Stockton

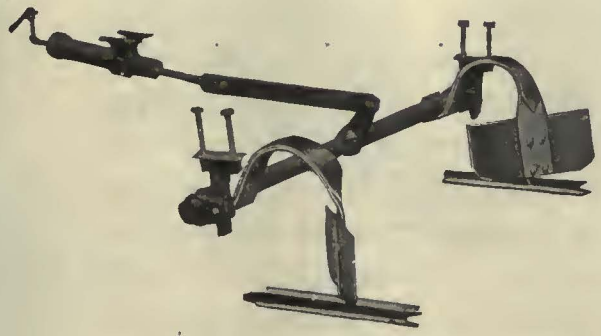
A Division of Dodge Brothers, Inc.

GRAHAM BROTHERS (CANADA) LIMITED—TORONTO, ONTARIO

ROOT

SPRING SCRAPERS

Maintain Summer Schedules in Mid-Winter!



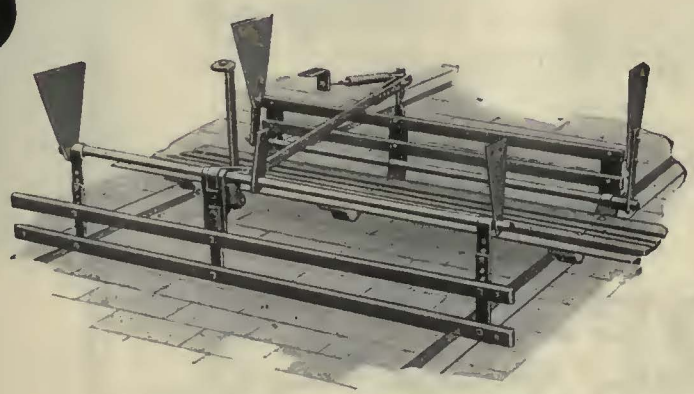
Root Spring Snow Scrapers keep the track clear of snow and ice. They are pneumatically operated by the motorman without leaving his station.

Modernize your snow fighting methods by installing a Root Spring Scraper on all of your modern rolling stock!

ROOT

SPRING LIFE GUARDS

One Hundred Percent Safety!



One hundred percent safety is, of course, practically impossible. The Root Spring Life-Guard, however, is the nearest step in that direction. It is different from any other guard on the market. It is made to work instantly when needed. It is the lightest—the strongest—the simplest—the best working—the *safest* and has the least upkeep of any life guard.

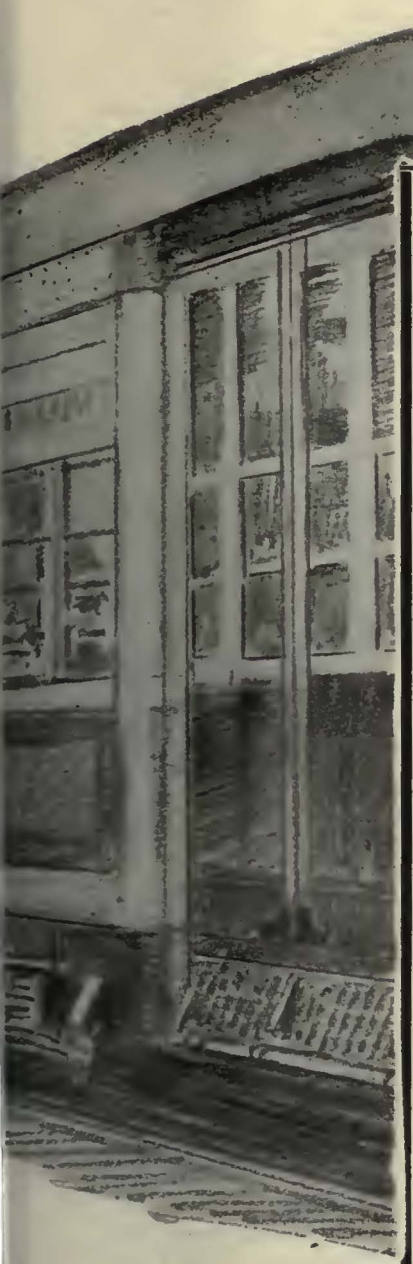
Send for catalogue showing complete line of Root Equipment

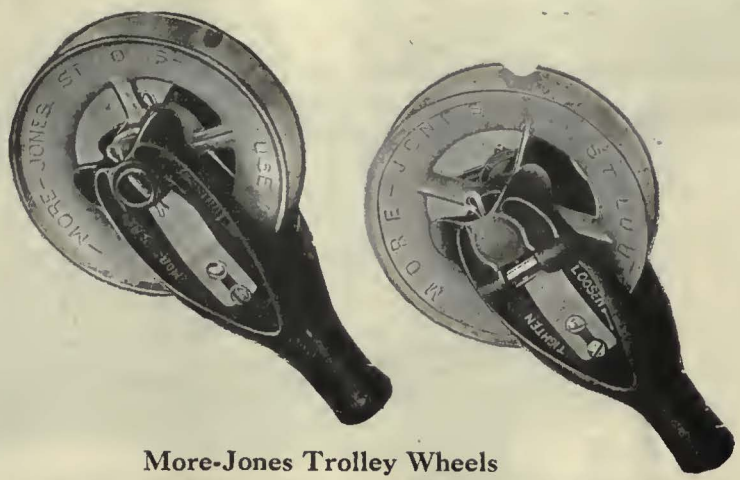
ROOT SPRING SCRAPER CO.

Kalamazoo, Mich.

DISTRICT REPRESENTATIVES:

Ross F. Hayes, 30 Church Street, New York, N. Y.
Charles N. Wood Co., 948 Old South Bldg., Boston Mass.
Grayson Railway Supply Co., 601 La Salle Bldg., St. Louis, Mo.
Railway & Power Engineering Corp., 133 Eastern Ave., Toronto, Canada.





More-Jones Trolley Wheels

They are finished and bored in one operation, thus insuring proper balance.

The Metal used is exceedingly tough—an alloy of purest new metal, having maximum conductivity—which provides greater mileage without damage to the overhead lines.

V-K Oil-less Wheels for City and Suburban service and More-Jones lubricated Wheels for high speed requirements insure lowest ultimate cost.

More-Jones ARMATURE Babbitt Metal

Standard on the majority of Electric Railway Systems in this country.

Specially formulated for the exacting requirement of Electric Railway Armature Bearing maintenance.

Its high heat radiation minimizes friction, even under the most trying circumstances.

A trial is the most conclusive proof of its superior inherent characteristics.

"Tiger" Bronze Axle and Armature Bearings

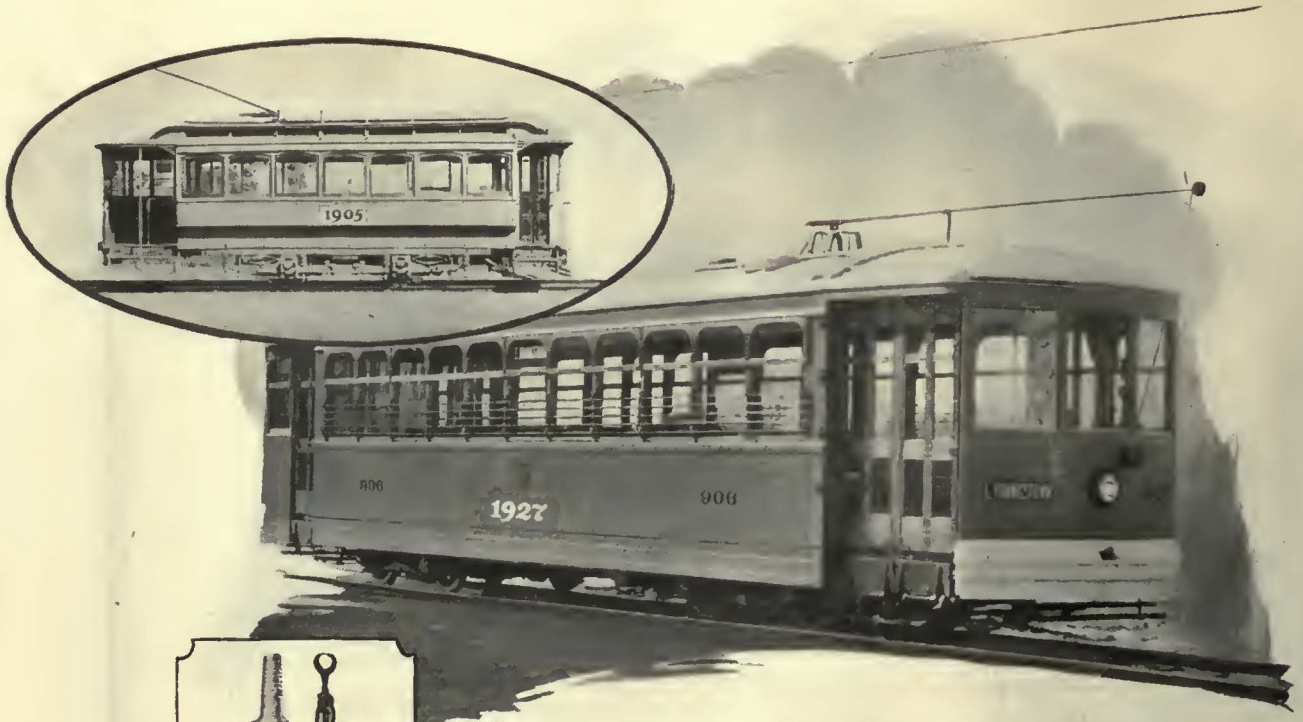
The Lead content, that we scientifically incorporate into this alloy, minimizes frictional wear, resulting in less frequent replacements. Finished oversize or undersize to a perfect running fit with your shafts.

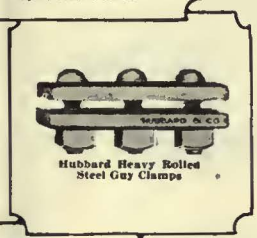
Expertly machined in strict accordance with your specifications, even to the extent of incorporating special features therein, if so desired.

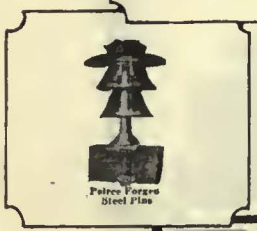
All Armature Bearings lined with our celebrated ARMATURE Babbitt Metal.

"Tiger" Bronze Axle and Armature Bearings insure maximum service under the hardest operating conditions.

ears of Service







Just as the Electric Railway Industry has progressed from year to year—

—so has Hubbard Hardware and conditions in manufacturing methods.

Manufactured in four modern plants and designed by specializing engineers of wide experience, Hubbard Hardware has always been a pioneer in the development of new pole line materials. Hubbard Standard Pole Line Hardware, and Peirce Construction Specialties meet every requirement of the Electric Railway Industry.

Hubbard distribution is also an important factor! Handled by 170 responsible jobbers, strategically located throughout the country, who carry complete stocks of Hubbard Pole Line Hardware and Peirce Construction Specialties, immediate delivery is assured.

Because of excellence of quality and the exceptional combination of manufacturing and distributing service, Hubbard leads the list for the most complete and modern equipment.

The pole line hardware and construction specialties buying guide of the Electric Railways is the Hubbard Catalog.

Write for your copy today.

The HARDWARE *makes the line*
Hubbard makes the HARDWARE

Hubbard and COMPANY

PITTSBURGH ✦ OAKLAND, CAL. ✦ CHICAGO

Differentials nearly always save enough money to pay for themselves in the first season's operation.

Differential Car Statistics

60 Railways operating Differential Electric Dump Cars.

300 Differential Electric Dump Cars in service.

24 Railways have given repeat orders. Many have repeated from 3 to 5 times.

Differential Electric Dump Cars place materials on the job at a gross cost of less than 2 cents per ton-mile.

THE DIFFERENTIAL CAR-WHEEL TRUCK AND TRACTOR—

A dual traction system for electric or steam shovels, concrete mixers, etc., which enables machine to travel on rails or on the ground. Several large railways have shown an increased capacity of 75%, at the same time cutting the labor force in half, when their electric shovels were mounted on this device.

THE CLARK CONCRETE BREAKER—

Breaks concrete at less than two cents per track foot. It is speedy and safe and protects manhole covers, conduits, underground mains, etc.

THE DIFFERENTIAL BOTTOM DUMP BALLAST CAR—

Discharges ballast in desired quantities. Motorman determines the flow of the material. Puts the ballast in desired place—between rails, at ends of ties, or spreads it over entire track area.

THE DIFFERENTIAL 3-WAY TRUCK BODY—

The truck body that dumps to both sides and to the rear. A single lever governs the direction of dumping and a single screw hoist, taking power from the transmission, furnishes the dumping force. Extremely valuable when track area is torn up for reconstruction. Has many uses the rear dump cannot fill.

It forms a valuable supplement to your Differential Cars.

DIFFERENTIAL ELECTRIC LOCOMOTIVE CRANE CAR

Capacity—5 tons at radii 3 ft. to 26 ft.
—2½ tons at radii up to 44 ft.

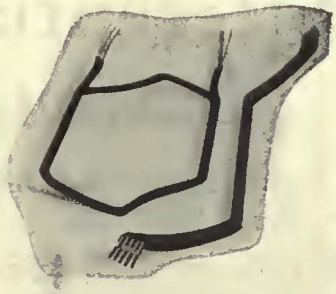
SPEEDY — SAFE — ONE MAN OPERATION.

Handles rail, special track work, poles, ties, bridge timbers, and clam-shell bucket work. Invaluable around yards and shops.

Conforms to all electric railway clearances and meets all requirements. Designed and constructed for electric railways.

The Differential Steel Car Co.

FINDLAY, OHIO

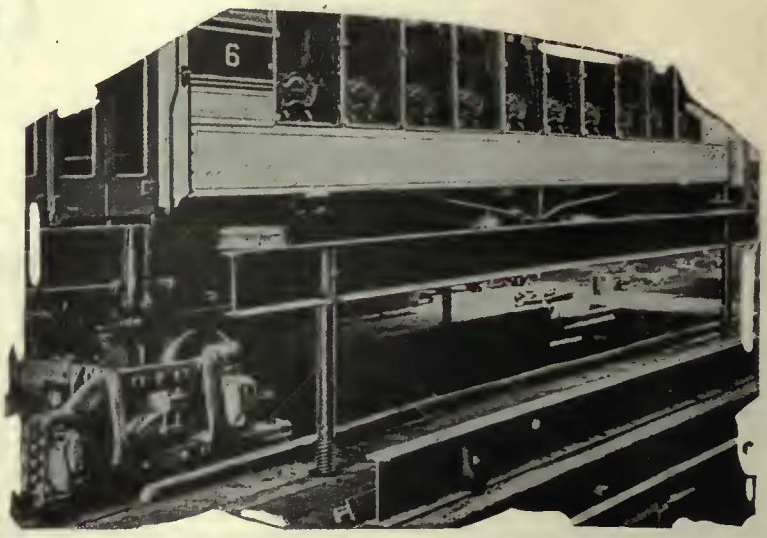


Columbia Armature and Field Coils

are made from the best grade of double cotton covered magnet wire and are moulded or pressed to accurate slot dimensions.

Columbia Armature, Axle and Journal Bearings

are made of a specially developed bearing bronze, known as Columbia No. 1, which has been adopted by a large number of roads as "standard" because of its long wearing qualities.

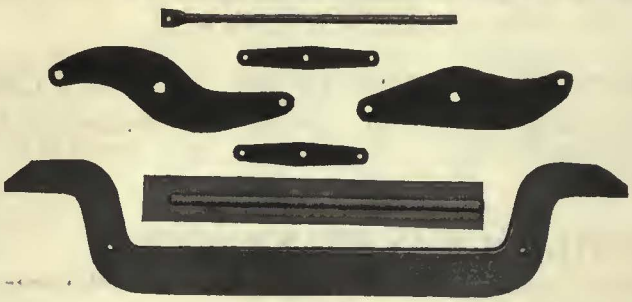


Columbia Electric Car Hoists

will raise a 50 ton car six feet in less than 5 minutes. It makes lifting easy, quick and efficient, saving workers' time and affords safety to pitmen and equipment.

Columbia Line Ears

are made of a specially developed composition metal. They withstand shocks of the wheel and pole; all kinds of weather; decomposition caused by electric arc and the clinching of the lineman's tools as he forces the wire into the groove of the ear.



Forgings

We are equipped to produce a wide variety of both light and heavy forgings. The Equalizer Bar and Brake Rigging illustrated are an example of the latter type. Produced to blue print and specifications.

Columbia Trolley Wheels, Poles and Harps

are of the highest grade workmanship. The wheels combine the essentials of ample conductivity, with proper hardness for minimum wear on wire and for the purpose of securing maximum wheel mileage. The Poles and Harps are built to meet the requirements. They are light, yet strong and dependable.

Columbia Standard Fingers and Segment Burning Tips

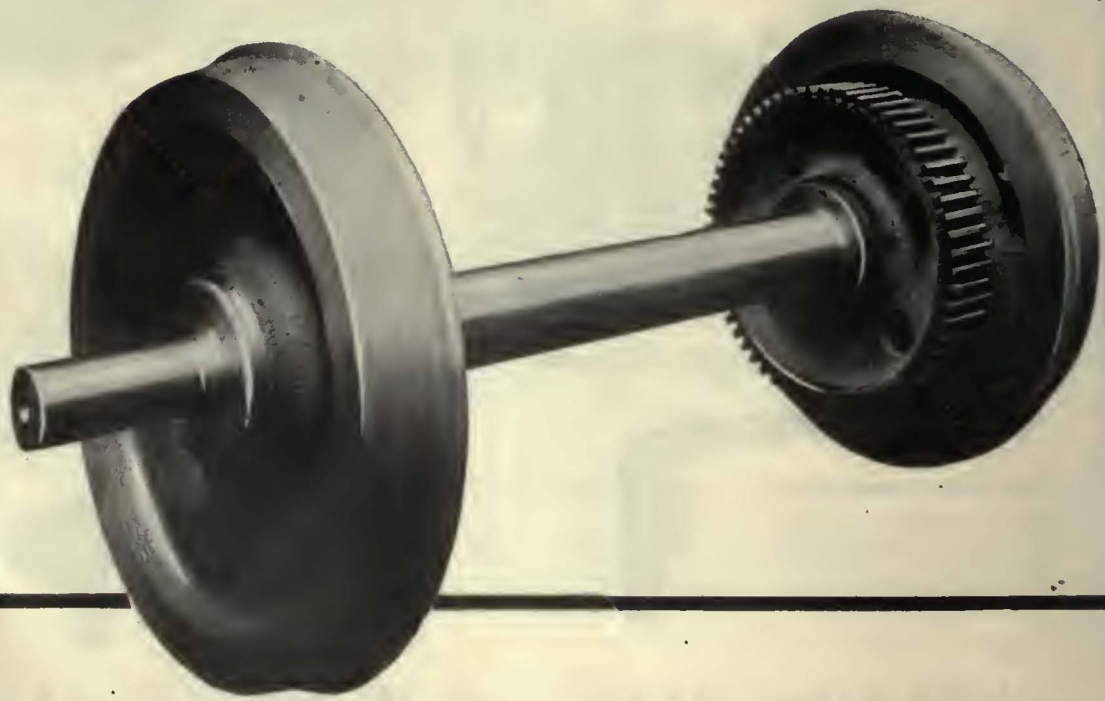
Control Fingers are of the removable tip type and are interchangeable with the non-removable tip type. Their construction insures good contact with the shunt finger spring. The Burning Segment Tips are made for all types of service. They are made to allow quick replacement whenever contact is broken or worn.

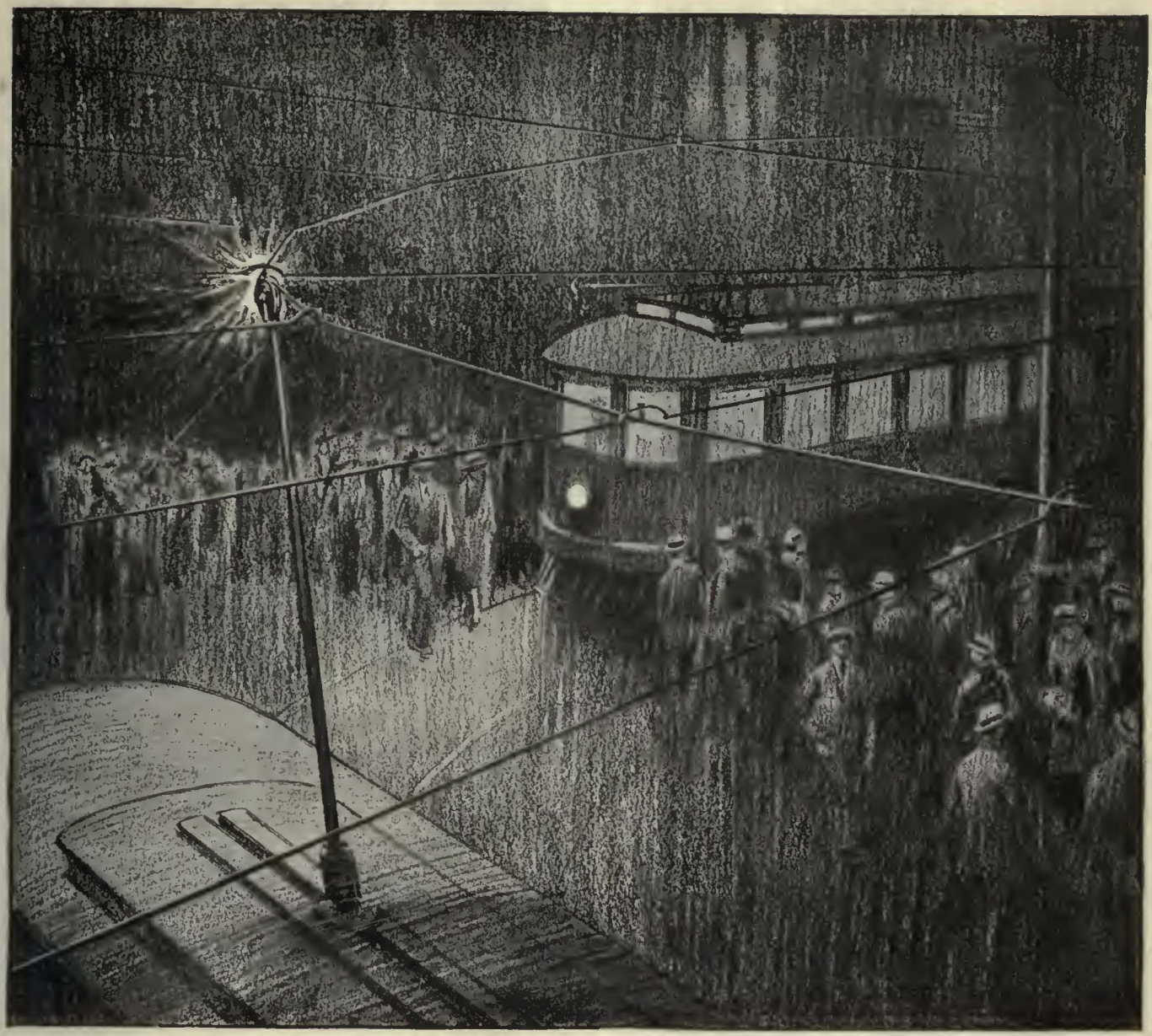
The

COLUMBIA MACHINE WORKS & M. I. CO.

265 Chestnut St., corner Atlantic Ave. Brooklyn, N. Y.

For every
In every





Hitenso for Strength

STRENGTH—a minimum of 79,000 pounds per square inch, for 00 size—with the least sacrifice in conductivity is available only in Hitenso.

Hitenso "C" meets the strength requirements of the A.S.T.M. specifications for High Strength Bronze and exceeds the conductivity by 15%. Hitenso "A" meets the specifications for Medium Strength Bronze and exceeds the conductivity by 15%. In terms of electrical efficiency Hitenso "C" is 37½% better than High Strength Bronze and Hitenso "A" 23% better than Medium Strength Bronze.

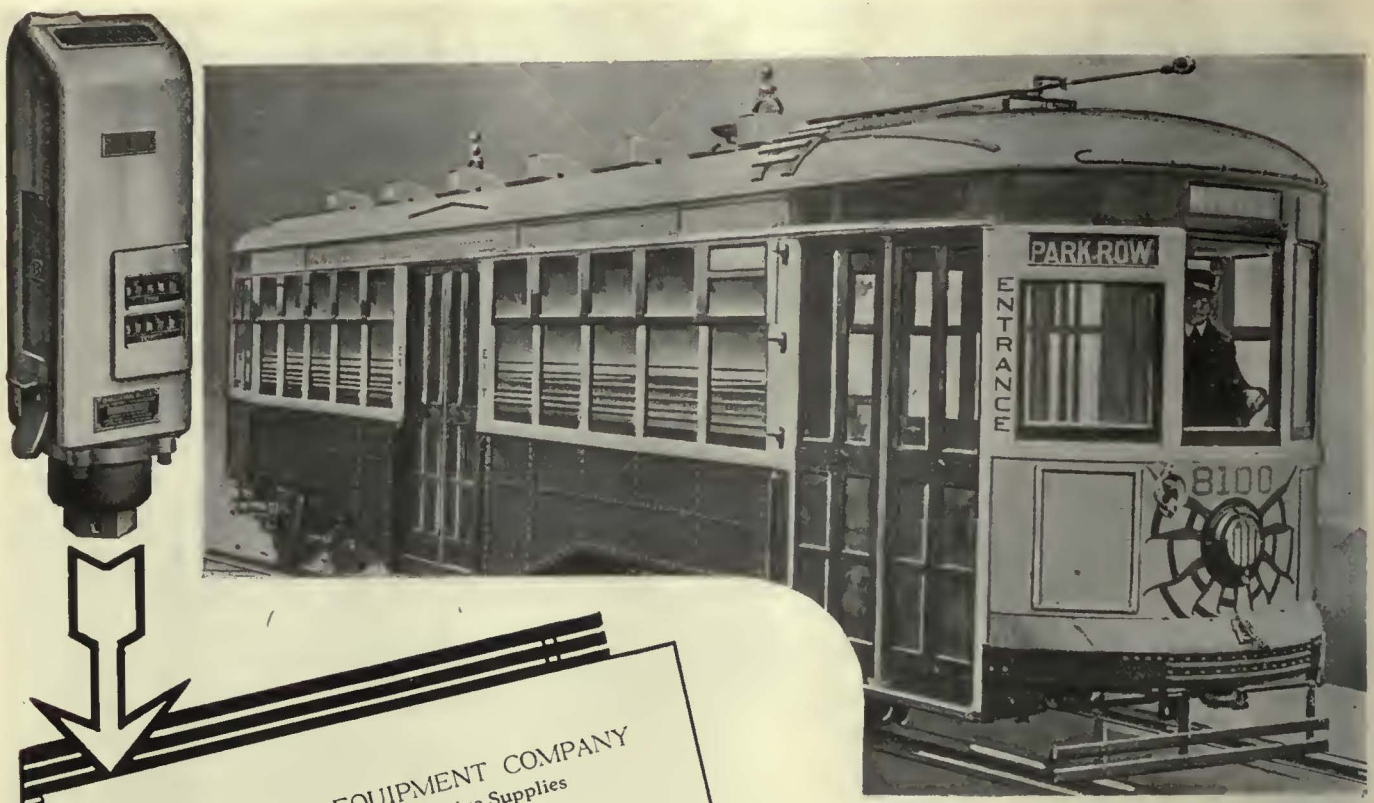
Where operating conditions are severe, Hitenso Trolley Wire, exclusively an Anaconda Product, serves best. Complete imformation upon request.

ANACONDA COPPER MINING CO. THE AMERICAN BRASS COMPANY

Rod, Wire and Cable Products

General Offices: 25 Broadway, New York Chicago Office: 111 W. Washington St.

ANACONDA TROLLEY WIRE



ILLINOIS MOTIVE EQUIPMENT COMPANY
Electric Railway and Automotive Supplies
Johnson Fare Box
35 East Wacker Drive
Chicago

For the past sixteen years I have devoted nearly all my time to power saving work, the last nine of which were with Larry Gould and the Economy meter. The years with him were eminently happy ones for me, as I thoroughly enjoyed and sincerely believed in the work. I feel that power saving is now an institution that will live as long as there are street cars, and that no more reliable device is made for the purpose than the Sangamo Economy meter.

With the memories of years of pleasant associations, it was no easy matter for me to make the decision which perhaps is inherent in all of us, namely to hang out my own shingle. This I have now done under the corporate name above.

My principal effort to begin with will be in a closely affiliated line, namely the Johnson Fare Box for which my company will be exclusive agent in the middle west.

Just as the Economy meter is effecting such substantial savings in power, so I am confident the Johnson Fare Box can effect even greater savings by safeguarding the revenue which after all is said and done is the life blood of any company.

I intend to devote my entire energy in giving real service both engineering and otherwise in connection with the application of this device to your fare collection problems.

J. D. Elsom, President,
Illinois Motive Equipment Co.

J. D. ELSOM

is now

Western Representative

For more than sixteen years, Mr. Elsom has been handling power-saving devices and equipment for street railways. Principal amongst these devices has been the Sangamo Economy Meter.

It seems quite fitting then that such a man should take over the distribution, in the middle west, of an economy and efficiency device like the Johnson Fare Box, which not only greatly simplifies the operation of the car itself, but also safeguards the revenue which, after all, is the life blood of any company.

Mr. Elsom is prepared to render real service on the application of this device, to your collection problems.

JOHNSON FARE BOX CO.

WESTERN REPRESENTATIVE

Illinois Motive Equipment Company, Chicago, Illinois

LOS ANGELES

Indianapolis Norfolk and Duluth Purchase 2000 Johnson Fare Boxes

These four well-known Street Railway companies installed Johnson Fare Boxes on their cars because they had proven by actual test that their use increased the efficiency of the platform men—reduced the loading time and accelerated the schedule—gained the confidence of the riding public—made fare collection inspection easier and more positive, and increased the revenue turn-in from 3% to 10%.

JOHNSON ELECTRIC TYPE FULL AUTOMATIC FARE BOX

which registers *every* fare electrically, *instantaneously,* and audibly by means of the coin itself which the passenger places in the box. The human element has been displaced by positive registration of fares that *instantly* tell conductor, passenger, and company that the fare has been paid and *recorded.*

This fare box has been skillfully designed, and honestly built to meet every purpose which prompted its existence—

"To accurately register all the fares collected *instantly,* audibly, and visibly."

The price is as low as Johnson reliability can be produced, even with the advantages of large output.

You are paying for Johnson Fare Boxes whether you use them or not, since the losses through a faulty or inferior system, will pay for the installation of Johnson Fare Boxes, which collect and register *all* the fares.

Remember this fact—The Johnson Fare Box Company has *never* built a non-registering Fare Box.

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

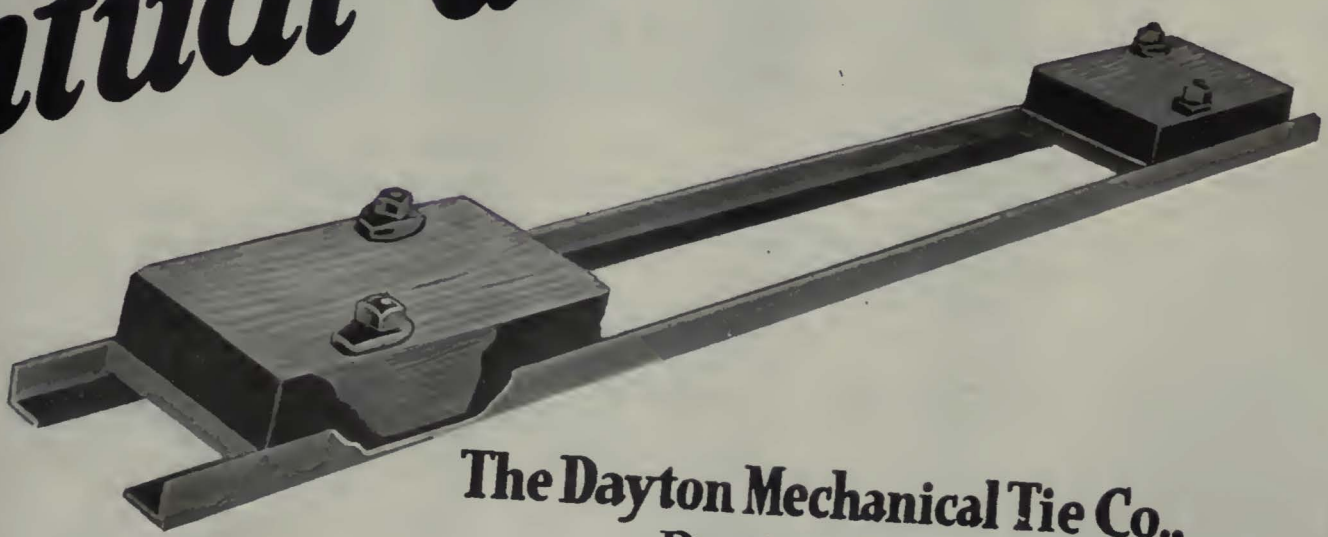
JOHNSON FARE BOX CO.

CHICAGO, ILL.
4619 Ravenswood Ave:

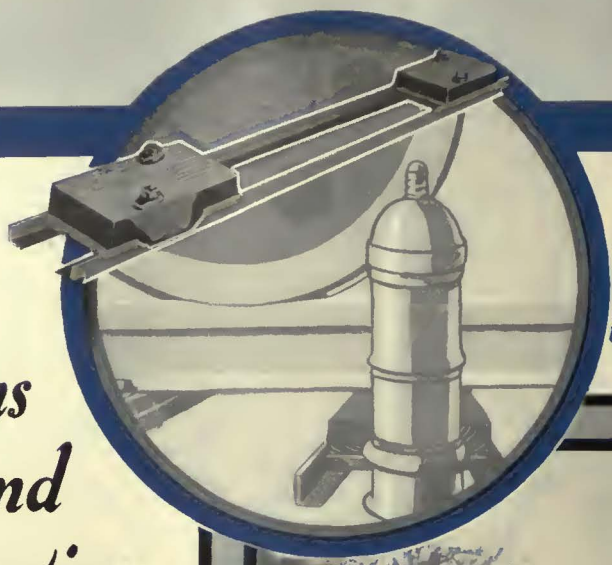
NEW YORK, N. Y.
2 W. 61st St.

Stop

this nutual destruction



The Dayton Mechanical Tie Co.,
Dayton, Ohio



Dayton Ties Put Shock Absorbers Under Your Track

Dayton Ties Forestall the Vicious Circle of Track and Rolling Stock Destruction

Too well you know the vicious circle of track and rolling stock destruction. They react on each other to the rapid deterioration of both.

Once the vicious circle starts, it is well nigh impossible to stop it. But you can defer its beginning fifteen to twenty-five years by putting down Dayton Tie Tracks.

"Shock Absorber" track laid on Dayton Ties fifteen years ago is as smooth today as ever—looks good for an indefinite period, and has not cost a penny for maintenance.

Just a few hundred feet of this track will convince you we have the cure for the vicious circle—try it.

The Dayton Mechanical Tie Co.,
Dayton, Ohio.

Resiliency

QUALITY TIES
Ready for Shipment
Now

Noiseless Operation

TO USE *International* Creosoted Ties is to insure quiet, smooth running operation of cars. These wooden ties deaden disagreeable rumblings and clashing sounds at joints and special work. Their ability to last for many years means that they maintain the line and surface of rails at all times.

All timber is carefully selected and well seasoned. After which it is thoroughly treated with creosote oil under a pressure that drives the oil deeply into the wood—thus preventing decay.

International Creosoted Ties are properly graded, plainly marked and then stamped with a copper monogrammed dating nail which serves as a permanent record for service inspections

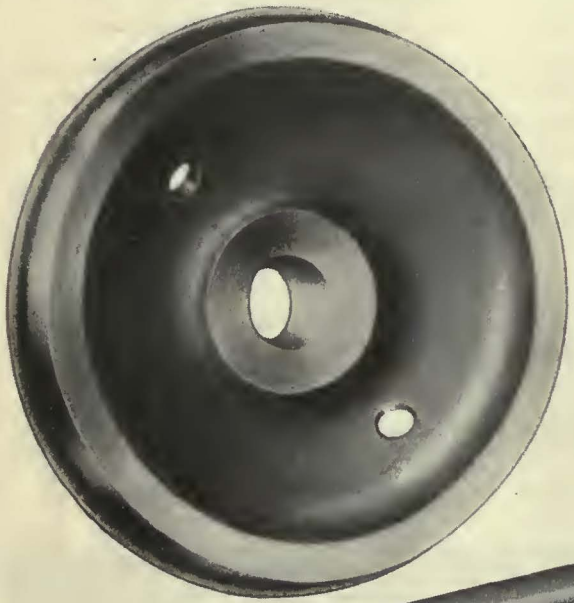
Large stocks enable us to make prompt deliveries anywhere in the United States. Send for quotations.

International Creosoting & Construction Co.
General Office—Galveston, Texas
Plants: Texarkana Beaumont Galveston

International HIGH GRADE CREOSOTED TIES

CAMBRIA
ROLLED STEEL WHEELS and FORGED STEEL AXLES

Cambria rolled steel wheels and forged steel axles are manufactured in the Cambria Plant of the Bethlehem Steel Company in Johnstown, Pa.



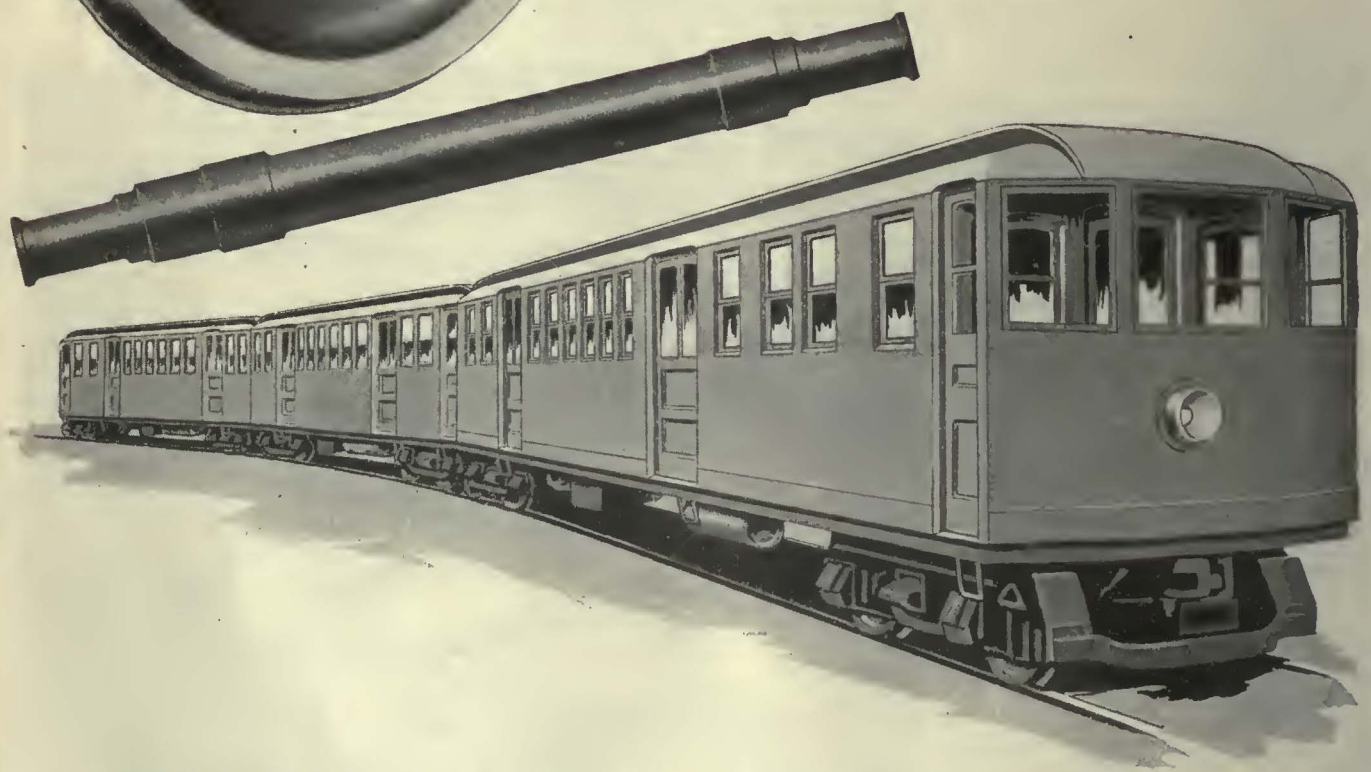
LONG SERVICE *and* MINIMUM MAINTENANCE

Cambria Rolled Steel Wheels and forged steel axles in Electric Railway Service insure maximum mileage and safety, require the minimum of maintenance and give long uninterrupted service.

Cambria wheels are made by a combined forging and rolling process, the forging giving strength, toughness and density to the metal, and the rolling establishing a grained structure which prevents breakage and crystallization.

Cambria forged steel axles are made from the finest selected stock and can be furnished rough-turned, heat-treated, annealed or untreated.

Control of raw materials and extensive facilities permit Bethlehem to produce Wheels and Axles of unusually high quality.



BETHLEHEM STEEL COMPANY, *General Offices:* BETHLEHEM, PA.

DISTRICT OFFICES:

New York Boston Philadelphia Baltimore Washington Atlanta Pittsburgh Buffalo Cleveland
Detroit Cincinnati Chicago St. Louis San Francisco Seattle Los Angeles Portland

Bethlehem Steel Export Corporation, 25 Broadway, New York City, Sole Exporter of our Commercial Products

BETHLEHEM

BETHLEHEM
RAILWAY PRODUCTS and SPECIAL TRACKWORK

A Few Bethlehem Railway Products

for Electric Railways include 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.

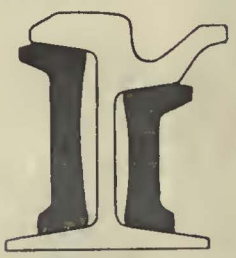
All materials, rails, plates, bars, forgings, castings, bolts, etc., are made in Bethlehem Plants—from ore to finished product under Bethlehem constant supervision.

Great care and attention is given to special layouts. Before shipment layouts are assembled to make sure that they will correctly meet conditions in the field.

The fitting up work is done under roof where workmen are shielded from inclement weather, thus enabling them to do accurate work.

Abbott Base Plate

Center Rib Base Plate



Bethlehem Special Welding Plate, Design 407 B

Solid Manganese Tongue Switch, Design 905

BETHLEHEM STEEL COMPANY, *General Offices:* BETHLEHEM, PA.

DISTRICT OFFICES:

New York Boston Philadelphia Baltimore Washington Atlanta Pittsburgh Buffalo Cleveland
Detroit Cincinnati Chicago St. Louis San Francisco Seattle Los Angeles Portland

Bethlehem Steel Export Corporation, 25 Broadway, New York City, Sole Exporter of our Commercial Products

BETHLEHEM

Modern Overhead Lines!

SUSPENSIONS
- **Cap and Cone**
  - Armored
  - Straight Line
  - Single and Double Curve
  - Car Barn: Strain
  - Hinged Bracket Arm
- **Twin**
  - Straight Line
  - Single and Double Curve
- **Round Top**
  - Straight Line
  - Single and Double Curve
  - Hinged Bracket Arm
- **West End**
  - Straight Line
  - Single and Double Curve
  - Hinged Bracket Arm
- **Boston Twin**
  - Straight Line
  - Single and Double Curve
  - Strain
- **Ceiling or Trough**
  - Types B, C, E, F, G.
  - With removable insulated bolt:—
  - Types H, I, J.
- **Insulated Bolts**

EARS
- Straight Line for Round, Grooved or Figure 8 Wire.
- Double Center
- Feeder Ears
- Splicing Ears
- Half Strain
- Double Strain
- Clamp
- Mechanical

Splicing Sleeves
Feeder Cable Splicers
Wire Connectors
Strain Plates
Wire Protecting Sleeves

FROGS
- Bronze
- Malleable Iron
- Two, four and six pull-offs.
- In any degree, right and left hand
- High Speed
- With and without removable ears

Frog wearing plates

CROSSINGS
- Bronze
- Malleable Iron
- Steel
- Insulated
- Uninsulated
- Adjustable
- Rigid
- With and without removable ears

Overhead Conductor Bar Construction

YOKES
- Feed In
- Feeder Plug
- Straight Line
- Single and Double Curve
- Swivel Strain
- Double Trolley Wire

INSULATORS
- Wood Strain
- Elephant Strain
- Giant Strain
- Globe Strain
- Porcelain
- Feed Wire
- Feeder Tap
- Brooklyn
- Turnbuckle

Third Rail Section
- Single and Double Beam
- Automatic
- High Speed

Split Spools
Solid Spools
Overhead material for Bridges
Line Material for Cranes
Sectionalizing Switches
Trolley Wheels
Sleet Wheels and Cutters
Harps
Pole Bands
Eye Bolts
Insulator Pins
Tools for installing overhead material

Modern science has made commercial air routes possible with a maximum degree of safety, speed and comfort. To accomplish this required the finest materials and the most skilled workmanship.

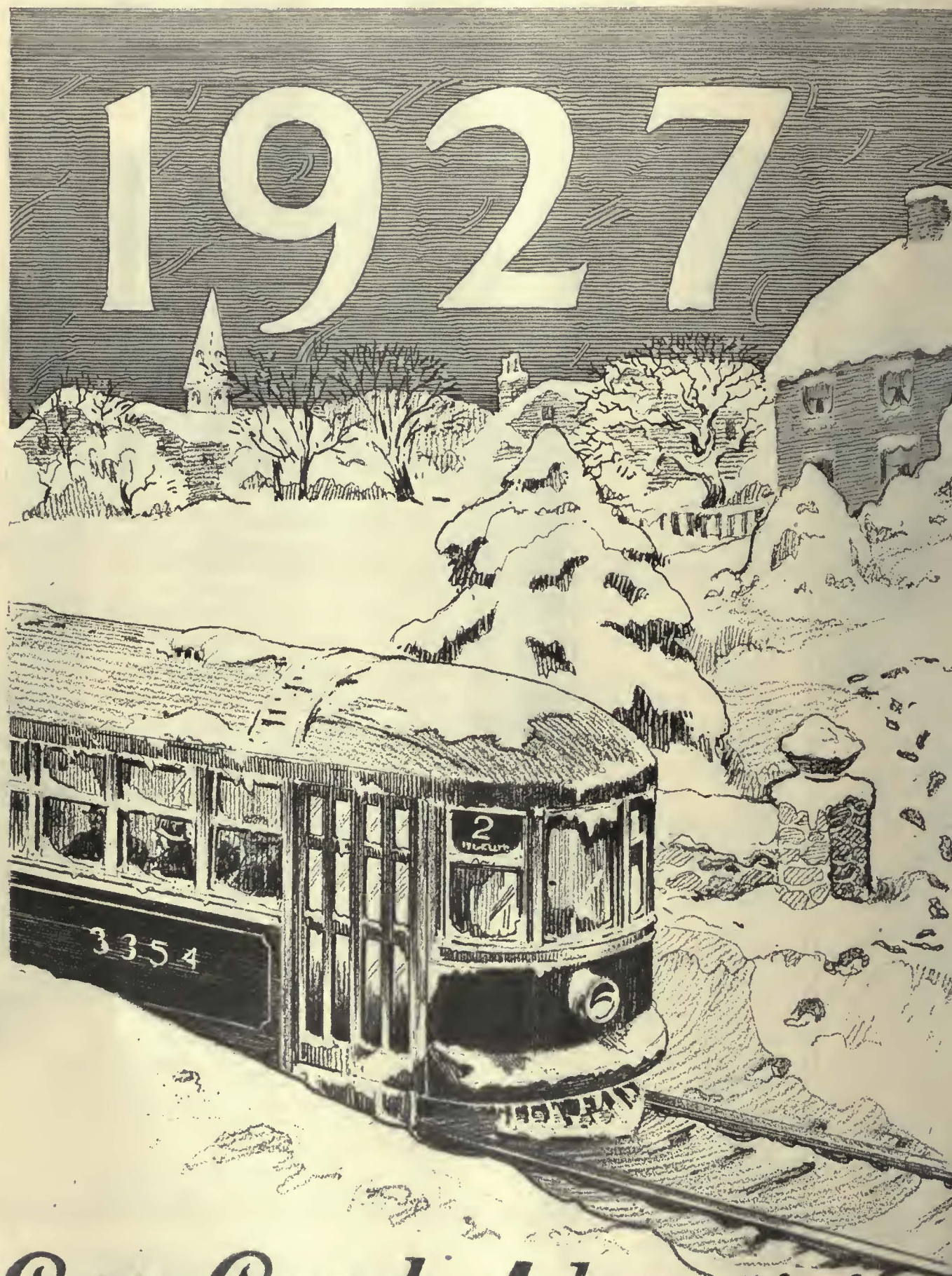
Likewise—*Anderson* Line Material for electric railways is manufactured with the highest degree of material and workmanship. More than thirty years' experience backs the organization in keeping *Anderson* designing and manufacturing most modern. As the needs of the industry developed, *Anderson* has kept pace with service demands, constructing line material on a modern, honest, quality-service basis—a basis of dependability.

Anderson is particularly well equipped to design and manufacture special line material to suit the exact necessities of any local requirements. *Anderson* engineers are always ready to cooperate with electric railways on any overhead line material problems.

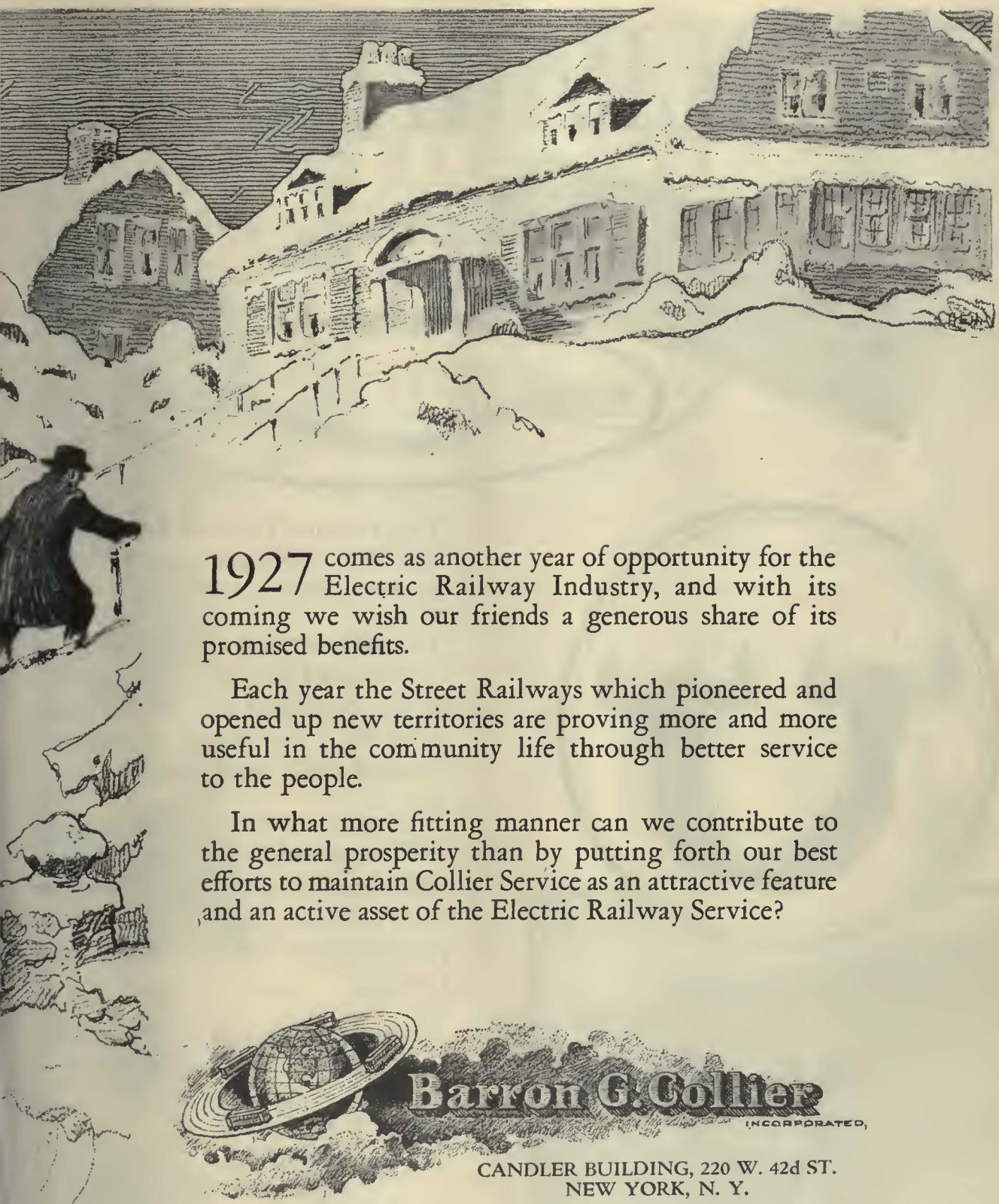
Look over the partial list of *Anderson* equipment. Select what you need and ask for latest quotations.

Albert & J. M. Anderson Mfg. Co.
289-305 A St., Boston, Mass.

Philadelphia—129 Real Estate Trust Bldg. New York—135 Broadway
Chicago—105 S. Dearborn St. London, E. C. 2, 12 Moor Lane



Car Card Advertising



1927 comes as another year of opportunity for the Electric Railway Industry, and with its coming we wish our friends a generous share of its promised benefits.

Each year the Street Railways which pioneered and opened up new territories are proving more and more useful in the community life through better service to the people.

In what more fitting manner can we contribute to the general prosperity than by putting forth our best efforts to maintain Collier Service as an attractive feature and an active asset of the Electric Railway Service?

Barron G. Collier
INCORPORATED

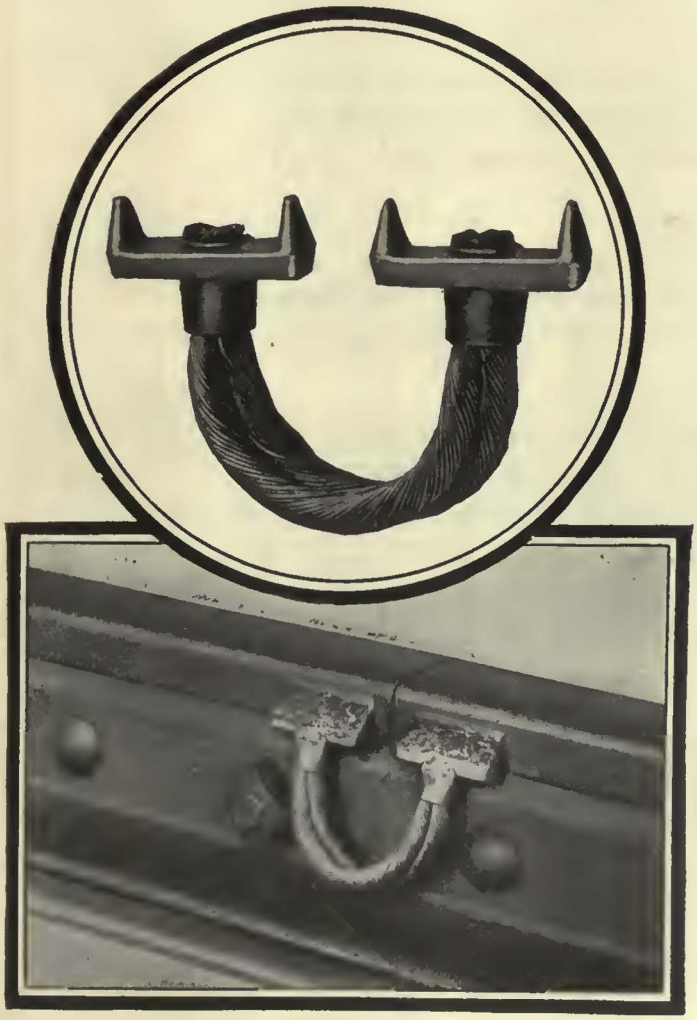
CANDLER BUILDING, 220 W. 42d ST.
NEW YORK, N. Y.

almost everywhere!

ARCON RAIL BONDS

TRADE MARK REG.

Arcon "C" Bond



The Arcon "C" Bond in detail, and its application to Weber Joint is shown above.

The application of this bond is simple and effective. All parts of the terminal and rail are accessible. The weld is accomplished easily and quickly.

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

Prices and descriptive literature sent on request.

Arcon "A" 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 Dallas Atlanta Denver Salt Lake City

Export Representative: U. S. Steel Products Co., New York

Pacific Coast Representative: U. S. Steel Products Company, San Francisco, Los Angeles, Portland, Seattle

What "per car mile" statistics do *not* show

It has been the aim of operators of electric railways, especially during the past few years, to materially reduce operating expenses "per car mile."

But does a reduction in any individual account really mean a reduction in the aggregate of expense? Take, for instance, "lubrication." Does showing a "per car mile" reduction in lubricating expense really mean a reduction in total operating expenses "per car mile"? Theoretically, and as shown by the statistics it does. Actually, in too many instances, this is not so.

There is always a temptation to produce a low cost for lubricants at the expense of repairs which are not usually shown up so clearly in the shape of definite figures.

Stop a moment and think how much money is spent every year for new journal brasses, babbitting axle and armature

TEX

THE TEXAS COMPAN

OFFICES IN AL

A Railway Resistor — so light a boy can carry

Dissipates 3600 watts, yet weighs only 35 lb.

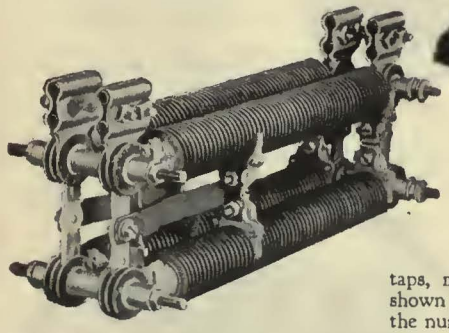
THIS Monitor Edgewound Railway Resistor, complete with frame, weighs 35 lb. It can easily be carried by a boy. A cast-iron grid resistor of the same watts rating (3600) weighs over twice as much.

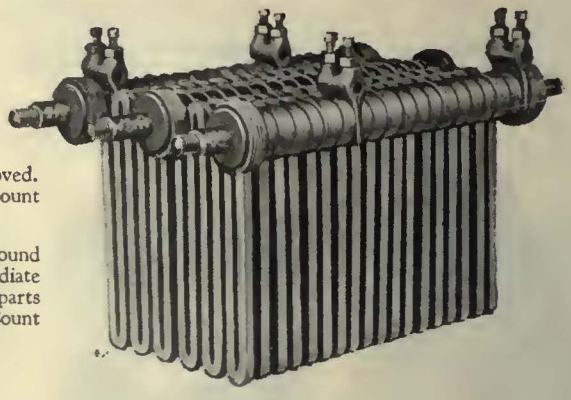
Eighteen grids, connected two in multiple, compose the cast-iron resistor. Four Edgewound units, connected two in multiple, compose the Edgewound Resistor. Figure for yourself the number of joints in each case. Each joint in the Edgewound resistor is independent of the others, permanently tight, of great mechanical strength — an assurance against loose connections. Tap connections take a firm positive grip on the resistor ribbon and are adjustable at will.

THERE is not a single piece of cast-iron in the Monitor Edgewound Resistor. It is practically unbreakable. The resistance is the same whether hot or cold and there is no tendency towards localized heating (hot spots).

Stop resistor breakages and burnouts by replacing grid banks with Monitor Units—enthusiastically endorsed by every user. They fit the space required by cast-iron grid resistors—can be made more compact if desired.

The greater reliability and reduced maintenance that accompanies the use of Monitor Edgewound Railway Resistors warrants your thorough investigation. Ask for detailed information.





At right — 3600-watt cast-iron grid railway resistor with two intermediate taps, mounting removed. Total weight of parts shown 72 lb. Count the number of joints.

At left—3600-watt Monitor Edgewound Railway Resistor with two intermediate taps, mounting removed. Total weight of parts shown 22 lb. Weight with mountings 35 lb. Count the number of joints.

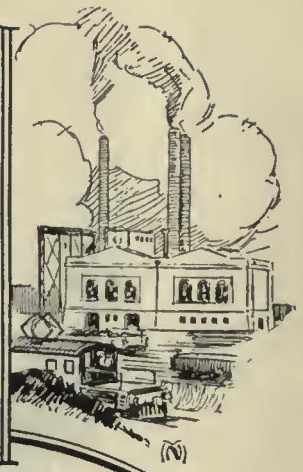
Monitor Controller Company, Gay, Lombard and Frederick Streets, Baltimore, Md.

New York Chicago Buffalo Cincinnati Detroit Pittsburgh Philadelphia St. Louis Birmingham New Orleans Cleveland Boston Washington Los Angeles San Francisco

Monitor Edgewound Resistor

6111-1

Cost Reduction



SUCCESSFUL operation of a modern industrial plant is becoming more and more a question of costs. Time study, routing, labor and time-saving machinery, "hand-to-mouth" buying and various other expedients are shaving costs to the last fraction of a cent. Every industrial concern has been forced into the race for greater economy and lower cost production.

In the effort to reduce costs, efficiency engineers sometimes overlook the important item of lubrication. Yet no single item has a more far-reaching effect on the ultimate cost of the product of the plant.

Depreciation of machinery, repair cost, replacement expense—all these must be added to the final cost of the product of the plant. And all these items can be reduced to the minimum by the use of high quality oils and greases of grades suited to the machinery.

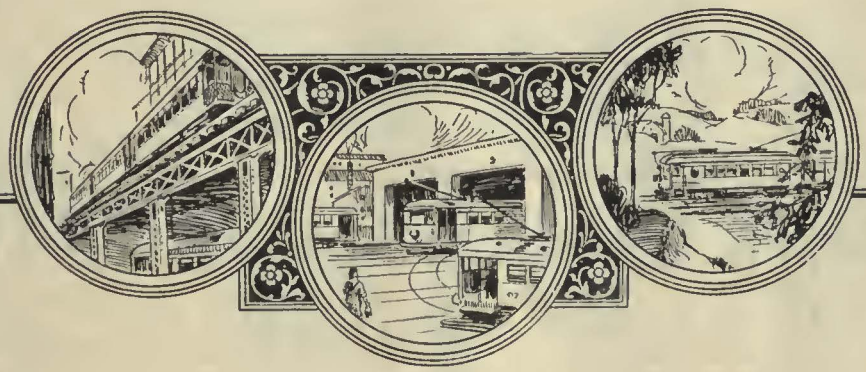
Standard Oils and Greases

are lubricants of the highest quality, and are made in grades suited to the requirements of all industrial machinery in use today. By reducing friction to the minimum, they will cut down depreciation repair and replacement costs.

The Standard Oil Company (Indiana) representative in your locality is thoroughly familiar with the lubrication requirements of modern machinery, and will recommend the correct grades for your use.

STANDARD OIL COMPANY
(INDIANA)

910 South Michigan Avenue Chicago, Illinois



10 outstanding advantages

As compared to shellac-pasted mica, Super-Micanite has the following characteristics:

ELECTRICAL

1. Dielectric strength—10% to 60% greater.
2. Volume Resistivity — 100% greater.
3. Surface Resistivity — 300% greater.
4. Dielectric Power Loss—34% less.

PHYSICAL

5. Slippage—shows practically none under pressure.
6. Transverse strength — 50% to 100% greater.
7. Density—7% greater.

CHEMICAL

8. Carbonization—Its binder shows only *slight* tendency to carbonize under high temperatures and when exposed to arcing.
9. Corrosion—Is non-corrosive to copper. Its binder decomposes at a *higher* temperature and the decomposition products, formed below the carbonization point, are *neither corrosive nor conductive.*
10. Effect of heat—slight.

Super-Micanite

Pat. Aug. 25, 1914; June 14, 1926

A New and Important Contribution to the Art of Electrical Insulation

Look over its ten advantages listed. Super-Micanite is truly a super insulation.

It means better, more dependable motors, fewer breakdowns, reduced maintenance.

Let us send you all the interesting facts about this unique insulation, its uses, application and advantages. A post card request will promptly bring you a copy of the Super-Micanite Bulletin.

MICA INSULATOR COMPANY

World's Largest Manufacturers of Mica Insulation
Established 1893

New York: 68 Church St. Chicago: 542 So. Dearborn St.
Cleveland Pittsburgh Cincinnati San Francisco Los Angeles
Seattle
Works Schenectady, N.Y.; London, England; Victoriaville, Canada

PERFECT MICANITE INSULATOR REG. U.S. PAT. OFF.

Electrical INSULATION

PERFECT EMPIRE INSULATOR REG. U.S. PAT. OFF.

MICA INSULATION OILED CLOTH INSULATION

The Springs they buy again

Only springs of dependable quality are bought by railway men over and over again. The fact that for more than 20 years leading railway properties have repeated continuously on "Fort Pitt" Springs, is all the *proof of reliable service* any reasonable man wants.

Order "Fort Pitt" Springs for your modern, quiet, comfortable-riding cars.

Consider some of these—

Full Elliptics for Car Trucks;
Half Elliptics for Locomotive and Cars;
Special Types of Quarter, Half and Three-Quarter Elliptics for Electric Railway Service;
Drawbar Springs, Equalizer Springs, Extension Springs.

Prompt shipments can be made. Write for Catalog and Specification Book.

Fort Pitt Spring & Manufacturing Co.
Pittsburgh, Pa.

FORT PITT

SILVER LAKE TROLLEY CORD

would be "plotted" by statisticians in terms of "miles of cord in service" —miles and miles of Silver Lake Trolley Cord and Silver Lake Bell and Signal Cord that have established an enviable record during more than half a century, because of their excellent service, their tough, strong, waterproof, *non-stretching* and long lasting qualities.

Bell and Register Cords made in all sizes and colors.

Send for Catalogs and Samples.

SILVER LAKE COMPANY, Newtonville, Mass.

Write your own!

The savings shown are of the Georgia Railway & Power Company from ties and timbers creosoted by their own organization and from creosoted southern yellow pine poles most of which have been furnished by this company. These figures may not be correct for your conditions, but they will suggest the approximate savings that you could secure by the adoption of AmCreCo creosoted timber. Fill in your own figures and study the results.

	Fill in your own figures in this column	Actual unit savings per year on one road	Approximate savings per year on your road
Total miles of open track	.....	× $290.40 =	.....
Total miles of track under pavement costing $1.00 per sq. yd.	.....	× 528.00 =	.....
Total miles of track under pavement costing $3.50 per sq. yd.	.....	× 1188.00 =	.....
Total bridge timber (in thousand board feet)	.....	× 1.72 =	.....
Total miles of pole lines	.....	× 281.98 =	.....
Grand Total Annual Saving			.....

For information or quotations on creosoted timber, address

AMERICAN CREOSOTING COMPANY

INCORPORATED

COLONIAL CREOSOTING COMPANY INCORPORATED — AMCRECO LOWRY PROCESS CREOSOTED WOOD — GEORGIA CREOSOTING COMPANY INCORPORATED

LOUISVILLE ~ KENTUCKY

SALES OFFICES

350 Madison Ave., New York City. 401 W. Main St., Louisville, Ky.
Bogalusa, La. 332 So. Michigan Ave., Chicago Brunswick, Ga.

AmCreCo creosoted southern yellow pine poles on a Georgia Railway & Power Company ine.

15,500,000,000 passengers carried in one year!

Statistics prepared by the American Electric Railway Association (Bulletin No. 104) disclose that 15,500,000,000 passengers were accounted for by the electric railways in 1925. This, however, is the total number of passengers whose fares found their way to the treasuries of the companies. How many riders whose fares did not find their way to the treasury could be added to this amount? The number, if known, might prove astonishing. Many railways still consider the fare collection method of importance only from the viewpoint of office routine. It is really the most important detail of the business!

In preparing this year's budget consider your fare collection problem seriously. It is the

GLOBE

000,000

backbone of your business, the channel through which each passenger contributes his fare to the company treasury. Make sure it gets there!

Being makers of tickets and checks since 1873, our experience and modern plant qualify us to render electric railways a real service in fare collection matters. Globe leadership in experience, accuracy, quality workmanship and prompt service has never been challenged.

Whether it be trip tickets, or in rolls, strips or books, cash fare receipts, weekly pass, monthly commutation cards, or books, transfers, identification checks, hat checks, baggage checks, or any other requirement, consult our experts and procure our prices.

GLOBE TICKET COMPANY

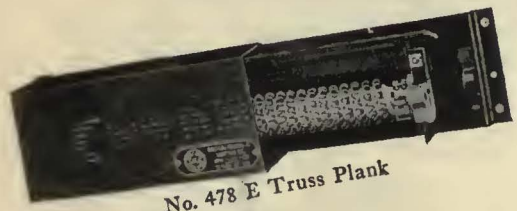
makers of tickets and checks since 1873.

116 N. 12th St., Philadelphia, Pa.

Los Angeles New York San Francisco

CKETS

Proper Car Temperatures Improve Public Relations!



No. 478 E Truss Plank

No. 414 E Panel

No. 470 E Vestibule

Particularly at this time of the year you know the demoralizing effect which improper car temperatures have on the riding public! Are your passengers continually complaining about your car temperatures? Too hot? Too cold? Do such complaints improve your relations with the riding public?

There is no necessity for permitting such complaints to continue. Equip your cars with

Gold Electric Car Heaters *and* Gold Thermostatic Control

They will assure your cars having the proper temperature at all times. They will assure a comfortable ride for your passengers. They will minimize the possibility of temperature complaints and they will improve your public relations.

With small initial expense and negligible maintenance costs, Gold Electric Heaters and Thermostatic Control are real economy. For example, one company had in service 12,000 Gold Electric Heaters. Over a period of more than eleven years they spent only $200 for repair parts—all parts being bought direct from us.

Equip your cars with Gold Electric Car Heaters and convince yourself of the economies that can be effected in heater operation; and the complete satisfaction accorded your passengers.

ENCLOSED HEATING ELEMENTS SUPPLIED IF DESIRED

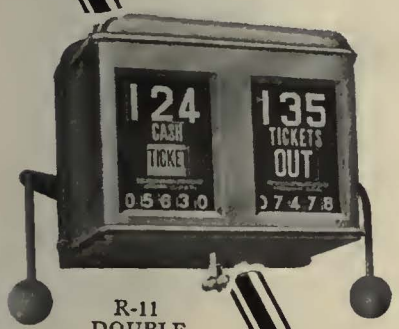
Gold Car Heating & Lighting Co.
Bush Terminal
220 36th Street, Brooklyn, N. Y.

ELECTRIC FARE REGISTRATION

The trend in the design of modern Cars tends strongly toward greater operating efficiency, and greater comfort and safety for the passenger.

Why not carry this idea to its logical conclusion? Protect your revenue by installing International Electrically Operated Fare Registers! Electric operation is reliable, fast, and simple, assuring accurate registration of all fares and transfers with the least expenditure of effort on the part of the trainman.

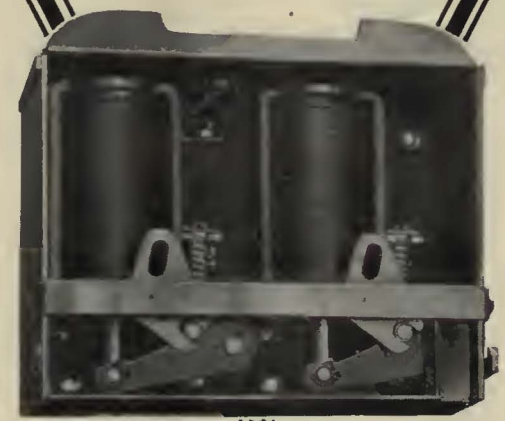
We also manufacture a full line of International single and double fare registers equipped for mechanical and hand or foot operation.



R-11
DOUBLE

R-10
SINGLE

The electric back of the double register is equipped with two solenoids; one for the operation of the cash fare side and the other for the operation of the transfer side. Both solenoids are wound for operation on 350-650 volts D.C. The register operating circuit is not broken in the register back.



ELECTRIC BACK
FOR DOUBLE REGISTER

The electrically operated registers, both single and double, are operated by a specially designed foot switch mounted on the floor.

The International Register Company
15 South Throop St., Chicago

THANK You!

The wholesome recognition accorded statistical data prepared by McGraw-Hill Publications is due in large measure to the readers of McGraw-Hill Publications, who reply with painstaking care to McGraw-Hill questionnaires.

This is a word of appreciation to you readers who are called upon from time to time to give McGraw-Hill basic information of a more or less confidential nature.

THE PUBLISHERS

Bankers and Engineers

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Positions Wanted, 4 cents a word, minimum 75 cents an insertion, payable in advance.

Positions Vacant and all other classifications, 8 cents a word, minimum charge $2.00.

Proposals, 40 cents a line an insertion.

INFORMATION:

Box Numbers in care of any of our offices count 10 words additional in undisplayed ads.

Discount of 10% if one payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:

1 to 3 inches.....$4.50 an inch
4 to 7 inches..... 4.30 an inch
8 to 14 inches..... 4.10 an inch

Rates for larger spaces, or yearly rates, on request.

An advertising inch is measured vertically on one column, 3 columns—30 inches—to a page.

POSITIONS VACANT

EXPERIENCED track foreman. Energetic man wanted on city work. Give references and experience in detail. P-958, Electric Railway Journal, Tenth Ave. at 36th St., New York.

POSITIONS WANTED

SUPERINTENDENT, thoroughly reliable and capable, with excellent references, desires change. Not being forced out but looking for better opportunities. Widely experienced in both city and interurban operation, commendable past record for success in employee training and management, accident reduction, public relations, and the general solution of operating problems. PW-955, Electric Railway Journal, 10th Ave. at 36th St., N. Y.

SUPERINTENDENT of rolling stock, 24 years' experience, open for position. PW-960, Electric Railway Journal, Tenth Ave. at 36th St., New York.

TRANSPORTATION official available. Broad experience, successful record, city and interurban properties, recognized ability, progressive, efficient, successful in handling labor. Public relations, traffic problem, selling transportation, increasing revenue. Fine references. PW-961, Electric Railway Journal, Guardian Bldg., Cleveland, Ohio.

WANTED position as master mechanic, 16 years' experience with two large interurban companies. Can furnish best of references from past and present employers. Very good reasons for making change. PW-959, Electric Railway Journal, Guardian Bldg., Cleveland, Ohio.

WHAT AND WHERE TO BUY

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

Advertising, Street Car
Collier, Inc., Barron G.

Air Brakes
Westinghouse Air Brake Co.

Air Circuit Breakers
Roller-Smith Co.

Air Receivers and After-coolers
Ingersoll-Rand Co.

Air Springs
Cleveland Pneumatic Tool Co.

Ammeters
Roller-Smith Co.

Anchors, Guy
Elec. Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Armature Shop Tools
Columbia Machine Works
Elec. Service Supplies Co.

Automatic Regulators, Voltage, Current & Synchronizers
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.
Illinois Steel Co.
National Ry. Appliance Co.
St. Louis Car Co.
Standard Steel Works Co.
Westinghouse E. & M. Co.

Axles, Steel
Carnegie Steel Co.

Babbitt Metal
Ajax Metal Co.
A. Gilbert & Sons Brass Fdry.
More-Jones Brass & Metal. Co.

Babbitting Devices
Columbia Machine Works

Badges and Buttons
Elec. Service Supplies Co.
International Register Co.

Barges, Steel
American Bridge Co.

Batteries, Dry
Nichols-Lintern Co.

Bearings, Anti-Friction
Hyatt Roller Bearing Co.

Bearings and Bearing Metals
Ajax Metal Co.
Bemis Car Truck Co.
Brill Co., The J. G.
Columbia Machine Works
General Electric Co.
A. Gilbert & Sons Brass Fdry.
More-Jones Brass & Metal. Co.
St. Louis Car Co.
Westinghouse E. & M. Co.

Bearings, Ball
Norma-Hoffman Co.
S. K. F. Industries

Bearings, Center and Roller Side
Columbia Machine Works
Stucki Co., A.

Bearings, Roller
Hyatt Roller Bearing Co.
Norma-Hoffman Co.
S. K. F. Industries . . . .

Bells and Buzzers
Consolidated Car Heating Co.

Bells and Gongs
Brill Co., The J. G.
Columbia Machine Works
Elec. Service Supplies Co.
St. Louis Car Co.

Benders, Rail
Railway Track-work Co.

Bodies, Bus
Baker-Raulang Co.
Brill Co., The J. G.
Cummings Car & Coach Co.
General Aluminum Products Co.

Body Material, Haskelite and Plymetl
Haskelite Mfg. Corp.

Boilers
Babcock & Wilcox Co.

Bolts, Nuts, Rivets
Russell, Birdsall & Ward Bolt & Nut Co.

Bolts and Nuts, Track
Illinois Steel Co.

Bond Testers
American Steel & Wire Co.
Electric Service Supplies Co.
Roller-Smith Co.

Bonding Apparatus
Amer. Steel & Wire Co.
Elec. Service Supplies Co.
Ohio Brass Co.
Railway Track-work Co.
Una Welding & Bonding Co.

Bonds, Rail
Amer. Steel & Wire Co.
Elec. Service Supplies Co.
General Electric Co.
Ohio Brass Co.
Railway Track-work Co.
Una Welding & Bonding Co.
Westinghouse E. & M. Co.

Book Publishers
McGraw-Hill Book Co., Inc.

Brackets and Cross Arms (See also Poles, Ties, Posts, Etc.)
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Bates Expanded Steel Truss Co.
Columbia Machnie Co.
Elec. Ry. Equipment Co.
Elec. Service Supplies Co.
Hubbard & Co.
Ohio Brass Co.

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

Brake Shoes
American Brake Shoe & Foundry Co.
Bemis Car Truck Co.
Brill Co., The J. G.
St. Louis Car Co.
Wheel Truing Brake Shoe Co.

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Bemis Car Truck Co.
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Columbia Machnie Co.
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St. Louis Car Co.
Westinghouse Tr. Br. Co.

Bridges, Steel
American Bridge Co.

Brushes, Carbon
General Electric Co.
Jeandron, W. J.
Le Carbone Co.
Morganite Brush Co., Inc.
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Brill Co., The J. G.
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International Motor Truck Co.
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Irvington Varnish & Ins. Co.

Cambric Yellow and Black Varnish
Mica Insulator Co.

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Consolidated Car Heat. Co.
Westinghouse E. & M. Co.

Car Steps
Irving Iron Works

Car Wheels, Rolled Steel
Bethlehem Steel Co.

Cars, Dump
Brill Co., The J. G.
Differential Steel Car Co. Inc.
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.
Amer. Car Co.
Brill Co., The J. G.
Cincinnati Car Co.
Cummings Car & Coach 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.

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Ajax Metal Co.
Anderson Mfg. Co., A. & J. M.
Columbia Machine Works
More-Jones Brass & Metal. Co.

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American Brake Shoe & Foundry
American Bridge Co.
American Steel Foundries
Bemis Car Truck Co.
Columbia Machine Works
St Louis Car Co.
Standard Steel Works Co.

Castings, Malleable & Brass
American Brake Shoe & Foundry
Bemis Car Truck Co.
Columbia Machine Works
St. Louis Car Co.

Castings, Nichrome
Driver-Harris Co.

Catchers and Retrievers, Trolley
Earll, C. I.
Elec. Service Supplies Co.
Ohio Brass Co.
Wood Co., Chas. N.

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Ceiling Car
Haskelite Mfg. Corp.
Pantasote Co., Inc.

Ceilings, Plywood, Panels
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Chairs, Parlor Car
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Change Carriers
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Dossert & Co.
Elec. Ry. Equipment Co.
Elec. Service Supplies Co.
General Electric Co.
Hubbard & Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Cleaners and Scrapers, Track (See also Snow-Plows, Sweepers and Brooms)
Brill Co., The J. G.
Cincinnati Car Co.
Ohio Brass Co.
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General Electric Co.

Coal and Ash Handling (See Conveying and Hoisting Machinery)

Coil Banding and Winding Machines
Columbia Machine Works
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Coils, Armature and Field
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Economy Electric Devices Co.
General Electric Co.
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Coils, Choke and Kicking
Elec. Service Supplies Co.
General Electric Co.
Westinghouse E. & M. Co.

Coin Counting Machines
Cleveland Fare Box Co.
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International Register Co.
Johnson Fare Box Co.

Coin Sorting Machines
Cleveland Fare Box Co.
J. L. Galef Co.

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Cleveland Fare Box Co.
J. L. Galef Co.

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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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General Electric Co.
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General Electric Co.
Ingersoll-Rand Co.
Sullivan Machinery Co.
Westinghouse Tr. Br. Co.

Compressors, Gas
Sullivan Machinery Co.

Compressors, Air, Portable
Ingersoll-Rand Co.
Sullivan Machinery Co.

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General Electric Co.
Ingersoll-Rand Co.
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Dossert & Co.
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Columbia Machine Works
Consolidated Car Heat. Co.
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Control Systems
Monitor Controller Co.

Controllers or Parts
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General Electric Co.
Westinghouse E. & M. Co.

Controllers, Automatic, Electric
Monitor Controller Co.

Controllers, Electric
Monitor Controller Co.

Controllers, Motor
Monitor Controller Co.

Controller Regulators
Elec. Service Supplies Co.
Monitor Controller Co.

Controllers, Rheostatic
Monitor Controller Co.

Controllers, Speed
onitor Controllers Co.

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

Converters, Rotary
General Electric Co.
Westinghouse E. & M. Co.

Conveying & Hoisting Machinery
American Bridge Co.

Copper Wire
American Brass Co.
American Steel & Wire Co.
Anaconda Copper Mining Co.
Rome Wire Co.

Copper Wire Instruments, Measuring, Testing and Recording
American Brass Co., The
American Steel & Wire Co.
Anaconda Copper Mining Co.

Cord, Bell, Trolley, Register, etc.
American Steel & Wire Co.
Brill Co., The J. G.
Elec. Service Supplies Co.
International Register Co.
Roebling's Sons Co., John A.
Samson Cordage Works
Silver Lake Co.

Cord Connectors and Couplers
Elec. Service Supplies Co.
Samson Cordage Works
St. Louis Car Co.
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.

Crane Controller, Electric
Monitor Controller Co.

Cranes, Electric, Industrial Truck Mounted
Baker-Raulang Co.

Cranes, Hoists & Lifts
Buda Co., The
Electric Service Supplies Co.

Cross Arms (See Brackets)

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

Crossing Foundations
International Steel Tie Co.

Crossings, Frog and Switch
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co.

Crossings, Manganese
Bethlehem Steel Co.
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co.

Crossing Signals. (See Signal Systems, Highway Crossing)

Crossings, Track (See Track, Special Work)

Crossings, Trolley
Ohio Brass Co.
Westinghouse E. & M. Co.

Curtains & Curtain Fixtures
Brill Co., The J. G.
O. M. Edwards Co., Inc.
Pantasote Co., Inc.
St. Louis Car Co.

Dealer's Machinery & Second Hand Equipment
Elec. Equipment Co.
Van Loan Corp., Irving S.

Derailing Switches
Ramapo Ajax Corp.

Destination Signs
Columbia Machine Works
Elec. Service Supplies Co.

Detective Service
Wish Service, Edward P.

Door Operating Devices
Brill Co., The J. G.
Consolidated Car Heat. Co.
National Pneumatic Co.
Safety Car Devices Co.

Doors & Door Fixtures
Brill Co., The J. G.
O. M. Edwards Co., Inc.
General Electric Co.
Hale-Kilburn Co.
St. Louis Car Co.

Doors, Folding Vestibule
National Pneumatic Co.
Safety Car Devices Co.

Drills, Rock
Sullivan Machinery Co.

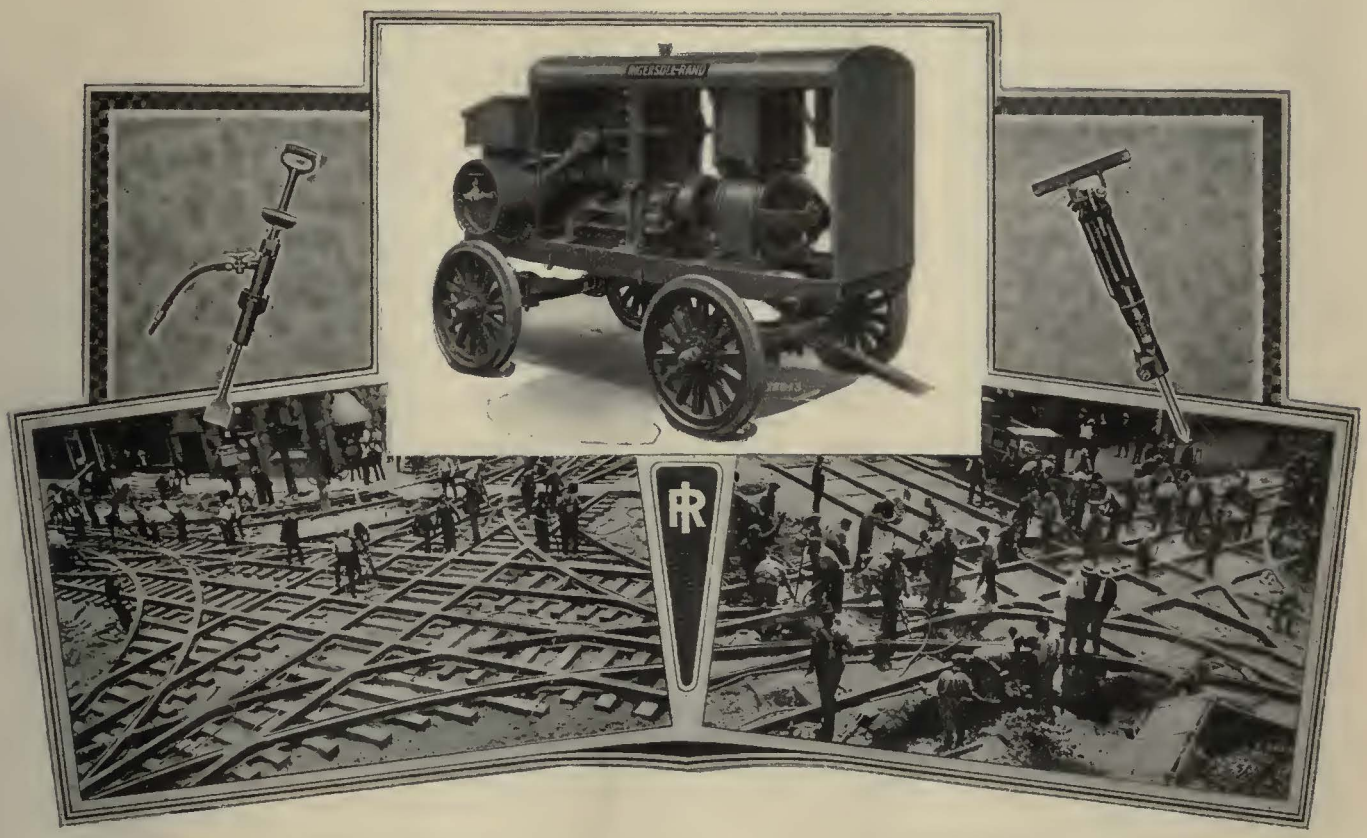
Drills, Track
Amer. Steel & Wire Co.
Elec. Service Supplies Co.
Ingersoll-Rand Co.
Ohio Brass Co.

Dryers, Sand
Elec. Service Supplies Co.
Ohio Brass Co.
Westinghouse Elec. & Mfg. Co.

Ears
Columbia Machine Works
Elec. Service Supplies Co.
Ohio Brass Co.
Westinghouse E & M. Co.

(Continued on page 156)

Pneumatic Tie Tampers and Paving Breakers



Two very effective means of reducing track work costs

Ingersoll-Rand Pneumatic Tie Tampers tamp track at less than half the cost of doing the job by hand methods. It has been definitely proved on dozens of roads that four men with pneumatic tampers will tamp more track, and do a better job, than 12 to 16 men using hand methods.

I-R Pneumatic "Paving Breakers" save from 60% to 75% of the time and labor taken by hand methods in tearing up pavement or breaking out heavy concrete foundations.

Every road should include Tie Tampers and Paving Breakers in its equipment in order to take advantage of these savings on track work.

Ask for full details as to the savings made by these tools on other jobs.

INGERSOLL-RAND COMPANY-11 BROADWAY, NEW YORK CITY.

Offices in principal cities the world over

FOR CANADA REFER-CANADIAN INGERSOLL-RAND CO. LIMITED, 260 ST. JAMES STREET, MONTREAL, QUEBEC.

220 T.T.

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Electric Grinders
Railway Track-work Co.

Electric Transmission Towers
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Amer. Steel & Wire Co.
John A. Roebling's Sons Co.
Rome Wire Co.

Electrodes, Carbon
Railway Track-work Co.
Una Welding & Bonding Co.

Electrodes, Steel
Railway Track-work Co.
Una Welding & Bonding Co

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J. Rowland Bibbins
F. J. Brennan
Buchanan & Layng Corp.
A. B. Cole
Day & Zimmermann, Inc.
A. L. Drum & Co.
Ford, Bacon & Davis
Hemphill & Wells
Holst, Engelhardt W.
Jackson, Walter
Kelker & DeLeuw
Kelly-Cooke Co.
McClellan & Junkersfeld
Richey, Albert S.
Sanderson & Porter
Stevens & Wood
Stone & Webster
White Eng. Corp., The J. G.

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Ingersoll-Rand Co.
Westinghouse E. & M. Co.

Engines, Gasoline
Continental Motors Co.
Waukesha Motor Co.

Exterior Side Panels
Haskelite Mfg. Corp.

Fare Boxes
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Economy Electric Devices Co.
J. L. Galef Co.
Johnson Fare Box Co.
Nat'l Ry. Appliance Co.
Ohmer Fare Register Co.
Percy Mfg. Co.

Fare Registers
Elec. Service Supplies Co.
Ohmer Fare Register Co.

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Acme Wire Co., The
Amer. Steel & Wire Co.

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Brill Co., The J. G.
Cincinnati Car Co.
Consolidated Car Fender Co.
Root Spring Scraper Co.
St. Louis Car Co.
Star Brass Works
Wood Co., Chas. N.

Fibre and Fibre Tubing
Westinghouse E. & M. Co.

Field Coils (See Coils)

Flaxlinum Insulators
National Railway Appliance Co.

Floodlights
Elec. Service Supplies Co.

Floor, Sub
Haskelite Mfg. Corp.

Flooring, Fireproof
Irving Iron Works

Flooring, Non-Slipping
Irving Iron Works

Flooring, Open Steel
Irving Iron Works

Flooring, Steel, Subway
Irving Iron Works

Flooring, Ventilating
Irving Iron Works

Floors
Haskelite Mfg. Corp.

Forgings
Brill Co., The J. G.
Duff Mfg. Co.
Standard Steel Works Co.

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

Frogs, Track (See Track Work)

Frogs, Trolley
Elec. Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Furnaces, Electric
American Brown Boveri Corp.

Furnaces, Electric, Steel Melting
American Bridge Co.

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

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General Electric Co.

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Gasoline Torches
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Westinghouse E. & M. 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 Co.

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Elec. Service Supplies Co.
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Elec. Service Supplies Co.
General Electric Co.
Nat'l Ry. Appliance Co.
Nuttall Co., R. D.
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General Electric Co.
Leece-Neville Co.
Westinghouse E. & M. Co.

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Bethlehem Steel Co
Lorain Steel Co.

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Grating, Steel, Subway
Irving Iron Works

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Grinders & Grinding Supplies
Metal & Thermit Corp.
Railway Track-work Co.

Grinders, Portable
Railway Track-work Co.

Grinders, Portable Electric
Railway Track-work Co.

Grinding Bricks and Wheels
Railway Track-work Co.

Guard Rail Clamps
Ramapo Ajax Corp.

Guard Rails, Tee Rail & Manganese
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co.

Guards, Trolley
Elec. Service Supplies Co.
Ohio Brass Co.

Hammers, Pneumatic
Ingersoll-Rand Co.

Hand Holds
Central Equipment Co.

Harps, Trolley
Columbia Machine Works
Elec. Service Supplies Co.
More-Jones Brass & Metal Co.
Nuttall Co., R. D.
Star Brass Works

Headlights
Elec. Service Supplies Co.
General Electric Co.
Ohio Brass Co.
St. Louis Car Co.

Headlining
Columbia Machine Works
Haskelite Mfg. Corp.
Pantasote Co., Inc.

Heaters, Car (Electric)
Consolidated Car Heat. Co.
Economy Electric Devices Co.
Gold Car Heat. & Ltg. Co.
Nat'l Ry. Appliance Co.
Smith Heater Co., Peter

Heaters, Car, Hot Air and Water
Smith Heater Co., Peter

Heaters, Car, Stove
Smith Heater Co., Peter

Helmets, Welding
Railway Track-work Co.
Una Welding & Bonding Co.

Hoists & Lifts
Columbia Machine Works
Ford Chain Block & M. Co.

Hoists, Portable
Ingersoll-Rand Co.
Sullivan Machinery Co.

Hose, Bridges
Ohio Brass Co

Hose, Pneumatic
Westinghouse Tr. Br. Co.

Ignition Units
Leece Neville Co.

Industrial Tractors
International Harvester Co.

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American Steel & Wire Co.
Economy Electric Devices Co.
General Electric Co.
Roller-Smith Co.
Westinghouse E. & M. Co.

Insulating Cloth, Paper and Tape
General Electric Co.
Irvington Varnish & Ins. Co.
Mica Insulator Co.
Okonite Co.
Okonite-Callender Cable Co. Inc.
U. S. Rubber Co.
Westinghouse E. & M. Co.

Insulating Machinery
Amer. Ins. Machinery Co.

Insulating Silk
Irvington Varnish & Ins. Co.

Insulating Varnishes
Irvington Varnish and Insulating Co.

Insulation (See also Paints)
Electric Ry. Equipment Co.
Elec. Service Supplies Co.
General Electric Co.
Irviogton Varnish & Ins. Co.
Mica Insulator Co.
Okonite Co.
Okonite-Callender Cable Co. Inc.
U. S. Rubber Co.
Westinghouse E. & M. Co.

Insulation Slot
Irvington Varnish & Ins. Co.

Insulator Pins
Elec. Service Supplies Co.
Hubbard & Co.

Insulators (See also Line Materials)
Electric Ry. Equipment Co.
Elec. Service Supplies Co.
General Electric Co.
Irvington Varnish & Ins. Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Interior Side Linings
Haskelite Mfg. Corp.

Interurban Cars (See Cars, Passenger, Freight, Express, etc.)
Cummings Car & Coach Co.

Jacks (See also Hoists and Lifts)
Buda Co., The
Columbia Machine Works
Duff Mfg. Co.
Elec. Service Supplies Co.
National Ry. Appliance Co.

Journal Boxes
Bemis Car Truck Co.
Brill Co., The J. G.
St. Louis Car Co.

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Elec. Service Supplies Co.
General Electric Co.
Westinghouse E. & M. Co.

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

Lamps, Signal and Marker
Elec. Service Supplies Co.
Nichols-Lintern Co.
Ohio Brass Co.

Lanterns, Classification
Nichols-Lintern Co.

Leather
Cleveland Tanning Co.

Letter Boards
Haskelite Mfg. Corp.

Lighting Systems
Leece-Neville Co.

Lightning Protection
Elec. Service Supplies Co.
General Electric Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Line Material (See also Brackets, Insulators, Wires, etc.)
Archbold-Brady Co.
Dossert & Co.
Electric Ry. Equipment Co.
Elec. Service Supplies Co.
General Electric Co.
Hubbard & Co.
More-Jones Brass & Metal Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

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American Brown Boveri Corp.

Locomotives, Electric
American Brown Boveri Corp.
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General Electric Co.
St. Louis Car Co.
Westinghouse E. & M. Co.

Locomotives, Oil Engine, Electric, Diesel
Ingersoll-Rand Co.

Lubricating Engineers
Standard Oil Co. of Indiana
Texas Company
Universal Lubricating Co.

Lubricants, Oil and Grease
Standard Oil Co. of Indiana
Texas Company
Universal Lubricating Co.

Lumber (See Poles, Ties, etc.)

Machinery, Insulating
American Insulating Machinery Co.

Manganese Parts
Bemis Car Truck Co.

Manganese Steel Guard Rails
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co.

Manganese Steel, Special Track Work
Bethlehem Steel Co.
Wm. Wharton, Jr. & Co.

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

Meters
Roller-Smith Co.

Mica
Mica Insulator Co.

Motor and Generator Sets
General Electric Co.

Motor Buses (See Buses, Motor)

Motor Controllers, Electric
Monitor Controller Co.

Motor Generator Sets
American Brown Boveri Corp.

Motor, Leads
Dossert & Co.

Motor Starters
Monitor Controller Co.

Motorman's Seats
Brill Co., The J. G.
Elec. Service Supplies Co.
Heywood Wakefield Co.
St. Louis Car Co.
Wood Co., Chas. N.

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

Nitrocellulose
Valentine & Co.

Nuts and Bolts
Bemis Car Truck Co.
Hubbard & Co.

Ohmmeters
Roller-Smith Co.

Oil Purifiers
De Laval Separator Co.

Oils (See Lubricants)

Oxygen
International Oxygen Co.

Packing
U. S. Rubber Co.
Westinghouse Tr. Brake Co.

Paints and Varnishes (Insulating)
Dixon Crucible Co., Joseph
Electric Service Supplies Co.
Irvington Varnish & Ins. Co.

Paints and Varnishes for Woodwork
National Ry. Appliance Co.
Valentine & Co.

Panels, Outside, Inside
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Pavement Breakers
Ingersoll-Rand Co.
Sullivan Machinery Co.

Paving Material
American Brake Shoe & Foundry Co.

Pickups, Trolley Wire
Elec. Service Supplies Co.
Ohio Brass Co.

Pinion Pullers
Elec. Service Supplies Co.
General Electric Co.
Wood Co., Chas. N.

Pinions (See Gears)

Pins, Case Hardened, Wood and Iron
Bemis Car Truck Co.
Ohio Brass Co.
Westinghouse Tr. Brake Co.

Pipe Fittings
Standard Steel Works Co.
Westinghouse Tr. Brake Co.

Planers (See Machine Tools)

Plates for Tee Rail Switches
Ramapo Ajax Corp.

Pliers, Rubber Insulated
Elec. Service Sup. Co.
Nat'l Ry. Appliance Co.

Plywood, Roofs, Headlinings, Floors, Interior Panels, Bulkheads, Truss Planks
Haskelite Mfg. Corp.

Pneumatic Tools
Ingersoll-Rand Co.

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Bethlehem Steel Co.
Elec. Service Supplies Co.
Ohio Brass Co.

Pole Reinforcing
Hubbard & Co.

Poles and Ties Treated
American Creosoting Co.
Bell Lumber Co.
International Creosoting Co.

Poles, Metal Street
Bates Expanded Steel Truss Co.
Elec. Ry. Equipment Co.
Hubbard & Co.

Poles, Ties, Posts, Piling & Lumber
American Bridge Co.
Bell Lumber Co.
International Creosoting Co.
Naugle Pole & Tie Co.

Poles, Trolley
Bell Lumber Co.
Elec. Service Supplies Co.
Nuttall Co., R. D.

Poles, Tubular Steel
Elec. Ry. Equipment Co.
Elec. Service Supplies Co.

Portable Grinders
Buda Co., The

Potheads
Okonite Co.
Okonite-Callender Cable Co. Inc.

Power Houses
American Bridge Co.

Power Saving Devices
Economy Electric Devices Co.
National Ry. Appliance Co.

Pressure Regulators
General Electric Co.
Ohio Brass Co.
Westinghouse E. & M. Co.
Westinghouse Tr. Brake Co.

Pumps
A. S. Cameron Steam Pumps (Ingersoll-Rand Co.)
Ingersoll-Rand (A. S. Cameron Steam Pumps)

Pumps, Air Lift
Sullivan Machinery Co.

Pumps, Vacuum
A. S. Cameron Steam Pumps (Ingersoll-Rand Co.)
Ingersoll-Rand (A. S. Cameron Steam Pumps)
Sullivan Machinery Co.

Punches, Ticket
International Register Co.
Wood Co., Chas. N.

Rail Braces & Fastenings
Ramapo Ajax Corp.

Rail Grinders (See Grinders)

Rail Joints
Carnegie Steel Co.
Illinois Steel Co.
Rail Joint Co., The

Rail Joints, Welded
Lorain Steel Co.
Metal & Thermit Corp.

Rail Welding
Metal & Thermit Corp.
Railway Track-work Co.
Una Welding & Bonding Co.

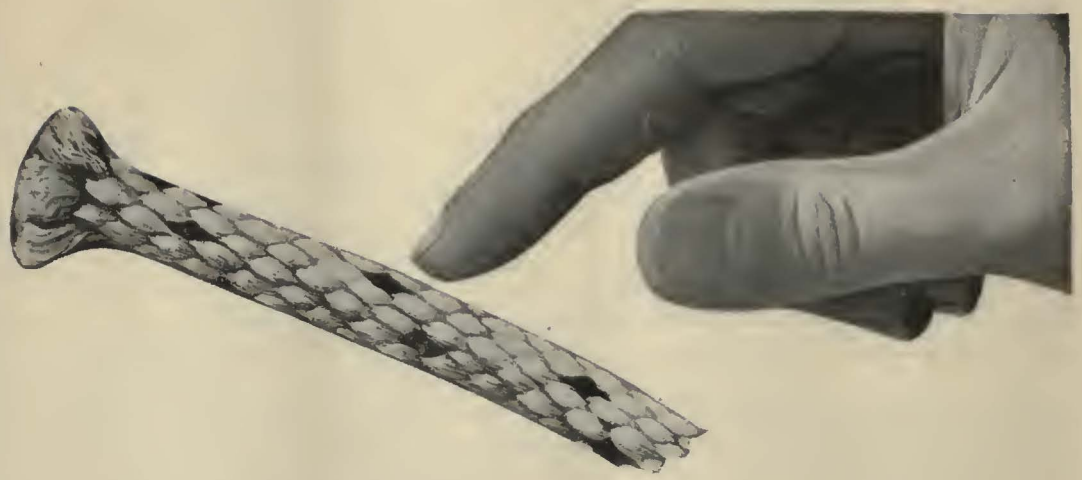
Rails, Relaying
L. B. Foster Co.

Rails, Steel
Carnegie Steel Co.
Electric Equipment Co.
L. B. Foster Co.
Illinois Steel Co.

Railway Safety Switches
Consolidated Car Heat. Co.
Westinghouse E. & M. Co.

Railway Welding (See Welding Processes)

(Continued on page 158)



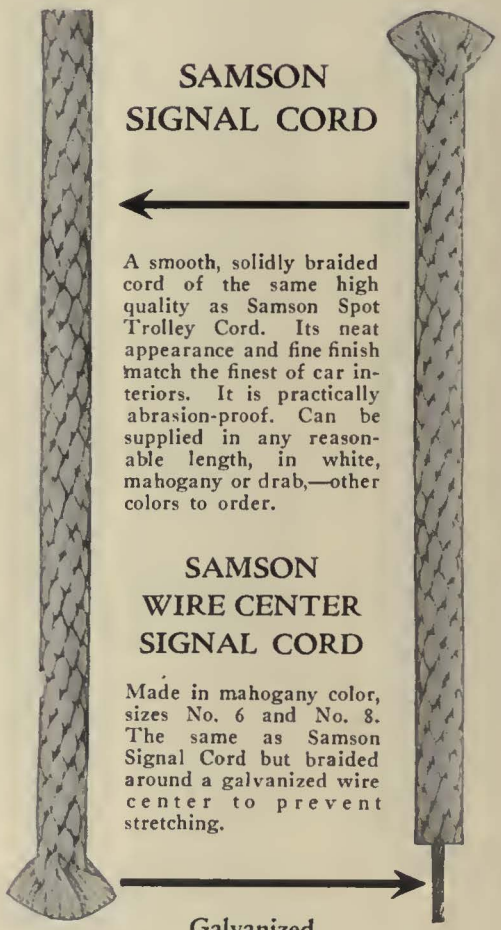
So easy to be SURE of good trolley cord

Just look for the colored spots, (in any color). They are our trade mark for Samson Spot Trolley Cord.

They tell you at a glance just what you're buying,—a cord made from the finest materials only, smoothly braided, uniform in thickness, and properly waterproofed by a special process. *It is always the same.*

Samson Spot Cord cannot swell or shrink,—"runs" easily in catchers and retrievers, rain or shine.

A piece of poor cord can cause a lot of trouble. Is it worth taking a chance when you can be SURE so easily?



SAMSON SIGNAL CORD

A smooth, solidly braided cord of the same high quality as Samson Spot Trolley Cord. Its neat appearance and fine finish match the finest of car interiors. It is practically abrasion-proof. Can be supplied in any reasonable length, in white, mahogany or drab,—other colors to order.

SAMSON WIRE CENTER SIGNAL CORD

Made in mahogany color, sizes No. 6 and No. 8. The same as Samson Signal Cord but braided around a galvanized wire center to prevent stretching.

Galvanized Wire Center

SAMSON CORDAGE WORKS

88 BROAD STREET BOSTON, MASS.

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Elec. Service Supplies Co.
Hale-Kilburn Co.
St. Louis Car Co.

Rattan Car Seat Webbing
Heywood-Wakefield Co.

Rectifiers, Mercury Arc Power
American Brown Boveri Corp.

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Brill Co., The J. G.
Cincinnati Car Co.
Elec. Service Supplies Co.
International Register Co.
Ohmer Fare Register Co.
St. Louis Car Co.

Regulators, Motor Speed
Monitor Controller Co.

Reinforcement, Concrete
Amer. Steel & Wire Co.
Bethlehem Steel Co.
Carnegie Steel Co.

Repair Shop Appliances (See also Coil Banding and Winding Machines)
Elec. Service Supplies Co.

Repair Work (See also Coils)
General Electric Co.
Westinghouse E. & M. Co.

Replacers, Car
Elec. Service Sup. Co.

Resistance, Wire and Tube
Driver-Harris Co.
General Electric Co.
Westinghouse E. & M. Co.

Resistances
Consolidated Car Heat. Co.

Retrievers, Trolley (See Catchers and Retrievers, Trolley)

Rheostats
General Electric Co.
Monitor Controller Co.
Westinghouse E. & M Co.

Roller Bearings
Hyatt Roller Bearing Co.

Roofing, Car
Haskelite Mfg. Corp.
Pantasote Co., Inc.

Roofs, Car and Bus
Haskelite Mfg. Corp.

Rubber Specialties of all kinds
U. S. Rubber Co.

Safety Control Devices
Safety Car Devices Co.

Sanders, Track
Brill Co., The J. G.
Elec. Service Supplies Co.
Nichols-Lintern Co.
Ohio Brass Co.
St. Louis Car Co.

Sash Fixtures, Car
Brill Co., The J. G.
O. M. Edwards Co., Inc.
St. Louis Car Co.

Sash Metal Car Window
Hale-Kilburn Co.
O. M. Edwards Co., Inc.

Scrapers, Track (See Cleaners and Scrapers, Track)

Screw Drivers, Rubber Insulated
Elec. Service Supplies Co.

Seating Materials
Brill Co., The J. G.
Haskelite Mfg. Corp.
Heywood-Wakefield Co.
Massachusetts Mohair Plush Co.
Pantasote Co., Inc., The
St. Louis Car Co.

Seats, Bus
Brill Co., The J. G.
Hale-Kilburn Co.
Heywood-Watefield Co.
St. Louis Car Co.

Seats, Car (See also Rattan)
Brill Co., The J. G.
Hale-Kilburn Co.
Heywood-Watefield Co.
St. Louis Car Co.

Second Hand Equipment
Electric Equipment Co.
Van Loan Corp., Irving S.

Shades, Vestibule
Brill Co., The J. G.

Shovels
Brill Co., The J. G.
Hubbard & Co.

Shovels, Power
Brill Co., The J. G.

Signals, Car Starting
Consolidated Car Heating Co.
Elec. Service Supplies Co.
National Pneumatic Co.

Signals, Indicating
Nichols-Lintern Co.

Signal Systems, Block
Elec. Service Supplies Co.
Nachod and U. S. Signal Co., Inc.
Union Switch & Signal Co.
Wood Co., Chas. N.

Signal Systems, Highway Crossing
Nachod and U. S. Signal Co., Inc.
Wood Co., Chas. N.

Signal Torches
McCloskey Torch Co.

Signals, Warning
American Strombos Co.

Sinck Adjusters (See Brake Adjusters)

Sleet Wheels and Cutters
A. & J. M. Anderson Mfg. Co.
Columbia Machine Works
Elec. Ry. Equipment Co.
Elec. Service Supplies Co.
More-Jones Brass & Metal Co.

Smokestacks
Nichols-Lintern Co.

Snow-Plows, Sweepers and Brooms
Brill Co., The J. G.
Columbia Machine Works
Consolidated Car Fender Co.
Cummings Car & Coach Co.
Root Spring Scraper Co.
St. Louis Car Co.

Snow Sweeper, Rattan
Heywood-Wakefield Co.

Solder
A. Gilbert & Sons Brass Fdry.

Soldering and Brazing (See Welding Processes and Apparatus)

Solderless Connectors
Frankel Connector Co.

Special Adhesive Papers
Irvington Varnish & Ins. Co.

Special Trackwork
Bethlehem Steel Co.
Lorain Steel Co., The
Wm. Wharton, Jr. & Co.

Spikes
Amer. Steel & Wire Co.
Illinois Steel Co.

Splicing Compounds
U. S. Rubber Co.
Westinghouse E. & M. Co.

Splicing Sleeves (See Clamps and Connectors)

Springs, Car and Truck
American Spiral Spring Co.
American Steel Foundries
American Steel & Wire Co.
Bemis Car Truck Co.
Brill Co., The J. G.
St. Louis Car Co.
Standard Steel Works Co.

Sprinklers, Track and Road
Brill Co., The J. G.
Cummings Car & Coach Co.
St. Louis Car Co.

Stair Steps, Safety
Irving Iron Works

Steel and Steel Products
American Steel & Wire Co.
Carnegie Steel Co.
Illinois Steel Co.

Steps, Car
Brill Co., The J. G.
Irving Iron Works

Stokers, Mechanical
Babcock & Wilcox Co.
Westinghouse E. & M. Co.

Stop Signals
Nichols-Lintern Co.

Storage Batteries (See Batteries, Storage)

Strain, Insulators
A. & J. M. Anderson Mfg. Co.
Electric Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Strand
American Steel & Wire Co.
Roebling's Sons Co., J. A.

Straps, Hand
Central Equipment Co.

Street Cars, Passenger (See Cars, Passenger, Freight, Express, etc.)
Cummings Car & Coach Co.

Structural Steel
American Brown Boveri Corp.

Superheaters
Babcock & Wilcox Co.

Sweepers, Snow (See Snow Plows, Sweepers and Brooms)

Switch Stands and Fixtures
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, Magnetic
Monitor Controller Co.

Switches, Remote Control
Monitor Controller Co.

Switches, Selector
Nichols-Lintern Co.

Switches, Tee Rail
Ramapo Ajax Corp.

Switches, Track (See Track Special Work)

Synchroscopes
Roller-Smith Co.

Tampers, Tie
Ingersoll-Rand Co.
Railway Track-work Co.

Tapes and Cloths (See Insulating Cloth, Paper and Tape)

Tee Rail Special Track Work
Ramapo Ajax Corp.

Telephone and Telegraph Wire
American Steel & Wire Co.

Telephones and Parts
Elec. Service Supplies Co.

Testing Instruments (See Instruments, Electrical Measuring, Testing, etc.)

Thermostats
Consolidated Car Heating Co.
Gold Car Heat. & Ltg. Co.
Railway Utility Co.
Smith Heater Co., Peter

Ticket Choppers and Destroyers
Elec. Service Supplies Co.

Tickets & Transfers
Globe Ticket Co.

Tie Plates
Illinois Steel Co.

Ties and Tie Rods, Steel
American Bridge Co.
Carnegie Steel Co.
International Steel Tie Co.

Ties, Mechanical
Dayton Mechanical Tie Co.

Ties, Wood Cross (See Poles, Ties, Posts, etc.)

Tires
B. F. Goodrich Rubber Co.
India Tire & Rubber Co.

Tongue Switches
Wm. Wharton, Jr. & Co.

Tools, Track & Miscellaneous
Amer. Steel & Wire Co.
Columbia Machine Works
Elec. Service Supplies Co.
Hubbard & Co.
Railway Track-work Co.

Torches, Bombshell
McCloskey Torch Co.

Towers and Transmission Structures
Archbold-Brady Co.
Bates Expanded Steel Truss Co.
Westinghouse E. & M. Co.

Tower Wagons & Auto Trucks
McCardell & Co., J. B.

Track Grinders
Metal & Thermit Corp.
Railway Track-work Co.
Ramapo Ajax Corp.

Track, Special Work
Buda Co., The
Columbia Machine Works
Ramapo Ajax Corp.

Trackless Trollicars
Brill Co., The J. G.
St. Louis Car Co.

Tractors
Baker-Raulang Co.

Transfer Issuing Machines
Ohmer Fare Register Co.

Transfer Tables
American Bridge Co.

Transformers
American Brown Boveri Corp.
General Electric Co.
Westinghouse E. & M. Co

Transmission Towers & Structures
American Bridge Co.

Treads, Safety Stair Car Steps
Irving Iron Works

Tree Wire
Okonite Callender Cable Co.
Okonite Co.

Trolley Bases
General Electric Co.
More-Jones Brass & Metal Co.
National Ry. Appliance Co.
Nuttall Co., R. D.
Ohio Brass Co.

Trolley Bases, Retrieving
General Electric Co.
Nat'l Ry. Appliance Co.
Nuttall Co., R. D.
Ohio Brass Co.

Trolley Bases
Brill Co., The J. G.
General Electric Co.
Westinghouse E. & M. Co.

Trolley Material, Overhead
A. & J. M. Anderson Mfg. Co.
Elec. Service Supplies Co.
More-Jones Brass & Metal Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Trolleys & Trolley Systems
Ford Chain Block & M. Co.

Trolley Wheels (See Wheels, Trolley)

Trolley Wheel Bushings
More-Jones Brass & Metal Co.
Star Brass Works

Trolley Wheels & Harps
Elec. Service Supplies Co.
More-Jones Brass & Metal Co.
Star Brass Works

Trolley Wire
American Brass Co.
Amer. Electrical Works
Amer. Steel & Wire Co.
Anaconda Copper Min. Co.
Bridgeport Brass Co.
Roebling's Sons Co., J. A.
Rome Wire Co.

Trucks, Car
Bemis Car Truck Co.
Brill Co., The J. G.
Cincinnati Car Co.
Cummings Car & Coach Co.
St. Louis Car Co.

Trucks, Industrial Electric
Baker-Raulang Co.

Trucks, Motor
International Harvester Co.

Truss Planks
Haskelite Mfg. Corp.

Tubing, Yellow & Black Flexible Varnished
Irvington Varnish & Ins. Co.

Turbines, Steam
American Brown Boveri Corp.
General Electric Co.
Westinghouse E. & M. Co.

Turnstiles
Elec. Service Supplies Co.
Perey Mfg. Co., Inc.

Turntables
American Bridge Co.
Elec. Service Supplies Co.

Valves
Ohio Brass Co.
Westinghouse Tr. Br. Co.

Varnished Papers & Silks
Irvington Varnish & Ins. Co.

Varnishes (See Paints, etc)

Ventilators, Car
Brill Co., The J. G.
Cincinnati Car Co.
Consolidated Car Heating Co.
Nat'l Ry. Appliance Co.
Nichols-Lintern Co.
Railway Utility Co.
St. Louis Car Co.

Vestibule Linings
Haskelite Mfg. Corp.

Voltmeters
Roller-Smith Co.

Welded Rail Joints
Lorain Steel Co.
Metal & Thermit Corp.
Ohio Brass Co.
Railway Trackwork Co.
Una Welding & Bonding Co.

Welders, Portable Electric
Ohio Brass Co.
Railway Track-work Co.
Una Welding & Bonding Co.
Westinghouse E. & M. Co.

Welders, Rail Joint
Ohio Brass Co.
Railway Track-work Co.

Welding Processes and Apparatus
General Electric Co.
Metal & Thermit Corp.
Nat'l Ry. Appliance Co.
Ohio Brass Co.
Railway Track-work Co.
Una Welding & Bonding Co.
Westinghouse E. & M. Co.

Welding Steel
Railway Track-work Co.
Una Welding & Bonding Co.

Welding Wire
American Steel & Wire Co.
General Electric Co.
Railway Track-work Co.
Roebling's Sons Co., J. A.

Welding Wire and Rods
Railway Track-work Co
Welding & Cutting Tools
International Oxygen Co.

Wheels, Car, Cast Iron
Association of Mgrs. of Chilled Car Wheels
Griffin Wheel Co.

Wheels, Car, Steel & Steel Tired
American Steel Foundries
Bemis Car Truck Co.
Carnegie Steel Co.
Illinois Steel Co.
Standard Steel Works Co.
Wheel Guards (See Fenders and Wheel Guards)

Wheel Grinders
Wheel Truing Brake Shoe Co.

Wheel Presses (See Machine Tools)

Wheels, Steel Disc
Budd Wheel Co.

Wheels, Trolley
Columbia Machine Works
Elec. Ry. Equipment Co.
Elec. Service Supplies Co.
General Electric Co.
A. Gilbert & Sons Brass
Nuttall Co., R. D.
More-Jones Brass & Metal
Star Brass Works

Wheels, Wrought Steel
Carnegie Steel Co.
Illinois Steel Co.

Whistles, Air
General Electric Co.
Ohio Brass Co.
Westinghouse E. & M. Co.
Westinghouse Traction Brake Co.

Wire Rope
American Steel & Wire Co.
Roebling's Sons Co., J. A.

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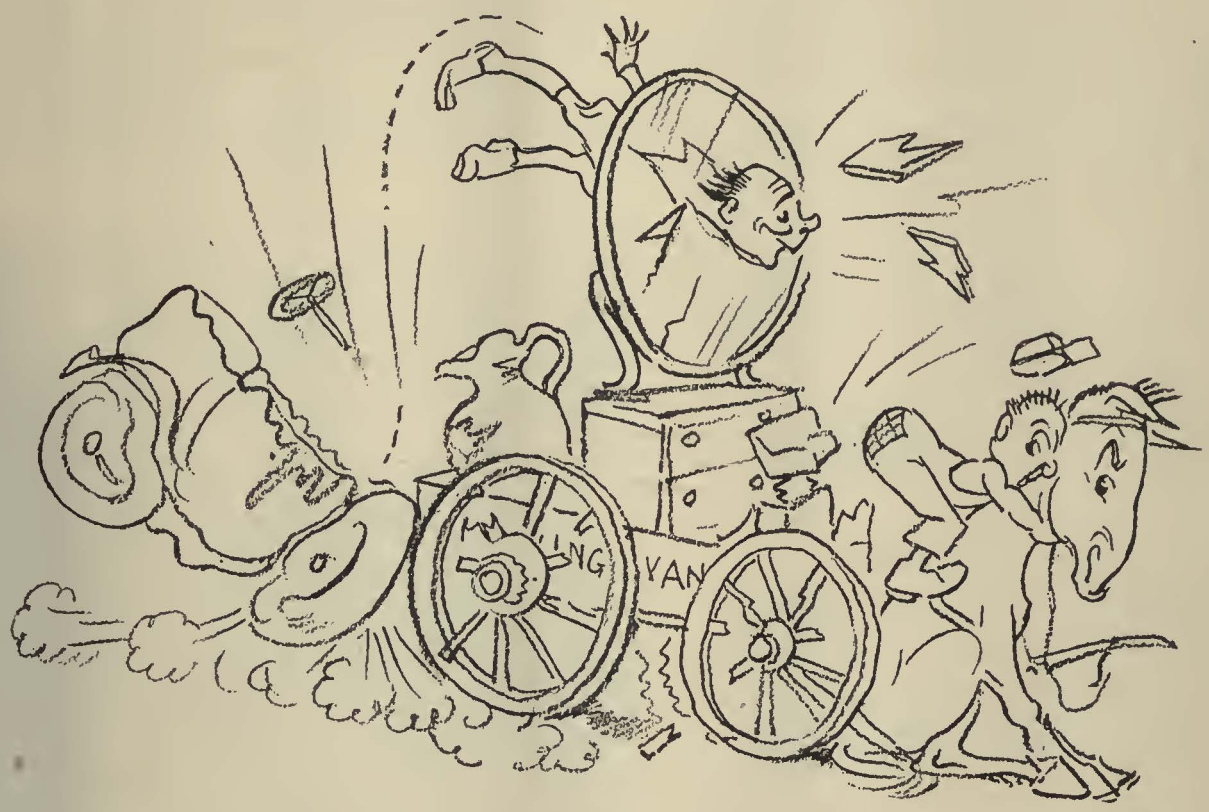
Aluminum Co. of America
American Brass Co., The
Amer. Electrical Works
Amer. Steel & Wire Co.
Anaconda Copper Min. Co.
Bridgeport Brass Co.
General Electric Co.
Kerite Insulated Wire & Cable Co.
Okonite Co.
Okonite-Callender Cable Co., Inc.
Roebling's Sons Co., J. A.
Rome Wire Co.
Westinghouse E. & M. Co.

Wood Preservatives
American Creosoting Co.



The man feels sorry that he mussed up his car, but what cares he about *breaking the mirror.*

He seems *glad* of the opportunity to disprove the seven years of hard luck following a smashed mirror.

No, gentle reader, he is not inebriated. The poor fellow was born with one of those dizzy complexes which makes a man ignore road signs, speed laws, consumer demand or any fundamentals of safe personal or business conduct.

He is the type of man who would deliberately ignore the availability of —"Nichrome" IV— in the specification for the heating element material in his car heaters.

Business certainly moves for such people, only it moves in small circles.

—getting them nowhere in particular.

DRIVER-HARRIS COMPANY
HARRISON, NEW JERSEY

Chicago Detroit Morristown, N. J. England France

TRADE MARK REG.U.S.PAT.OFF.

Nichrome

The DRIVER-HARRIS WIRE

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