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ELECTRIC RAILWAY JOURNAL



Fleet of White
2 1/2-ton emergency tower trucks
operated by the
Department of Overhead Lines,
The Brooklyn City Railroad Company

Extra Power and Speed When You Need It

Power for any purpose. . . Speed when you want speed. . . . That old extra punch when a hole or a hill seems to have you licked with your load.

That's a White. . . . It's any White — on any job. . . . All Whites are built that way; 24 hours a day is O.K. with Whites. They've got the stuff.

For Whites there's no job too big.

White Trucks and Busses are profitably serving more than 200 electric railways. The purchase of a White is assurance of continuous, sustained transportation at low cost. It is a guarantee that your investment is protected.

THE WHITE COMPANY, *Cleveland*

WHITE TRUCKS

A N D B U S S E S

A Veteran

-668,000 Wheel-passes

THIS frog has been in service for more than two years in one of our busy cities where loaded trolley cars bring the shoppers up the hill from the business district. During that time, 668,000 scheduled cars have passed under the frog, and the frog is not yet worn out.

Such long service results from a design in which the wheel travels smoothly through the frog. Properly curved runners keep the wheel riding true. Overlapping the runners prevents the wheel flange from touching the pan. Flexible bayonet approaches, easily removable, lead the wheel onto the frog without bumping or arcing.

CF trolley frogs keep down maintenance expense.

Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania

Sales Offices in all Principal Cities of
the United States and Foreign Countries

X88820



A Veteran CF Trolley Frog
with 668,000 Wheel-Passes
to its Credit and not Done
Yet.

Westinghouse

Type CF Trolley Frog

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Vol. 68
No. 6

CONTENTS

Pages
209-246

August 7, 1926

Editorials	209
Northern Texas Traction Operates the "Pioneer Locals"	212
Interurban equipment rebuilt for one-man operation is outstanding in appearance and comfort. Cars are named after five of the most distinguished citizens and characters in Texas history.	
Threefold Problem of Electric Railway Safety.....	214
Pittsburgh Railways Has a Big Brass Band.....	214
Advantages of the Indeterminate Permit.....	215
By OSCAR L. POND, LL.B., PH.D. Experience shows that it is equally desirable for utility and public and far superior to the fixed term franchise. Legal decisions have clarified its status during recent years.	
Co-operation to Relieve Street Congestion in Philadelphia	219
Advertising Campaign Stimulated	219
Women, Too, Can Help Make Friends for the Railway	220
By JULIE PAILET. A story of how a woman is gaining friends for the New Orleans Public Service through contact with the school children of that city.	
Maintenance Notes	222
Association News and Discussions	225
Southern Equipment Men Meet in Chattanooga....	225
Car maintenance practices were discussed. Annual report shows progress of member companies in improvement of pull-in record and reduction of costs of maintenance.	
Some Remarks on Car Troubles	227
By E. F. HERNDON.	
Our Experiences with Safety Cars.....	227
By W. N. LARISCY.	
Work Which Has Overcome Some of Our Troubles..	227
By F. G. KOENIG.	
Advantages of the LB 2-A Controller Handle on Modern Equipments	228
By GUS C. KRAUS.	
American Executive Committee Meeting.....	229
News of the Industry	232
Recent Bus Developments	237
Financial and Corporate	239
Legal Notes	242
Personal Mention	243
Manufacturing and Markets	244

A Mutual Service

FROM the editorial, as well as the personal, point of view it is very gratifying to meet the infallible courtesy and ready welcome which are awarded to members of the ELECTRIC RAILWAY JOURNAL staff as they journey about the country, visiting hundreds of railway properties annually. No executive is too busy to pause for a chat, no master mechanic too engrossed in maintenance details to vouchsafe a personally conducted tour through the shops.

These railway men are constantly being confronted with time-consuming problems, yet to the JOURNAL editor is accorded whatever period is needed for the discussion of his mission. The reason for this may perhaps be found in the stimulated consciousness of the industry today that only in mutual service may the individual succeed. Through the columns of the JOURNAL the problems and triumphs of one are broadcast for the good of all. And the visiting editors bring with them a knowledge of the whole which may frequently be useful in suggesting ways to overcome an annoying obstacle confronting the individual company.

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SAVING THE RAIL SAVES THE RAILWAY

Making rides more marketable

Demand is built on desire. Tempt your public to ride. Make the temptation strong enough to overcome competition. It can be done—it is being done.

Quality in transportation sells rides. Quality in electric railway transportation means attractive equipment, speed, comfort and courtesy.

No matter what you do to give such service, your efforts must fail if you do not keep the roadbed in prime condition.

New cars are not attractive when they bump over corrugated track and battered joints. Speed is safe and comfort is possible only on good track.

Whatever you do, or plan to do, look first to your track. It's the very foundation of your business. Saving the rail saves the railway—and the equipment here shown saves rail economically.

Bulletins?
Quotations?
Both?

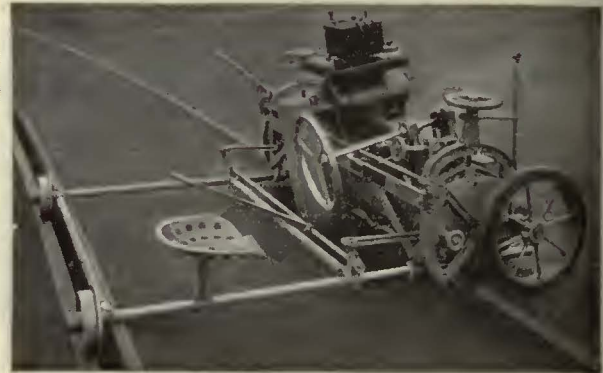
Railway Trackwork Co.

3132-48 East Thompson Street, Philadelphia

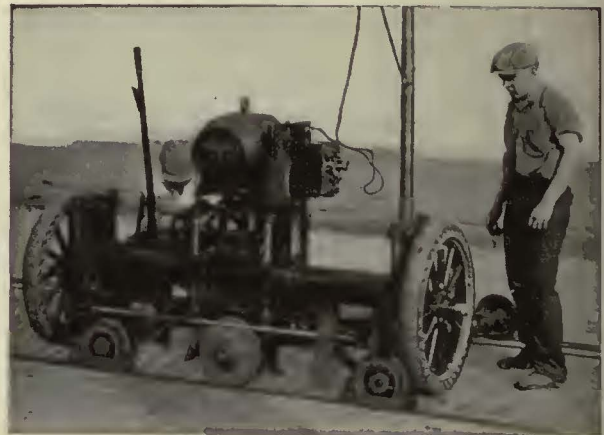
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1269



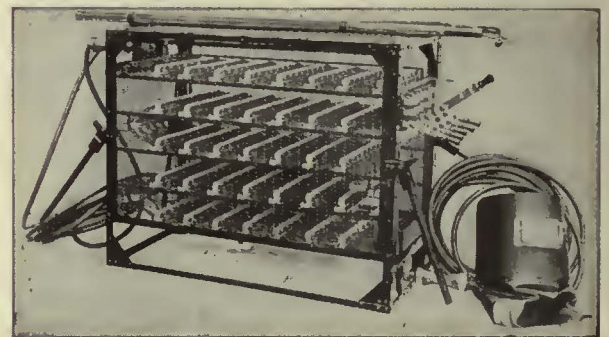
"Improved Atlas" Rail Grinder



"Imperial" Track Grinder



Reciprocating Track Grinder



"Ajax" Electric Arc Welder

SAVING THE RAIL SAVES THE RAILWAY

**Scranton Railway Company
Another User of
National Trolley Guard**

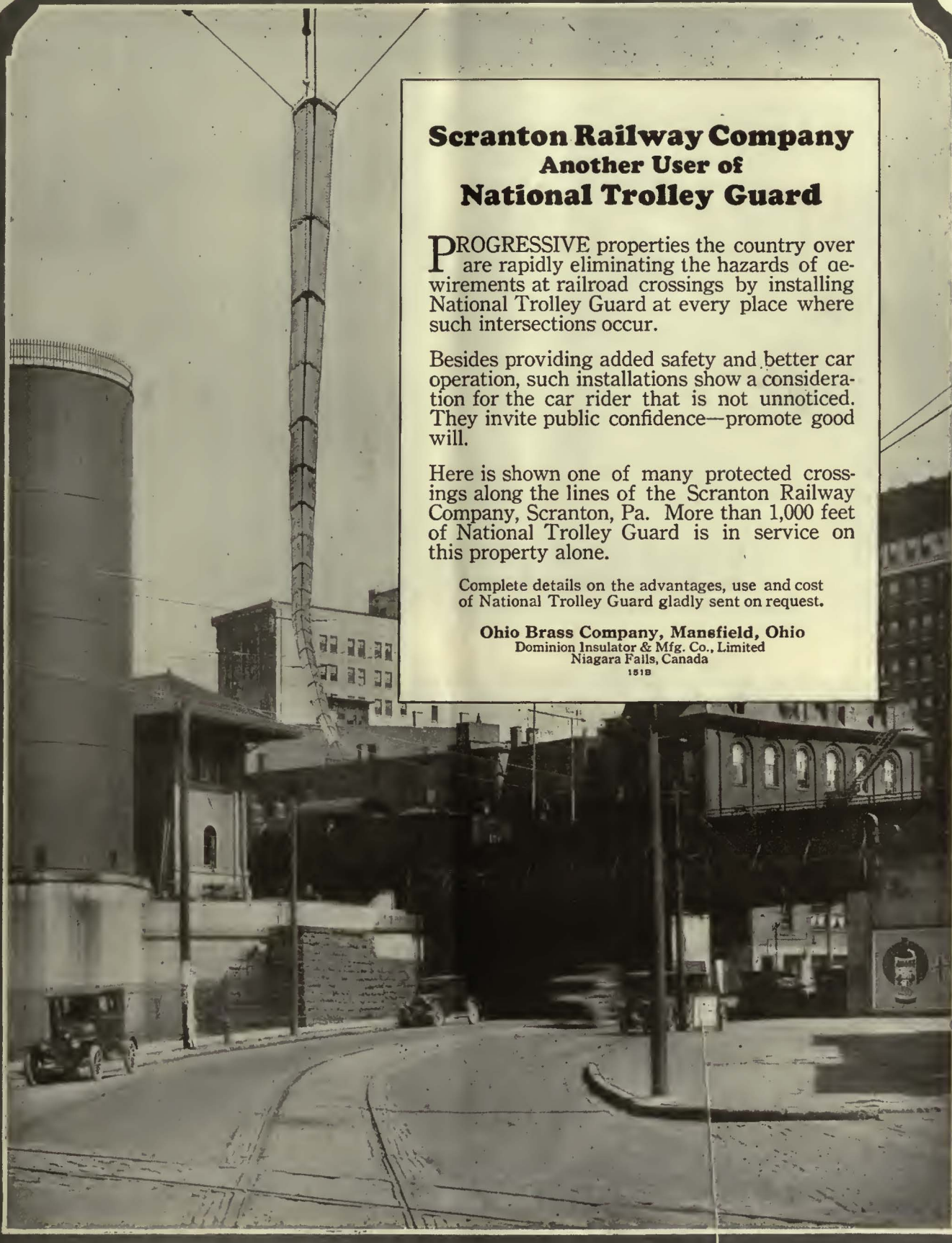
PROGRESSIVE properties the country over are rapidly eliminating the hazards of overhead wirements at railroad crossings by installing National Trolley Guard at every place where such intersections occur.

Besides providing added safety and better car operation, such installations show a consideration for the car rider that is not unnoticed. They invite public confidence—promote good will.

Here is shown one of many protected crossings along the lines of the Scranton Railway Company, Scranton, Pa. More than 1,000 feet of National Trolley Guard is in service on this property alone.

Complete details on the advantages, use and cost of National Trolley Guard gladly sent on request.

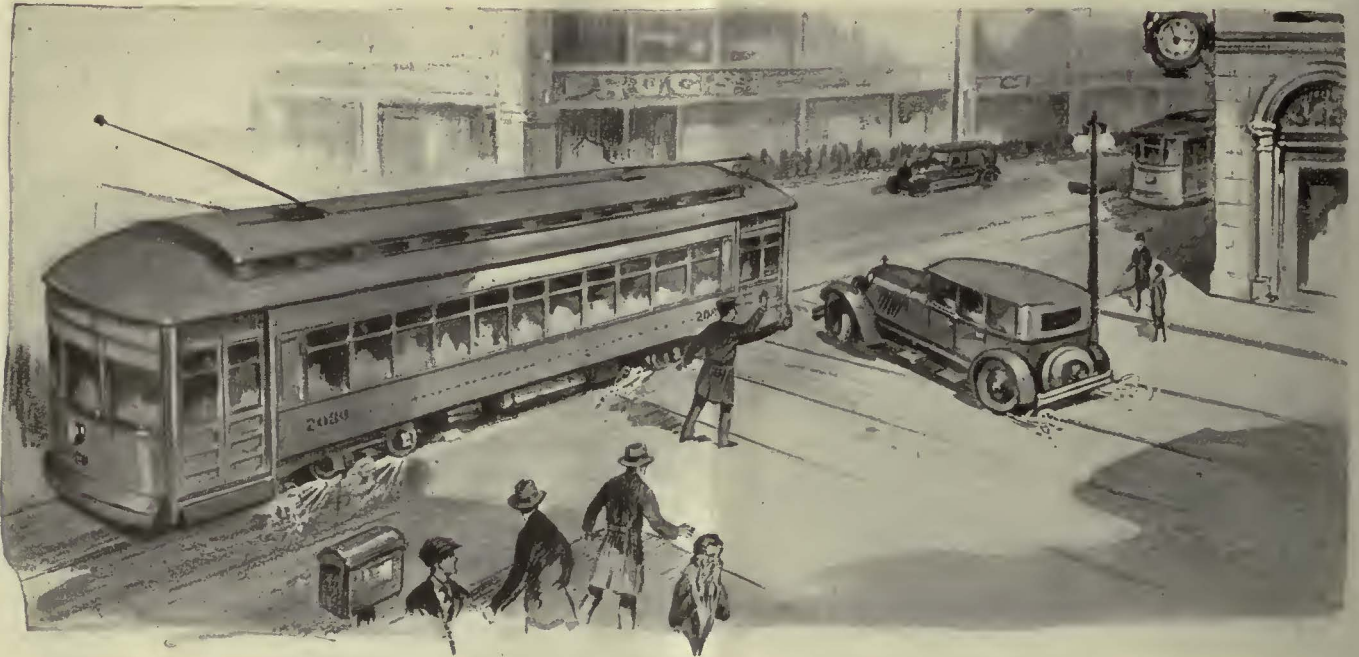
Ohio Brass Company, Mansfield, Ohio
Dominion Insulator & Mfg. Co., Limited
Niagara Falls, Canada
1818



Ohio Brass Co.



- PORCELAIN INSULATORS
- LINE MATERIALS
- RAIL BONDS
- CAR EQUIPMENT
- MINING MATERIALS
- VALVES



Brake'em-hard!

QUICK starts—and even quicker stops!

Acceleration—2 m.p.h. per second!
Braking as high as 3 m.p.h. per second!

This is necessary to keep ahead of the other street traffic—the modern idea in trolley car operation. Such operation soon brings ordinary steel wheels to the shop.

Flats and shell-outs are more frequent.

Roads using Davis "One-Wear" Steel Wheels avoid this maintenance expense. Throughout their longer life, Davis Wheels needs no contour reconditioning. Their greater strength resists the greater stresses of modern operation.

AMERICAN STEEL FOUNDRIES

NEW YORK

CHICAGO

ST. LOUIS



Relaying Track Without Inconveniencing Riders

Night work is not uncommon with electric railway maintenance employees, as they must continually make repairs and replacements or install new construction without interfering seriously with car service. Ingenious methods must be devised and work planned carefully to the minutest detail so that car riders will not be inconvenienced. The above illustration shows how track on Euclid Avenue in the downtown section of Cleveland

was relaid at night. Floodlights installed in the overhead produced the illumination. New rail was laid on an old concrete base using, of course, *Steel Twin Tie Track*. In this installation, flat bars instead of channel connections between bearing plates were used.

May we send you detailed information on "Steel Tie Track Construction," cost figures, and delivered price on Twin Ties?

THE INTERNATIONAL STEEL TIE CO.
Cleveland, Ohio

Steel Twin Tie Track

Renewable Track — Permanent Foundation

Low Maintenance



IT COSTS between three and four dollars to rip up a foot of track to renew ties. This staggering expense will be repeated and will mount if you continue to use inferior or untreated ties.

Do not try to save a few cents per tie and sacrifice quality and later pay the penalty of early tie renewals and costly track maintenance.

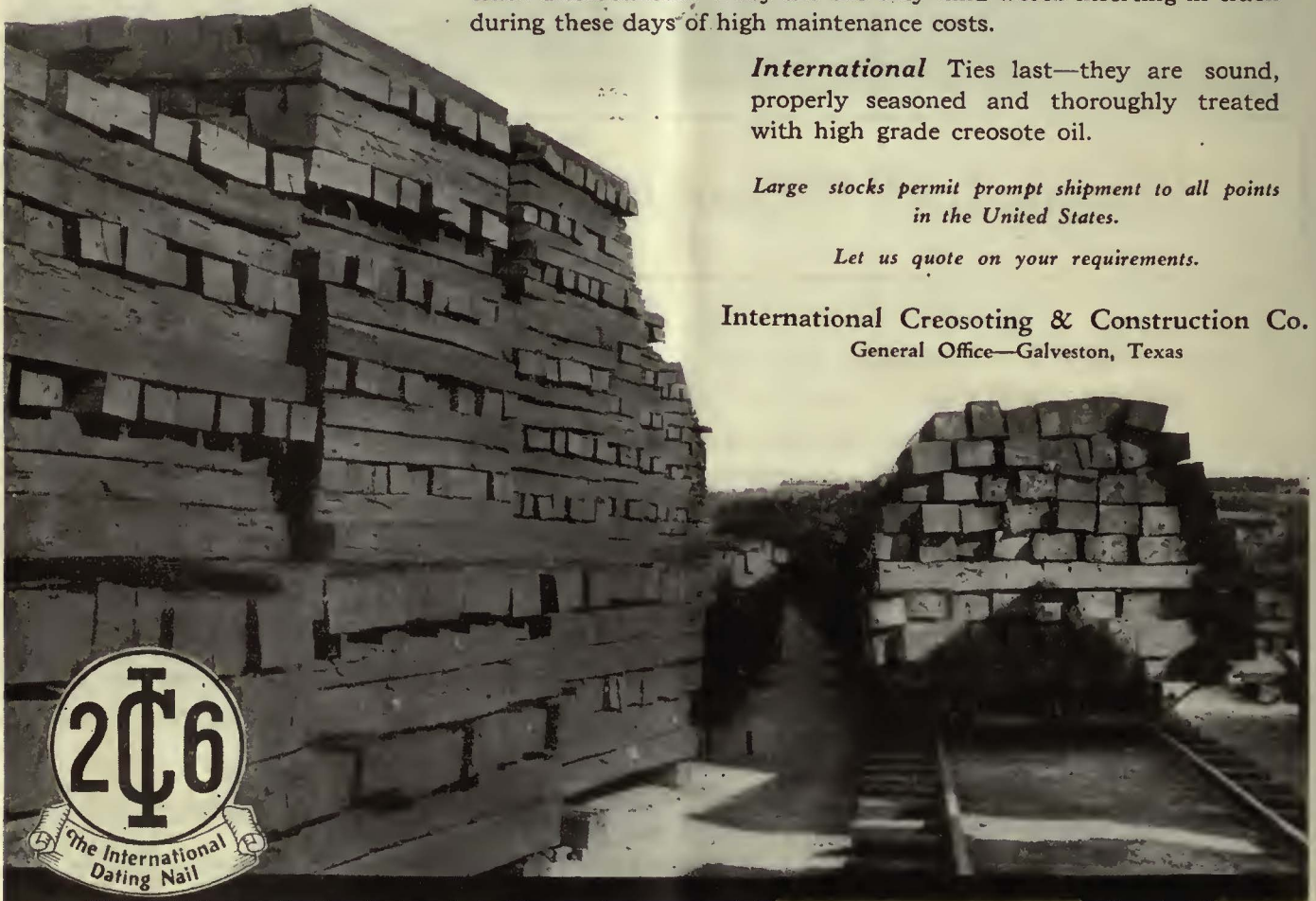
You must have ties of sound lumber thoroughly treated to minimize track disturbances. They are the only kind worth inserting in track during these days of high maintenance costs.

International Ties last—they are sound, properly seasoned and thoroughly treated with high grade creosote oil.

Large stocks permit prompt shipment to all points in the United States.

Let us quote on your requirements.

International Creosoting & Construction Co.
General Office—Galveston, Texas



International

HIGH GRADE CREOSOTED TIES

ESSCO BULLETIN

Devote this week
to improving —

Publicity!

Keep these always
in mind —

*Safety
Publicity
Illumination
Convenience
Maintenance*

TO "TELL the public where you're going" is a logical and effective way to advertise your service.

For this purpose use clear, clean, readable Hunter-Keystone Signs to indicate the destinations of your cars. Bld white letters on black roller curtains provide high visibility by day and by night.

Send for further particulars.

ELECTRIC SERVICE SUPPLIES Co.

PHILADELPHIA 17th and Cambria Sts.	NEW YORK 50 Church St.	CHICAGO Ill. Merchants' Bank Bldg.
PITTSBURGH 1123 Bessemer Bldg.	BOSTON 88 Broad St.	SCRANTON 316 N. Washington Ave.
DETROIT—General Motors Building		
Lyman Tube & Supply Co., Ltd., Montreal, Toronto, Vancouver		

HUNTER-KEYSTONE SIGNS



For a complete list of Hunter - Keystone Destination Signs for railway cars, see our Catalog No. 7—for bus types get Catalog No. 9.



Typical Hunter Sign Curtain



Seats That Help to Sell the Service

Whether the service is urban, suburban or interurban, seats play an all-important part in selling the service to the riding public. Hale-Kilburn Seats are designed and built to meet your most exacting requirements. Write for catalogs.



**Bus Seat
Type 208**

Designed especially for bus service, this 208 De Luxe Type has divided back, spring cushions and air cushion pad—upholstered in leather or imitation leather as specified.



**Car Seat
Type 199-F**

Made with plush upholstered spring edge cushion and detachable back, this seat meets the requirements where an inexpensive but comfortable seat is needed for suburban and light-weight interurban cars.



**Car Seat
Type 392-EE**

Built for the finest interurban cars, this seat has extra high three-part headroll, mahogany capped armrest and metal parts of pressed steel for light weight. Plush upholstery or other materials as specified.

HALE-KILBURN COMPANY

General Offices and Works: 1800 Lehigh Avenue, Philadelphia

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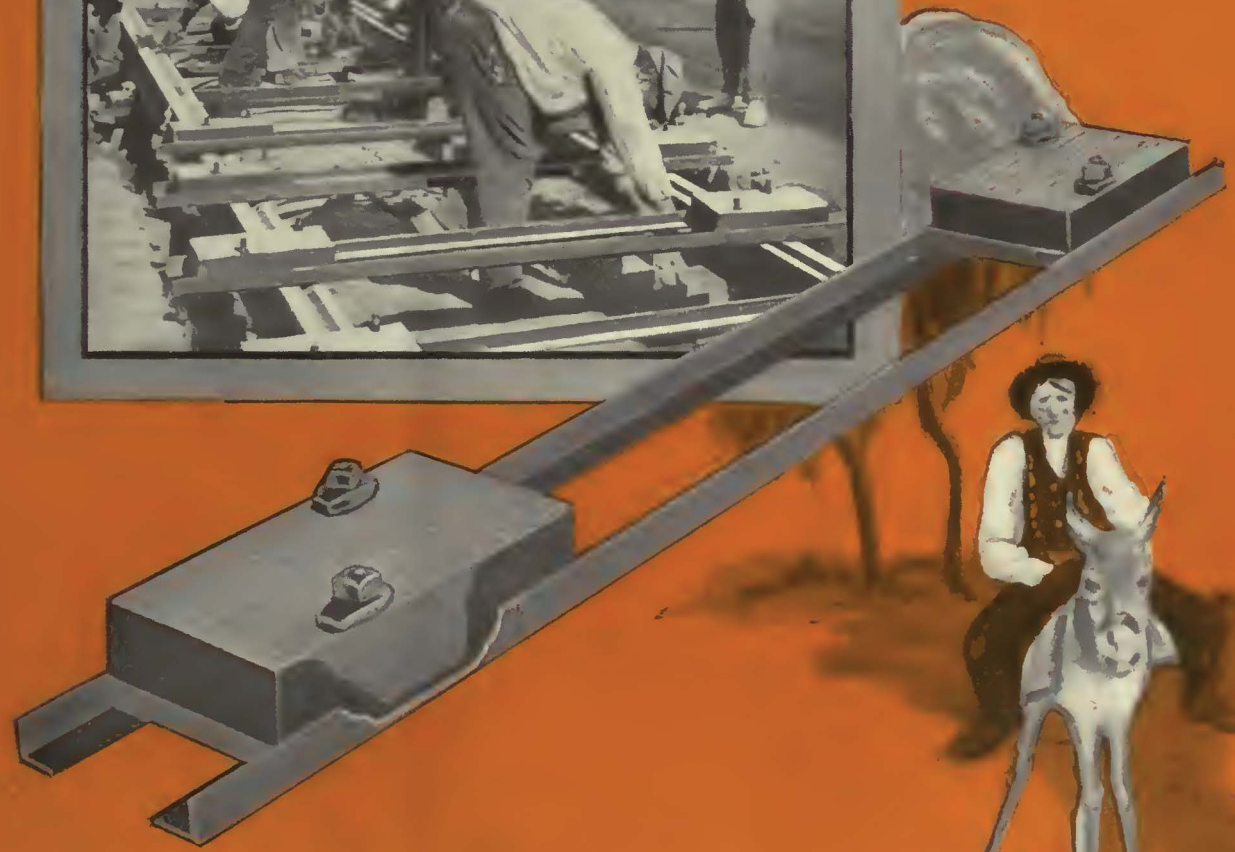
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Hale and
Kilburn

SEATS

Spain desires permanence





LABOR is cheap in Spain. The labor end of track maintenance of a Spanish Tramway would look ridiculously small to an American railway engineer.

But Spain desires permanence. A country abounding in magnificent structures that have endured since the world was believed flat, and America was undreamed of, Spain does not take kindly to constant repairs and frequent renewals.

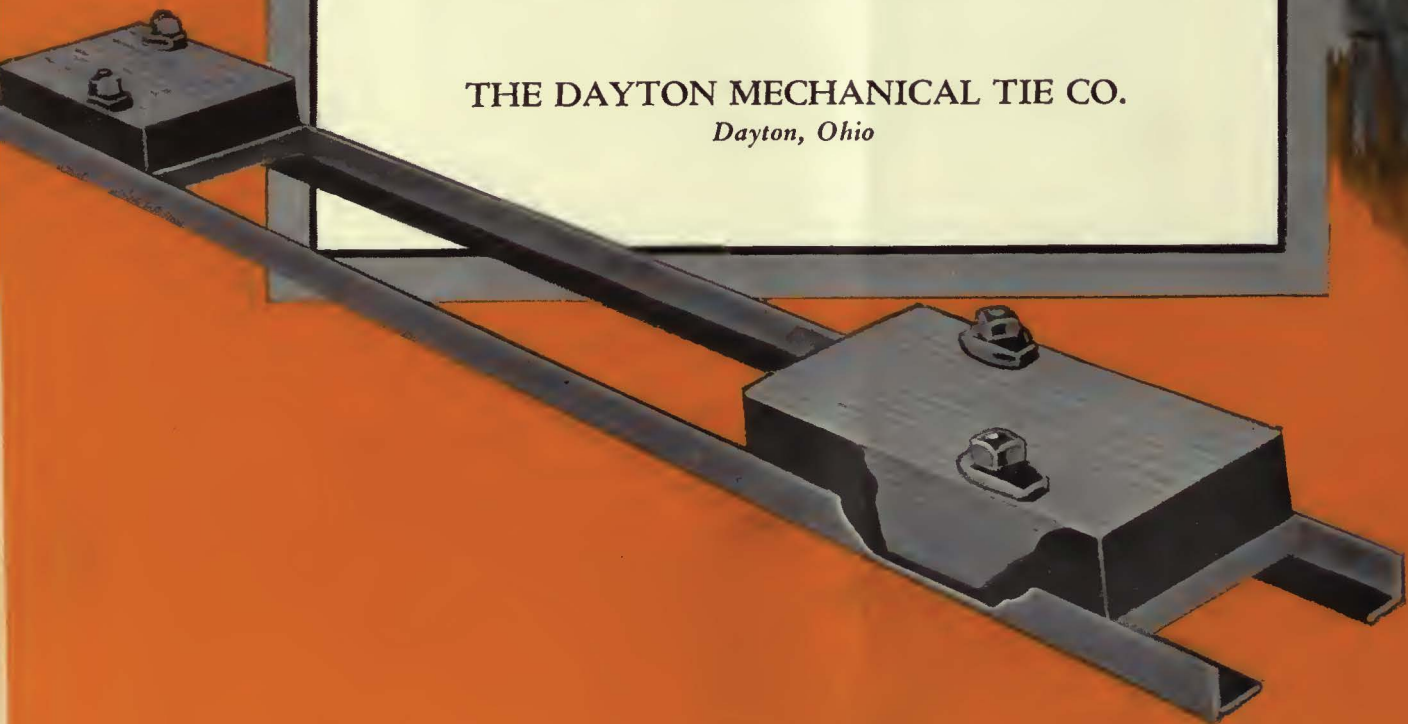
It was the consideration of permanence and low maintenance which led engineers of the Barcelona Tram Co., Barcelona, Spain, to use Dayton Mechanical Ties.

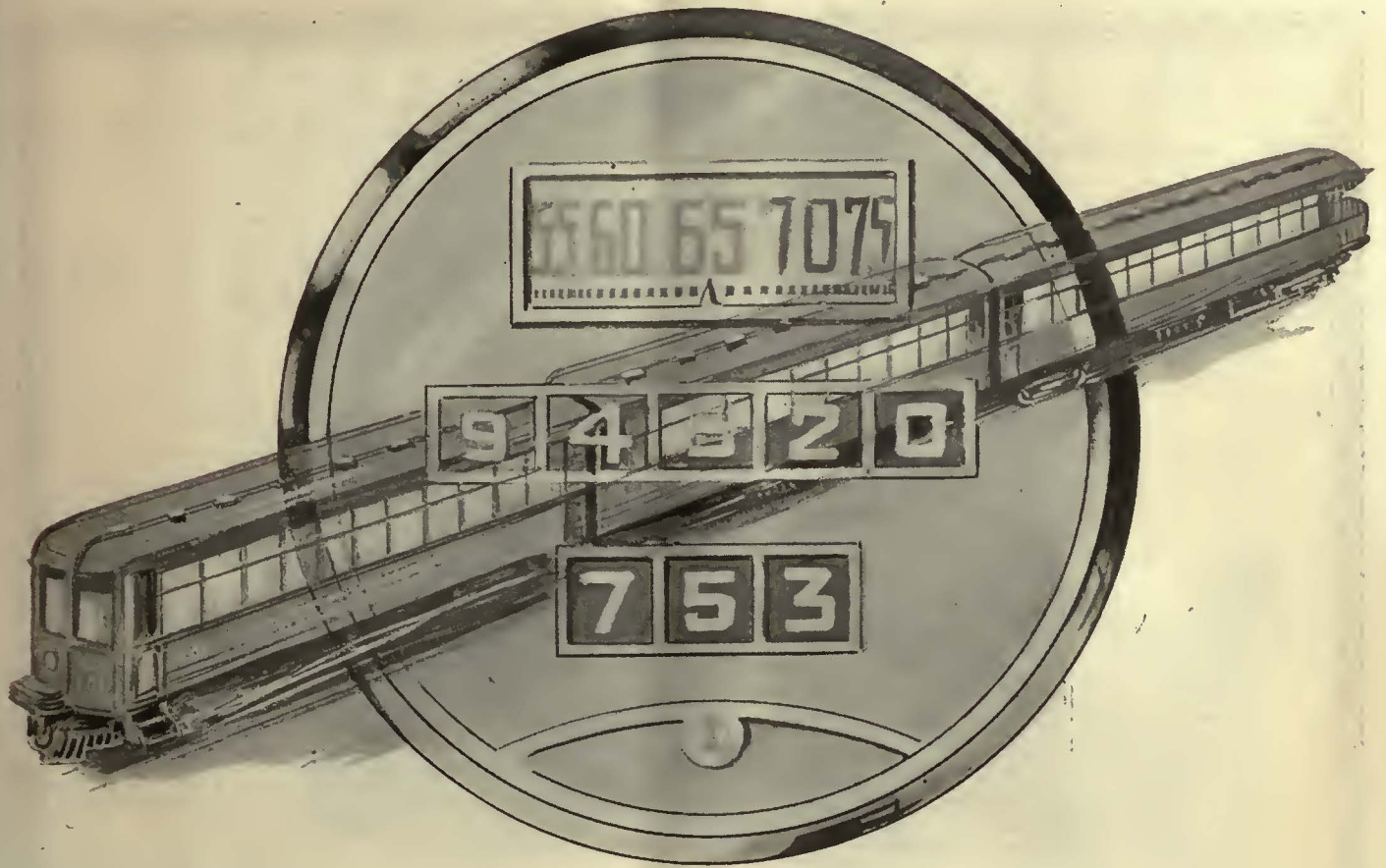
Dayton Ties far outlast any other form of sleeper yet devised for street railway. Maintenance under heaviest traffic is insignificant, rolling stock repairs are cut in half, riding is easier, and noise is reduced.

These features are surely as useful to you as to Barcelona. Investigate Dayton Ties. Write us and we will forward complete information.

THE DAYTON MECHANICAL TIE CO.

Dayton, Ohio





MORE MILEAGE PER DOLLAR OF COST

What, next to safety and dependability, is the most important requirement you look for in wheels for electric railway service?

Isn't it economical mileage—greater service per dollar of cost?

The Illinois Steel Company begins to build economical mileage into Gary Wrought Steel Wheels at the very first stage of manufacture, where the specialized knowledge gained in years of steel-making experience is utilized to produce the cylindrical block of high-grade open-hearth steel that eventually becomes the finished wheel.

The care with which the open-hearth record and chemical composition are checked, and the painstaking way in which all blocks are chipped and inspected, are further steps in the journey.

From the wheel block yard, down on to the ten-thousand-ton hydraulic press, the hub punch, the rolling mill, the coning press, the first inspection, the machining operation, the second inspection and the warehouse—the course of Gary Wheels toward economical mileage is unswerving.

All of which helps to explain the favor these wheels enjoy. Our wheel specialists are at your command.

Illinois Steel Company

General Offices: 208 South La Salle Street, Chicago, Illinois

G A R Y
WROUGHT STEEL WHEELS





Bates Structures for *better class overhead*

Working in close cooperation with some of the leading railways of the country, and devoting much time and study to their problems, has enabled us to develop types and methods of building overhead structures of a superior character. Bates "Double Expanded" members, utilized in "Bates Semi-Fabricated"* construction, provide greater strength and appreciable economy in production. This saving is reflected in lowered costs to you—You will be interested in a Bates estimate.

*The uniting of Bates expanded steel truss sections with standard steel structural members, utilizing to the fullest extent the peculiar advantages of both, is termed "Semi-Fabrication."

INTERNATIONAL
STANDARD ELECTRIC CORP.
General Export Distributors
SAMUEL BROWN, LTD., New Zealand
JOST ENGINEERING CO., LTD., India

*Specify
Bates*

Bates **E**xpanded **S**teel **T**russ **C**o.
Sales, Engineering and Executive Offices
EAST CHICAGO, INDIANA

222,964 MILES on Timken Bearings

Three years—a quarter million miles—of shock, thrust and speed have not affected the Timken Bearings in the Gulf, Texas and Western's first Brill gas car. It shows how Timken Bearings are capable of changing accepted operating ideas.

Timken-mounted axles—or any other parts—stay in line permanently without bearing overhaul or replacement, because wear is negligible. Excess friction is gone. The rolling motion is taken entirely on supremely enduring Timken-made bearing steel. Thrust is absorbed by Timken Tapered design with as little friction as radial load. Shock meets the resistance of greater load area in Timkens. Precision is permanently preserved by *TIMKEN POSITIVELY ALIGNED ROLLS*.

The full worth of Timken Bearings in Rolling stock is attested by the list of Timken-equipped gas-mechanical and gas-electric cars. Brill and every other prominent make is included.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN
Tapered
ROLLER BEARINGS



WINDOWS DO MAKE A DIFFERENCE



Modern Street Cars *call for* Modern Windows

Electric railway authorities say that there are 25,000 obsolete street cars in service today!

25,000 cars that should be replaced at the first possible opportunity. And many more that need modernizing.

What is a modern street car?

It is light in weight, but sturdy. It is neat and trim in appearance. It is comfortable. It is quiet. It is warm in winter and airy in summer.

And all these necessary features are attained in no small measure by the use of

Edwards Metal Sash

WINDOWS DO MAKE A DIFFERENCE

Edwards Metal Sash fits in with every modern idea in street car construction.

It is light in itself and permits of lighter upper construction.

It makes windows quiet on any kind of road bed, at any speed—whether they are open or closed.

Edwards Metal Sash makes street car windows air-tight in the coldest of weather. And yet the windows are easily opened.

It affords a maximum of glass area. The sash is narrow, and because it requires no sash lock racks, the posts too may be narrow.

Makes Perfect Windows!

Edwards Metal Sash makes perfect street car windows—for both the company and the passengers.

Passengers enjoy the extensive glass area; the company appreciates the saving in weight.

Passengers enjoy the freedom from rattles, the easy opening, the safe closing; the company appreciates the almost total lack of upkeep expense.

Passengers enjoy the warmer cars in winter while the company's management surely appreciates the saving in heating costs.

From many standpoints Edwards Metal Sash has a big share in making modern street cars.

Car builders and electric railway companies will be interested in full details of Edwards Metal Sash. Address

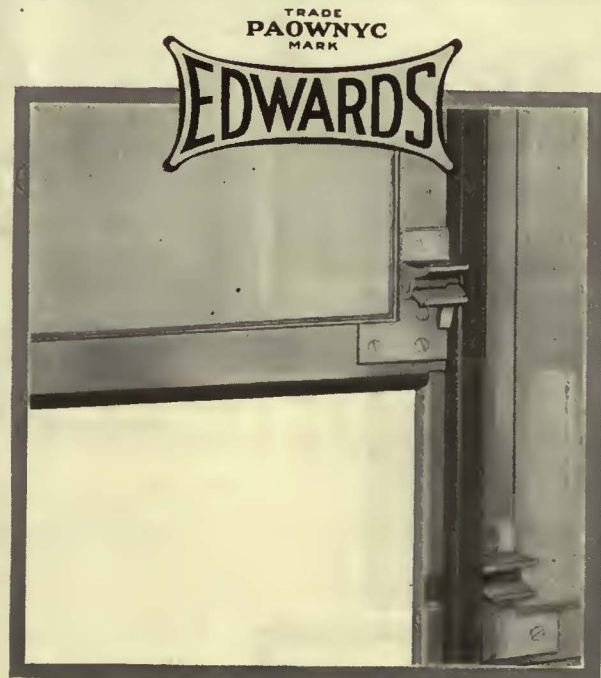
O. M. EDWARDS CO.,

Syracuse, N. Y.

Canadian Representatives:

Lyman Tube & Supply Co., Ltd.
Montreal and Toronto

Cars now being completed by the Cummings Car and Coach Co., for the Chicago & Joliet Railway, and by Canadian Car and Foundry Co., for the Montreal Tramways and British Columbia Electric Railway Co., are being equipped with Edwards Metal Sash.



Signals

and their Diversified Applications.

Have you more than scratched the surface to uncover available means of protecting and speeding up your traffic, and are you experiencing delays or perhaps accidents which might be eliminated by the use of one or more of the following means?



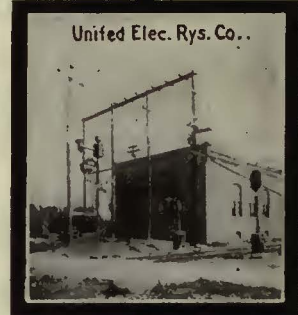
1.—Automatic semaphore or color light block signals, controlled by continuous track circuits.



2.—Electro-pneumatic, electric, electro-mechanical, or purely mechanical interlocking systems at terminals or at grade crossings with other railway lines.



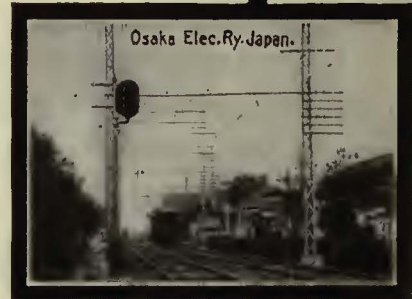
3.—Highway crossing protective devices of flashing color light, wig-wag and audible types or combination of same.



4.—Remotely controlled switches at outlying sidings.



A statement of your problem places you under no obligation and if it appears to our engineers that your conditions can be improved by installation of our materials, we shall be glad to furnish complete details.



Electric Railways which are large users of Union automatic signal and interlocking systems are:

Chicago, Lake Shore & South Bend Ry. Co.
 Chicago, South Bend & Northern Indiana Ry.
 Kansas City, Clay County & St. Joe Ry. Co.
 Washington, Baltimore & Annapolis Elec. R. R.

Interstate Public Service Co.
 Pacific Electric Ry. Co.
 Illinois Traction System
 United Elec. Rys. Co.

Scranton & Binghamton R. R. Co.
 United Railways & Elec. Co.
 San Francisco-Sacramento R. R.
 Northern Texas Traction Co.



Union Switch & Signal Co.



SWISSVALE, PA.



Increasing the Utility of Motor Transportation

Speedy highway transportation with the same degree of safety that the riding public has become accustomed to on railway vehicles attracts patronage.

Short, smooth stops, made without discomfort to patrons, permit higher schedule speeds and better running time.

Powerful retarding force, equalized to minimize skidding, easily controlled, and without driver fatigue, insures maximum safety under all road, traffic, and load conditions.

Automatic equalization of braking forces lengthens the life of linings and reduces frequency of adjustment, which results in a saving of material, labor and layover charges—economies which are even more marked if metal-to-metal brake shoe equipment be used.

Westinghouse Air Brakes are increasing the utility of motorized transportation on many traction properties.

WESTINGHOUSE TRACTION BRAKE CO.
 AUTOMOTIVE DIVISION
 General Offices and Works, WILMERDING, PA.

with

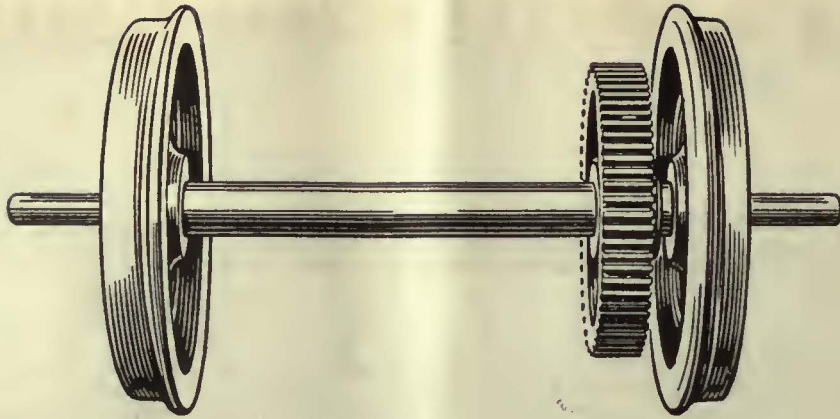
WESTINGHOUSE AUTOMOTIVE AIR BRAKES



HAND CONTROL **WESTINGHOUSE** **FOOT CONTROL**

Automotive AIR BRAKES

 The bottom section of the advertisement features two circular illustrations. The left one shows a hand on a steering wheel with a brake pedal, labeled "HAND CONTROL". The right one shows a foot on a brake pedal, labeled "FOOT CONTROL". The word "WESTINGHOUSE" is written in a large, stylized font across the top of this section, and "Automotive AIR BRAKES" is written in a large, stylized font across the bottom.



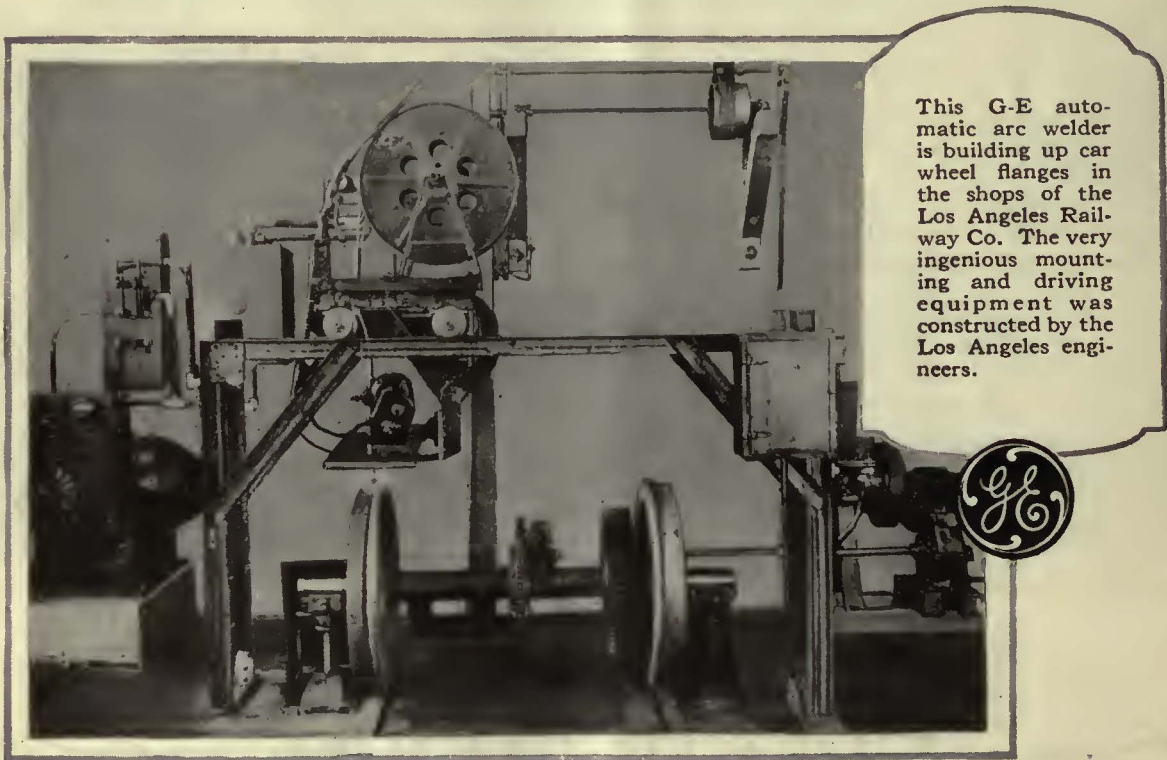
Down or Up ?

ARE you machining your worn car wheel flanges down—wasting material and time—or are you building them up—saving material and time—with a G-E automatic arc welder?

Here are some of the electric railways using G-E automatic arc welders to reclaim their worn car wheels:

Los Angeles Railway
Springfield (Mass.) Street Railways
Worcester Consolidated Railways
Detroit Municipal Railways
Kansas City Railways
Denver Tramway Co.
Northern Texas Traction Co.

In each case, the railways report that the job is being done with a speed, economy, and high quality of work unequalled by any other method yet attempted.



This G-E automatic arc welder is building up car wheel flanges in the shops of the Los Angeles Railway Co. The very ingenious mounting and driving equipment was constructed by the Los Angeles engineers.



GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN ALL PRINCIPAL CITIES

Electric Railway Journal

Consolidation of *Street Railway Journal* and *Electric Railway Review*

Published by McGraw-Hill Publishing Company, Inc.

CHARLES GORDON, *Editor*

Volume 68

New York, Saturday, August 7, 1926

Number 6

Giving Real Trolley Service a Chance

THE good citizens of upper Westchester County, which is immediately north of New York City, rubbed their eyes when they read that the Westchester Street Railroad, a New Haven subsidiary, had not gone to the junk dealer on July 19, but had been bought for continued operation by the Union Railroad, a subsidiary of the Third Avenue Railway system of New York City. Thereby hangs a tale.

Way back in 1909, when the New York, New Haven & Hartford Railroad was acquiring every electric railway in sight, it purchased for approximately a million dollars a system which has now been knocked down by the auctioneer's hammer at \$70,000 for some 20 miles of track. The territory served comprises a number of New York suburbs of high-grade character.

In recent years the equipment has been allowed to deteriorate to such a degree that it is no exaggeration to say that the public was unwilling, if not afraid, to use the trolley. Confirmation of this is suggested by the fact that the new owners found they had to deal with a track that had spread an extra inch! Hand in hand with this shabby property went an inequitable system of fares with a dime charge over a distance short enough for many persons to walk.

It is not for us to say whether or not this condition was avoidable under the circumstances. The blunt fact is that the public not only stayed away, but came to the conclusion that the cure-all lay in the use of motor buses. In line with this sentiment, the receiver of the Westchester Street Railroad organized the County Transportation Company to build up a county-wide bus system. His intention was to scrap the trolley and use buses both on the former trolley routes and on many new ones. However, this intention could hardly have been carried out within the immediate future because of the great rivalry for bus franchises and the absence of a central county authority which could deal with the matter as a whole.

So confident was the public that the trolley was doomed to go that the Mayor of White Plains, the largest community affected, expressed considerable astonishment on learning that the Third Avenue Railway management had not bought the lines just to enter the junk business. The management explained that opposition to the kind of trolley service lately provided was natural enough, but from what it knew of the relative cost of up-to-date operation with both car and with bus it wanted to make a trial of real trolley service first.

The new management is surely entitled to a little patience on the part of the Westchester public. Any visitor to Manhattan and Bronx Boroughs cannot help note the excellent appearance of this company's rolling stock. In the lower Westchester towns of Yonkers, Mount Vernon, Pelham, New Rochelle, etc., where the same management has had control for years, the com-

pany's cross-seat, convertible car was a real contribution to the art when others deemed the longitudinal-seat car good enough for New Yorkers. Residents in territory hitherto served by this company have no reason to think the trolley passé. The same feeling is likely to come to upper Westchester in the near future.

Political Entanglements Are Dangerous

NATION-WIDE publicity is being given to the inquiry, by a committee of which Senator Reed is chairman, into the conduct of the senatorial campaign in Illinois last spring. The principal contestants for the Republican nomination were Frank L. Smith, chairman of the Illinois Commerce Commission, and William B. McKinley, chairman of the board of the Illinois Power & Light Company. Mr. Smith has filled his recent office creditably. Mr. McKinley has served his constituency well over a long period of years. But on their face, some of the facts now being brought out have an ugly appearance. That utility men contributed liberally to the campaign funds of both candidates was probably well known long ago. The extent of these contributions is perhaps the new thing.

It costs money, lots of it, to canvass a state, and funds are sought far and wide. It would, of course, be jumping at conclusions for the public to assume that the utilities had anything more to gain by the election of either one of these candidates than did the others who contributed to their funds. As further facts are brought out it will probably be disclosed that the pressure for funds was equally persistent in all quarters. Still it will be the utilities, undoubtedly, that will feel most the public reaction to the so-called disclosures, given a tinge in the daily papers that they really do not deserve. That, of course, is particularly unfortunate, because long and continuous efforts toward better public relations are just beginning to bring about results.

The excuse may or may not be tenable that the utility executives did only what others did. But they are not in the same position before the public as are those in other business enterprises. Although they are subject to the same pressure for campaign contributions as are others, the necessarily monopolistic character of their operations and their dependence on regulation by public officials place them in a particularly unfavorable light in newspaper headlines.

Utilities have lost more than they have ever gained in the past by political activity. They must be held above even the possibility of popular suspicion, for in the confidence and the good will of the public itself, rather than that of administrative or regulatory officials, lies the security of their future. Upon the utilities themselves rests the responsibility for assuming the initiative in avoiding the entanglements of political campaigns.

Violators of Strike Injunction Sentenced to Jail

SERIOUS consequences have followed the Amalgamated Association officials who are held by a United States District Judge, sitting at Indianapolis, to have ignored the terms of a strike injunction issued against them. These officials are in jail. One of them is alleged to have boasted that he knew more about injunctions than did the court. This wasn't all he said. But he did say enough for the court to characterize the criticism as contemptuous. The pleading in extenuation of his act and the precautions he thought he took did the Amalgamated man no good. The court had no idea of dealing leniently with the violators. So a jail sentence was imposed. As the court so aptly said, for it to have imposed a fine would merely have been to fix a fee at which its command might be flaunted.

What is believed to be a correct account of the proceedings is published elsewhere in this issue. It makes the case against the organizers plain. There is no need to go over the facts in connection with the strike. They have been reported from week to week in the JOURNAL since the inception of the trouble. One thing does, however, stand out. Considerable vandalism has attended the conduct of the strike. No matter from what source these acts have emanated, their existence is a fact. For them there can be no excuse. That is how the court has felt about it. It has acted to preserve the peace. The boast of one of the convicted men was reported to have been that he had a bushel basket full of injunctions at home and that an injunction didn't bother him.

As for the strike, it appears to have petered out. The company apparently experienced little difficulty in filling the places of the men who went out. Moreover, those who did go out are now clamoring to be taken back. So the double lesson is brought home to the strikers that disrespect of the law is a serious thing and that vandalism, even as a resort of the desperate, always hurts most those who indulge in it.

Competition with Private Car Should Be Objective of Bus

DISCUSSIONS of the field for the bus and the street car have occupied much of the attention of transportation men in the past few years. But study of the extent to which buses may be substituted for private automobiles may well occupy their attention in the future. All forms of common-carrier agencies have finally realized that they have less concern with the development of each form of vehicle than they have with the common competitor of all public agencies, namely, the privately owned car.

Progress is now being made in developing street cars to the point where they may be expected to attract many present automobile riders. In this program the railway has a large price factor in its favor. Relief from traffic and parking worries is no small element of advantage in the service the railway has to offer.

But the street car must remain the poor man's vehicle. Minimum possible fare consistent with adequate service will continue an important consideration. There will, therefore, be many who insist on greater luxury and more exclusiveness in their travel accommodations. These will be reluctant to ride with the masses regardless of cost, convenience or even comfort. It is in offering a common-carrier service to such people that the bus seems to have its greatest possibilities. The nearer such

bus service can be made to approach the speed and exclusiveness of the private car, the greater will be the total number of automobile riders that can be attracted. There is a wide margin of cost to work in, while traffic congestion and parking difficulties favor successful development of such service. Instead of being relegated to operation only in small cities, this type of bus service seems to offer greatest opportunities for development in large, congested communities.

There has been too much tendency in bus design and operation to think in terms of street car capacities, street car service and street car fares. The nearer buses can be made to approach the desirable features of the individual car, the larger will be the number of private car users who will patronize them. It is significant that buses in tour service, which to a considerable extent has been pleasure service and approaches nearest to private car facilities, have proved most remunerative to their operators.

Spokesman for Retail Merchants Discovers a Plot

CONSPIRACY by the transportation interests to cripple the private automobile as a means of passenger conveyance within cities is what William J. Pedrick, vice-president and general manager of the Fifth Avenue Association, New York City, calls the recent agitation for elimination of parking. The prosperity of the retail merchants depends very largely upon private automobile trade, he says, and in support of this contention he refers to a nation-wide survey made by the Department of Commerce showing a widespread belief in the importance of this vehicle in the general transportation scheme.

Because the retail merchants of Fifth Avenue, and some of those replying to the questionnaire of the Department of Commerce, honestly think that their prosperity depends upon automobile trade, it does not necessarily follow that they are correct. Wherever actual counts have been made to determine the means of transportation used in reaching retail stores it has been found that a large majority of the customers use public transportation vehicles. A count made at the entrances of several well-known Fifth Avenue stores during a busy shopping hour showed only 414 customers using private automobiles or taxicabs out of a total of 12,473. Among 15,229 persons interviewed at four large Chicago department stores only 1,680 came by automobile. In Cleveland a poll was recently made of 22 of the largest stores and showed 19,551 private automobile passengers out of a total of 85,657 shoppers. In Los Angeles a similar count indicated 2,058 coming by automobile out of 20,117 customers.

Experienced transportation men are sufficiently familiar with these facts, but they have not yet been brought home to the merchants. The latter insist that private motor cars be allowed to park for long periods on even the busiest thoroughfares. Inevitably congestion results. Increasing hesitancy to fight their way in this congestion is shown by the residents of outlying districts. They are doing more and more of their shopping locally. Therein lies the real danger to the big city stores. The most effective way to convince the retail merchants that they attach exaggerated importance to the private automobile trade is to have them make actual surveys of the means of transportation used by their customers. The subject is of vital importance to them as well as to transportation companies. Agita-

tion looking to the relief of traffic congestion is in the public interest. It is only when private interest is placed ahead of the public's need that collective activity is subject to criticism. In that respect the retail merchants do not have a particularly enviable record. This question of traffic and parking should be settled on the basis of facts, not opinions.

Confusion in the Air and Confusion on the Highways

MUCH depends on whose ox is gored. Mr. Average Citizen has turned a deaf ear to the arguments that the free-for-all competition permitted under the interstate bus decisions of the United States Supreme Court was producing chaos in the local transportation industry. Now comes the ruling of the Attorney-General that the Secretary of Commerce has no authority to exercise regulatory control over radio broadcasting activities. Six months ago Mr. Average Citizen cared not one whit whether any real effort was made to co-ordinate and regulate the various transportation elements. Today, however, his own ox is in danger of being gored. His enjoyment of his favorite jazz orchestra may be rudely shattered by the too close paralleling of wave lengths on the part of rival broadcasting stations. The transportation problem is his, even as the radio difficulties, but he must be brought to realize his stewardship. He must be convinced that lack of regulation and unnecessary duplication of service will prove even more harmful to his general wellbeing than the present lack of control in the industry upon which he relies so much for entertainment.

Earnest Work of Southern Properties Equipment Men Productive of Pronounced Savings

TANGIBLE results in the way of reduced maintenance expense can be traced directly to the two meetings a year of the Association of Southern Properties Equipment Men. The last meeting, held in Chattanooga July 28-30, completes four and a half years of activity by this organization, participated in by some fourteen properties in the Southern states.

In preparation for the semi-annual meeting the key figures of each property were charted in their relative order and merit from reports made monthly to the president. Of course, there are a high and low, but no excuses are offered. The men meet with their cards on the table face up. The low men check their results with each other and the high men are just as keen to learn how to notch their showing up still higher.

That this frank comparison of practices is more than worth while is shown by the steady increase in mileage per pull-in as reported on many of the properties, and the ever decreasing cost of maintenance. The improvement is brought about to some extent by the friendly rivalry between properties. But the most important factor in stimulating progress is the exchange of experience at the semi-annual meetings.

One day of the meeting is devoted to the presentation of papers giving actual experience with methods or materials. No time is wasted in preliminaries or idle words. Some of the papers abstracted elsewhere are reproduced almost in full and their brevity and concise statement of facts will be readily observed by the reader. Approval or disapproval of materials or methods is stated frankly.

A second day of the meeting in Chattanooga was devoted to a discussion of some 50 questions compiled during the previous six months. Each question was discussed by delegates from each property represented. Little doubt was left in the listeners' minds as to the conclusions of each property regarding a given item of practice.

On the third day the men visit the shop of the property acting as host to the delegates. Then methods used can be observed at first hand. The whole program tends toward the production of concrete improvement in maintenance methods. An examination of the charts indicates the substantial value of this kind of an association.

Another similar group of maintenance men makes up the Central Electric Railway Master Mechanics Association, which soon after its organization quickly brought about the design of a standard freight car for the network of properties in the C.E.R.A. territory. The need for such a standard had been felt for many years. Properties in other sections of the country might well inquire closely into the work done by these associations of men charged with maintenance responsibility.

Inflexible Franchise Terms Based on Former Lack of Control

OSCAR L. POND, in an article published elsewhere in this issue, points out some of the fundamental advantages of indeterminate franchises and calls particular attention to the obsolescence of the old contract form of fixed term franchise under modern conditions of commission regulation.

The contract form of franchise was developed before the growth of regulation. Under those conditions the terms of the franchise itself offered the community its only adequate protection against excessive rates and inadequate service. It was obviously the duty of public officials to write into such franchises the maximum number of specific provisions regarding the conditions and terms of the grant. Since a franchise of this kind was an instrument to protect the community's interest over a long period of time, as well as to give the utility the right to place its rails in the public streets, these documents fairly bristle with detailed specifications and requirements. Changed conditions and progress of the art made many of the inflexible provisions of such franchises serious obstacles to transportation improvement and development.

One of the most important advantages of modern regulation lies in the fact that it permits franchises to be made more general and flexible in their provisions. The interests of the community, now adequately protected by commissions charged with authority to supervise both service and rates, no longer require elaborate specifications and detailed safeguards within the franchise itself. Thus the modifications required by changing conditions may be met as they arise.

There is still a tendency in some instances to load franchises with many of the inflexible provisions common in pre-regulation days. But those communities which have recognized the need for franchise flexibility are beginning to reap the reward in the form of transportation development and improved service. As Mr. Pond so convincingly points out, the terminable form of grant permits such flexibility and at the same time insures continuity of progress and improvement.



Refinishing the Car Exterior Has Greatly Improved Its Appearance and Aided in Popularizing the "Pioneer Locals" Service of the Northern Texas Traction Company



The Car Interior Has Been Much Altered and Improved. The "Pioneer Locals" Are Equipped with Seats Similar to Those of the "Crimson Limiteds"



Before Reconstruction the Same Car Presented a Far Less Attractive Appearance

Northern Texas Traction Operates the "Pioneer Locals"

Interurban Equipment Rebuilt for One-Man Operation Is Outstanding in Appearance and Comfort—Cars Are Named After Five of the Most Distinguished Citizens and Characters in Texas History

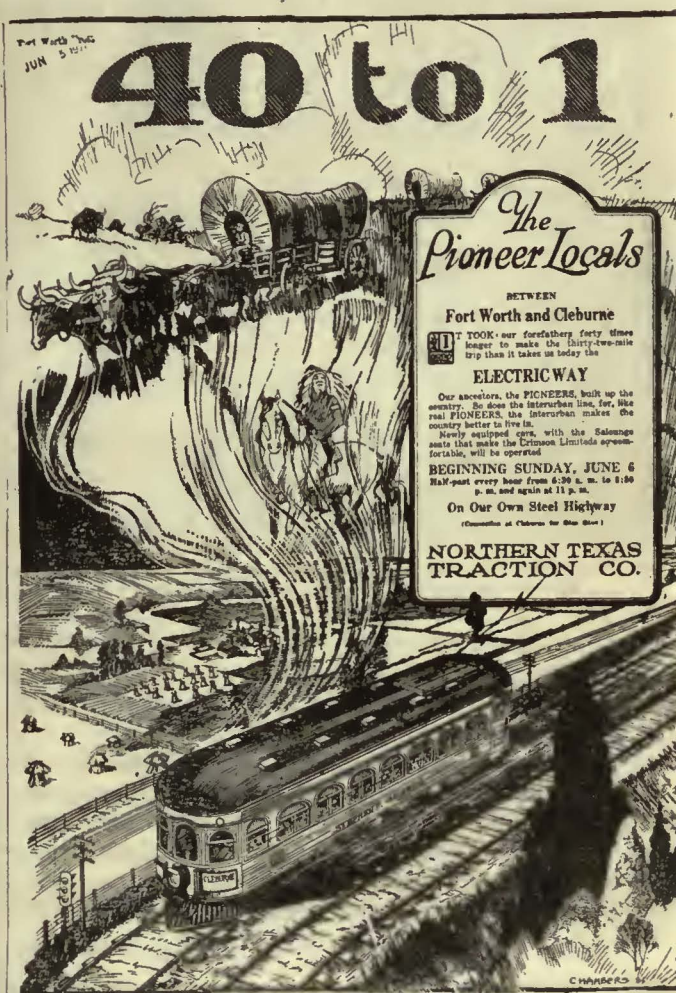
INSTANT public approval and enthusiastic reception met the inauguration of the "Pioneer Locals," the new de luxe one-man interurban equipment recently placed in operation on the Cleburne Division of the Northern Texas Traction Company. This company has again demonstrated its faith in electric railway transportation and in the policy of furnishing the public with attractive and comfortable cars, with frequent, fast and safe service, as a means of securing more riders and more revenue and holding the present business.

Last year the company rebuilt all the interurban equipment on the Dallas Division running in limited service and developed the "Crimson Limiteds," with their brilliant color scheme, individual chairs, observation sections and other improvements and refinements in comfort for passengers. More recently it has completely rebuilt all equipment used on the Cleburne Division and developed what are called the "Pioneer Locals." These cars have been changed over to enable them to be operated by one man, thereby effecting a saving of \$12,000 per year in operating costs, which is the total cost of rebuilding five of these cars.

The exterior color scheme of maroon on the body below the window and cream above the windows and panels, with gold striping and lettering, and the inside colors of gray for walls and baseboard, with cream ceilings, presents a car that instantly demands attention and appreciation. The inside of the car is furnished with individual air cushion chairs, similar to the ones used on the "Crimson Limiteds" in the observation section, while the front portion is fitted with blue-gray Kemi-Suede, with back and head rest covers. The floor is covered with extra-heavy green cork linoleum. All inside metal fixtures, such as hat hooks, light sockets, seat handholds, cuspidors, water cooler faucet, etc., are nickel-plated. All the iron stanchions and piping are painted with aluminum paint. The rear end of the car has a small awning that both improves the appearance and keeps the sun out of the observation section.

The cars are named after five of the most distinguished and outstanding characters in Texas history, whence the name "Pioneer Local" is derived. The name is placed on each side of the car in gold lettering on a black background. A picture of the man for whom the car is named is placed over the bulkhead of each car, in an attractive frame 18 in. high and 15 in. wide.

Several days previous to the inauguration of this service "teaser ads" appeared in Fort Worth and



Striking Advertisement Used by the Northern Texas Traction Company at the Inauguration of the "Pioneer Locals" Service

Cleburne papers, with wording such as "Pioneers Are Friends of Your City," "Remember the Pioneers, They Made Texas," etc. These ads caused quite a lot of speculation as to what they had reference to. On Saturday, the day previous to starting the new service, a half-page ad was run in local papers in both Fort Worth and Cleburne. This, and other advertising done, gave the cars a good send-off and had the public thinking and talking about them.

This line is 32 miles long, and Cleburne, the southern terminus, has a population of 15,000. An hourly service is maintained out of both Fort Worth and Cleburne

What Can the
Pioneers
Do for You?

The Pioneers
Are Coming Back

P-i-o-n-e-e-r-s
Are
Friends of Your City



Bell Cord, Baggage Racks, Ventilator Operating Rods, Etc., Cluttered Up the Interior of the Old Car

from 6:30 a.m. until 8:30 p.m. The last car leaves Fort Worth at 11 p.m. and Cleburne at 10:30 p.m. Extra short stop service is furnished morning and evening operating as far as Burleson.

As yet these cars have not been on a sufficient length of time to tell what the result will be on increasing earnings, but it is the confident opinion, based on the many favorable expressions so far received and results from a similar experiment on the Dallas Division and city lines, that a material increase in gross may be expected.

Threefold Problem of Electric Railway Safety

SAFETY on electric railways has a threefold nature. This is because of measures necessary to safeguard employees, passengers and the general public, according to an article by John W. Oliver, safety engineer Chicago, North Shore & Milwaukee Railroad, in the July issue of *National Safety News*. In this article Mr. Oliver tells about the safety organization on this railroad with its system for training men in safety methods, obtaining ideas for improvements in the direction of safety and bringing safety before the public. The author emphasizes particularly the great advantage of teaching safety to children and points out that many talks to young listeners are very much over their heads. He says that when he visits a kindergarten group, he does not stand before the class and attempt an oration. He usually sits on the floor with the children and plays with them. At the same time he tells some little story about safety or how the children should conduct themselves on the street, in the playground and at home.

Pittsburgh Railways Has a Big Brass Band

LISTENING to the big brass band of the Pittsburgh Railways is a real treat. The band, composed solely of employees from the several departments of the company, was organized in September, 1925. Since then it has appeared at several company functions, such as new carhouse openings and evening entertainments of the company's employees. The band has also played before outside organizations, such as the Joint Safety Meeting and the Civic Club of Allegheny County Flower Show.

Only the leader, Alois Hyabak, is an outside musician, and he has been eminently successful in organizing the 40 members. Employee members are compensated by the company for all lost time attending rehearsals, and when they play for outside engagements they receive regular musicians' rates. The company has high hopes that this band will develop into one of the best, and it is already an important factor in the company's publicity and public relations work.



Pittsburgh Railways 40-Piece Band Is Composed Solely of Company Employees Except the Director. The Men Have Trained Diligently Since the Organization of the Band in September, 1925

Advantages of the Indeterminate Permit

Experience Shows that It Is Equally Desirable for Utility and Public and Far Superior to the Fixed Term Franchise—
Legal Decisions Have Clarified Its Status During Recent Years

By Oscar L. Pond, LL.B., Ph.D.*

Attorney, Indianapolis, Ind.

THE principle of the continuous franchise or indeterminate permit is of the greatest importance in our modern system of commission control of public utilities. The franchise or permit, under which the public utility serves the public, is the basis of the relation and determines fundamentally the rights and duties of all interested parties. The nature of the service, the conditions under which it is given and its extent or the period of its duration are all fixed and determined by the franchise. As the franchise is the foundation of commission control, the principle established by the use of the indeterminate permit makes for uniformity in practice and places all utilities under the same method of control and on a common plane of regulation.⁽¹⁾ The National Association of Railway and Utilities Commissioners in its 34th annual convention resolved that the principle of the indeterminate permit is economic and sound and recommended its adoption in each state.

Prior to the establishment of our modern public utility commissions, franchises in most states were granted for fixed and definite periods as the only means then available of controlling public utilities, including their rates and service. As the acceptance of such a franchise by the public utility constituted a contract, the privilege of occupying the streets and other public places for the purpose of rendering the service and the rates and other conditions of service were generally provided by the terms of the franchise. During the period fixed by the franchise, these conditions could not be modified, eliminated or supplemented to meet new conditions or changed relations, which are constantly arising in the fields of industry and finance with new inventions and improved methods of business.⁽²⁾

Under this old plan of granting franchises for a limited time or a definite period, on the expiration of the term, the franchise rights terminated the contractual relation created by it, so that neither party could be compelled to renew it nor required to furnish or accept service thereafter. The right of the utility, which had furnished the service, to remove its equipment was clear and unquestioned, although its exercise involved an extravagant waste of property due to its depreciation on such removal, as well as the consequent expense of repairing and repaving the streets. Under

such conditions, plant and going-concern values were reduced to mere junk, or whatever the tangible property would bring after being dismantled and removed from the field of service.

At the same time the service was interrupted or discontinued and the consumer suffered the consequences. As all this inconvenience and loss of service and investment must be borne by the consumer, because it is necessarily charged to the cost of service by the utility rendering it, the interest of the public as well as the utility naturally demands that it be avoided by the continued use of the plant, which can be most surely and advantageously secured under the continuous franchise that is sometimes aptly described as the indeterminate permit.

INVESTMENT CONSERVED BY CONTINUOUS FRANCHISE

The necessity and advantage of conserving these investments by some form of uninterrupted franchise, and the practical effect of a failure to do so under the old form of granting these rights for fixed periods, is very well illustrated in the case of *Denver vs. New York Trust Company*,⁽³⁾ which decided that on the expiration of the twenty-year period of the franchise all rights to the use of the streets terminated, and although the municipality might have renewed the franchise or purchased the plant, it was not obliged to do so, for as the court said: "In the absence of some stipulation to that end, the city would be under no obligation to purchase or renew, nor would it be entitled to do either."

In *Detroit vs. Detroit United Railway Company*⁽⁴⁾ the Supreme Court of Michigan held that the contractual relations between a municipality and a street railway to which it had granted a franchise terminated upon the expiration of the franchise period, and that all rights of the company to occupy the streets and to maintain and operate its street railway system thereon ceased, so that the city had the absolute and unquestioned right at any time thereafter to compel the company to vacate the streets and to remove its property therefrom. This decision was upheld by the Supreme Court of the United States.⁽⁵⁾

By virtue of the continuous franchise or indeterminate permit, the utility secures the right to operate exclusively and continuously under the regulation and control of the commission so long as the service is sufficient and satisfactory, and subject at all times to rate regulations and adjustments to meet changing condi-

*Dr. Pond has been a practicing attorney in Indianapolis for the past 25 years and has specialized in corporation law. His book, "Public Utilities," published by the Bobbs-Merrill Company, has passed through two editions and is frequently cited by courts and commissions in public utility cases.—Eds.

¹*LaCrosse vs. LaCrosse Gas & Electric Light Company*, 145 Wis. 408; 130 N. W. 530. *Winfield vs. Public Service Commission*, 187 Ind. 53; 118 N.E. 531; P.U.R. 1918 B 747.

²*Pond, Public Utilities*, 3rd. Ed., Sec. 120 et seq. and cases cited.

³229 U. S. 123; 57 L. Ed. 1101.

⁴172 Mich. 136; 137 N. W. 645.

⁵229 U. S. 39; 57 L. Ed. 1056; *Pond, Public Utilities*, 3rd. Ed., Sec. 449 and 473 to 478.

tions.⁽⁶⁾ This plan obviates needless controversies which are expensive and tend to impair the service, the credit of the utility and the value of its securities, and which ultimately result in higher rates and interrupted and unsatisfactory service, as has frequently occurred on the expiration of fixed-term franchises.⁽⁷⁾

Continuing franchise rights are essential to the best results which can only be obtained under a policy of constant and consistent regulation of a continuous, sustained service, based on permanent investments and on a scale of operating costs which are in the interest of economy and efficiency. This plan serves and protects the interests of all parties concerned. The consumer secures adequate and satisfactory service at fair and uniform rates; the utility can obtain the most favorable terms of financing, and is justified in making extensions and improvements promptly and permanently, and in keeping the plant in a high state of efficiency at all times; and the investment can only be terminated by the policy of municipal ownership at the fair value of the property, actually used and useful for the service of the public.⁽⁸⁾ The expense and political activity which formerly too often attended the securing or renewing of franchises are entirely eliminated by the permanency of the indeterminate permit.

Regulated and uninterrupted service during good behavior, when given exclusively by a single utility, is to be preferred to the regulation which competition cannot give, and to franchise regulations for fixed periods of duration under the former practice which obtained before the establishment of our present plan of commission control. The service which is now afforded under this more modern plan of control is, of course, always subject to the reserved right of the commission to grant similar permits to others where convenience and necessity may require and justify it, and subject also to the right of the municipality to purchase the plant.⁽⁹⁾ In this way, investments and service are not periodically disturbed by the interruptions of service and the fluctuations in the values of securities, consequent on the expiration of franchises; and the financial policy of amortizing the investment over the franchise period, which was formerly attempted, is now entirely obviated.⁽¹⁰⁾

With the right to serve continuing indefinitely and being exclusive, at least so long as the service is satisfactory and sufficient, investments in plant and equipment are made permanently and much more substantially and on better terms, and are maintained at a higher level of efficiency because they are recognized as being permanent and secure. This has the effect of stabilizing investments for the investor as well as for the utility, which in turn effects economies for the benefit of all interested parties, including the consumer.⁽¹¹⁾

ELASTIC REGULATION PERMITTED

Regulation under this plan is the most elastic possible, for it is currently available at all times because

⁶Evansville Street Railways Company, In Re, P.U.R. 1918 D 685. Gary & Interurban Railroad Company, In Re, P.U.R. 1918 A 88.

⁷Calumet Service Company vs. Chilton, 148 Wis. 334; 135 N.W. 131.

⁸Citizens Gas Company, In Re, P.U.R. 1922 B 440.
⁹Brookville vs. Brookville Electric Company, P.U.R. 1922 D 1. Oshkosh Water Works Company vs. Railroad Commission, 161 Wis. 122; 152 N.W. 859; L.R.A. 1916 F 592; P.U.R. 1915 D 336.

¹⁰Connell vs. Kaukauna, 164 Wis. 471; 159 N.W. 927; 160 N.W. 1035; An. Cas. 1918 A 247.

¹¹Fresno Traction Company, In Re, P.U.R. 1922 E 341.

the permit may be revoked for cause or terminated by municipal ownership if found necessary, in contrast to the arbitrary and fixed franchise, which precludes the fullest control during its term and tends to unsettle the relations of all parties at its termination. The plan provides an uninterrupted service and conserves the necessary investments under continuous regulation and control; and in this way avoids arbitrarily discontinuing or disturbing necessary service and investments to the loss and inconvenience of all parties, which frequently arose under the former plan of granting franchises for fixed periods.⁽¹²⁾

Under this later form of franchise, the indeterminate permit, the public utility commission determines in the first instance whether public convenience and necessity demand the utility service when such a company proposes to install its plant and furnish its service, and only after a determination of this question in the affirmative and the granting of the permit by the commission may the plant be installed and the service furnished. This plan avoids needless competition by the legalizing of a monopoly of service. The condition or consideration, however, for the granting of such a permit and exclusive service privilege is that the utility securing it shall be constantly and completely under the regulation and control of the state through its public utility commission and that the utility shall furnish adequate and satisfactory service at reasonable rates.⁽¹³⁾

Public utilities, operating under the indeterminate permit, are in the best position to render continuous service at uniformly economical rates, and to sustain their investments and maintain their credit to advantage, because their service is uninterrupted and exclusive. Under this plan, the utility is protected against competition and a possible loss of its plant investments, which might occur on the expiration or forfeiture of its franchise when granted for a fixed period, in the event of a failure to secure a renewal of its franchise or the sale of its plant as a going concern.⁽¹⁴⁾

LEGALLY SOUND AND ECONOMICALLY ADVANTAGEOUS

Experience shows that under this plan, so long as proper service is given at reasonable rates, competition is seldom, if ever, encountered and municipal ownership, which is always available legally, is unnecessary and practically unknown in fact. The plan has become popular in practice and wherever adopted it seems to be equally satisfactory to all concerned. It is sound legally and economically and has demonstrated its advantages in practice far beyond any other established system for the regulation and control of public utilities. While its acceptance has of necessity been voluntary, in each case it has been received with favor, and practical experience has demonstrated its advantages and justified its permanent establishment as the best and most advanced method of commission control. It is generally regarded as an integral and essential feature of the later and most advanced systems for the regulation and control of public utilities; and it is certainly one of the most fundamental and valuable features now available for this purpose, and constitutes the most

¹²Los Angeles Railway Company, In Re, P.U.R. 1922 A 66.

¹³Arkansas Light & Power Company, In Re, P.U.R. 1920 D 775. Farmers & Merchants Co-operative Telephone Company vs. Boswell Telephone Company, 187 Ind. 371; 119 N.E. 513; P.U.R. 1918 E, 172.

¹⁴Appleton Water Works Company, In Re, 6 W.R.C. 97.

unique and comprehensive method known for realizing to the fullest extent the advantages of commission control of public utilities.⁽¹⁵⁾

The courts have recognized this principle as being legally sound and economically advantageous ever since its establishment in practice. Its practical effect is very well indicated in the leading case of *State ex rel. Kenosha Gas & Electric Company vs. Kenosha Electric Railway Company*,⁽¹⁶⁾ decided in 1911, in which the court defined the purpose and effect of the indeterminate permit as follows: "The public utility law in form in unmistakable terms disabled the city of Kenosha from making such a grant as that in question after respondent's indeterminate permit took effect. . . . The intent was to give the holder of an indeterminate permit, within the scope thereof, a monopoly so long as the convenience and necessities of the public should be reasonably satisfied, yet to secure to the public the benefit of the monopoly in excess of a fair return upon the investment, under proper administration, by insuring to the consumers the best practicable service at the lowest practicable cost and to that end prohibit, conditionally, the granting of just such franchises as the one challenged in this case."

One of the best arguments for public utility commissions and the indeterminate permit, as an integral feature of this plan of control, is furnished in the case of *Calumet Service Company vs. Chilton*,⁽¹⁷⁾ decided in 1912, where the court says: "The findings are to the effect that only the privilege feature of the old franchise survived the surrender for its equivalent emanating directly from the state; that all the conditions and limitations of the old and all contract features between the city and the owners of the privilege inherent in the grant were extinguished by the surrender and superseded by the 'conditions and limitations' of the public utility law. . . . In other words, the idea is that the grantee, under state control, and subject to prescribed limitations and supervision, shall have a 'monopoly,' as it has been several times called by the railroad commission, in its administrative work and by this court, within the field covered by the privilege, as to rendering the particular public utility service, whether directly or indirectly, to or for the public.

"We should say, in passing, that the term 'monopoly' as thus used is to be taken in the sense of a mere exclusive privilege granted for a consideration equivalent; monopoly only in the sense that the field of activity is reserved to the grantee—the mere element of exclusiveness. . . . The evident intention of the Legislature, expressed in unambiguous language, when read in the light of the situation dealt with, was . . . to substitute a new situation, all looking to unity in practical effect of a multitude of diverse units corresponding to the many outstanding franchises, and others in prospect, harmonizing them by making them referable to a single standard, to wit, the public utility law, and to a single control, to wit, control by the trained, impartial state commission, so as to effect the one supreme purpose, i.e., the best service practicable at reasonable cost to consumers in all cases and as near a uniform rate for service as varying circumstances and conditions would permit—a condition as near the ideal probably as could be attained."

Such is the chief purpose and effect of the indeterminate permit as defined by the court in its practical application, and such is the opinion of the Supreme Court of Wisconsin where this plan of control has been in constant use since 1907. During all that time, however, the commission has never found it necessary to authorize the operation of a competing utility in any city, although competition is made available at all times for the protection of the public interests and to supply the public needs at any time that the existing utility fails to serve the public adequately and at reasonable rates.

BETTER SERVICE POSSIBLE

This plan in granting an exclusive privilege to serve a given community during good behavior, or so long as the service is satisfactory and sufficient, guarantees the public the best possible service at the lowest practicable cost, as fixed and determined by the impartial commission of trained experts of the state whose findings are based on wide experience and uniform practice in regulating the same or similar forms of franchise rights. Under this form of a continuing franchise, investments are secure in their right to a fair return during good behavior and to a fair price for the plant on its purchase by the municipality on such terms and conditions as the commission finds just and right.⁽¹⁸⁾

In relieving the utility of the risk of competition and of the possible loss of its investment on the expiration or forfeiture of its franchise, its investments are conserved and can be financed to better purpose, and this operates to the advantage of all parties. By requiring uniform rates and discontinuing discriminations in the form of free service, which commonly prevailed under the old franchises, the utility can serve the public better and at lower rates and also finance its operations to better advantage. This plan provides continuous regulation and control of rates and service and avoids the bargaining for franchises and the constant uncertainty and continued interruption of service and policies commonly prevailing under fixed-term franchises. It also lodges the control in the hands of an experienced, disinterested commission of trained experts representing the entire state.⁽¹⁹⁾ It makes for uniformity in the regulation of rates as well as standards of service and promotes a spirit of co-operation between the utility and the public because of the uniformity of rates, service and treatment as a continuous policy.⁽²⁰⁾

The public interests are not conserved, nor can those of the utility be, by the policy of the fixed-term franchise, which serves as a constant reminder that on the expiration of the franchise, for any or for no reason, the utility may be denied the right to continue to serve advantageously or at all, and be thus required to dispose of its plant and equipment as junk or at any price obtainable by a trespasser or one having no further right to use it as designed. Such a risk is wholly unjustifiable and may be avoided by the policy of a continuous franchise in the interest of all parties, and in this way capital can be secured to the best advantage because of the permanency and security of its investment. Service to the public is assured, which can be made adequate and continuous and at the lowest possible cost to the advantage of all parties. Such cannot

¹⁵*Calumet Service Company vs. Chilton*, 148 Wis. 334; 135 N.W. 131.

¹⁶145 Wis. 337; 129 N.W. 600.

¹⁷148 Wis. 334; 135 N. W. 131.

¹⁸*Waukesha Gas & Electric Company vs. Wisconsin Railroad Commission*, 181 Wis. 281; 194 N.W. 346; P.U.R. 1923 E 634.

¹⁹*Fort Smith Light & Traction Company, In Re*, P.U.R. 1920 C 418. *Indiana Fuel & Light Company, In Re*, P.U.R. 1918 B 762.

²⁰*Washburn vs. Washburn Water Works Company*, 6 W.R.C. 74.

be the case where competition exists or threatens and where the entire plant investment is subject to the risk of a discontinued service on the expiration of a fixed-period franchise.⁽²¹⁾

Under the indeterminate permit, the owners or the investors in the public utility plant are assured of a reasonable return on their investment and the continuance of their business on such terms, so long as its service proves adequate, without the risk and interference of competition, and subject only to the right of the municipality to purchase the plant at its just value so far as it is used and useful for the convenience of the public and on such terms and conditions as may be determined by the commission.⁽²²⁾ Those who have observed the practical effect of this continuous franchise plan of regulation in the form of indeterminate permits are generally agreed on its desirability from the standpoint of the utility and the investor in its securities as well as the patron and the public at large. It bids fair to become universal in practice as its advantages are demonstrated and its merits discovered.⁽²³⁾

EFFECT OF ACCEPTANCE OF INDETERMINATE PERMIT

The acceptance of an indeterminate permit in lieu of an existing franchise for a fixed period is of necessity voluntary, for as the Supreme Court of the United States held in the case of *Superior Water, Light & Power Company vs. Superior*:⁽²⁴⁾ "The integrity of contracts—matter of high public concern—is guaranteed against action like that here disclosed by Section 10, Article I of the Federal Constitution: 'No state shall . . . pass any . . . law impairing the obligation of contracts.' It was beyond the competency of the Legislature to substitute an indeterminate permit for rights acquired under a very clear contract."

Nor can the state after the granting of an indeterminate permit subject the holder thereof to additional burdens or obligations inconsistent therewith.⁽²⁵⁾ The utility cannot be required to render free service or to discriminate in its rates, because this would be in violation of its contract after the granting of such a permit, although the old franchise so provided. As the court held in *Greensburg Water Company vs. Lewis*,⁽²⁶⁾ "On June 30, 1917, appellant accepted the proposal of the state by surrendering its franchise in accordance with the provisions of the act. By this acceptance the minds of the parties met and agreed on the terms of the proposal embodied in the act, and a contract was thereby concluded between the state and the appellant whereby all the terms, conditions and provisions of the existing franchise agreement were abrogated and rescinded. The state was a party to the franchise agreement which the city of Greensburg made with appellant, acting for the state under delegated authority. Later the state, acting directly through its Legislature in making the proposal and through its Public Service Commission, on which it had conferred express authority in the

premises, entered into a contract with appellant by the terms of which such franchise agreement was abrogated and rescinded in toto as to both parties. By the italicized part of the act quoted (Acts 1919, P. 709) the state attempted to violate the obligations of a contract made with appellant by the force of which the franchise contract had been abrogated in all its terms as to both parties. The act attempts to revivify and re-establish some of the terms of the abrogated contract which were burdensome on appellant and to enforce such terms against appellant without its consent. That part of the act, if enforced, would clearly impair the obligations of contracts, and for the reason stated it must be held to be void as in conflict with the sections of the Constitution heretofore quoted."

In sustaining this same principle and denying validity to an ordinance which attempted to require the utility to pave between and alongside its tracks the commission in the case of *Indianapolis Street Railway versus Indianapolis*⁽²⁷⁾ said: "To determine this question [of the liability to pave between tracks], we must ascertain the effect of the surrender by the petitioner of its franchises with the city of Indianapolis and the acceptance of the indeterminate permit as provided by law in lieu of the franchises so surrendered. . . . The state having thus induced the petitioner to surrender its franchises and having entered into a new contract whereby the petitioner was relieved from its paving obligations, under the requirement of the franchises surrendered, it would seem unjust, unreasonable and inconsistent to permit the city as the agent of the state, without consideration or petitioner's consent, to reimpose the burdens from which petitioner had been relieved."

RESULTS MUTUALLY ADVANTAGEOUS

That the advantages of the indeterminate permit are fully recognized and enjoyed in California is indicated in the case of *Los Angeles Railway*,⁽²⁸⁾ where the California commission says: "The best solution, from the point of view of both the city and the company, would seem to be the acceptance by both parties of a form of so-called indeterminate resettlement franchise. Such a franchise can be drawn to protect properly all parties and interests. . . . In the absence of an adequate franchise, the further street car development must lag and service must suffer."

And in the *Fresno Traction case*⁽²⁹⁾ this same commission says: "This commission has on several occasions expressed its opinion of the desirability, from the standpoint of the public, of exchanging obsolete and undesirable term franchises for more desirable and more modern indeterminate franchises. . . . From the standpoint of the company's bondholders, the franchise exchange is a desirable step and one tending to enhance the value of the security."

In *re Davis*,⁽³⁰⁾ the commission of Minnesota refused to issue an indeterminate permit to a proposed competing company to operate in the same field with an existing company holding such a permit, because public convenience and necessity did not justify or demand such competitive service.

In *Fort Smith Light & Traction Company*,⁽³¹⁾ the

²¹*Appleton vs. Appleton Water Works Company*, 5 W.R.C. 215.

²²*Brookville vs. Brookville Electric Company*, In Re, P.U.R. 1922 D 1. *Cashton Light & Power Company*, In Re, 3 W.R.C. 67.

²³*Farmers & Merchants Co-operative Telephone Company vs. Boswell Telephone Company*, 187 Ind. 371; 119 N.E. 513; P.U.R. 1918 E 172.

²⁴263 U. S. 125; 68 L. Ed. 204.

²⁵*Indianapolis Street Railway Company vs. Indianapolis*, P.U.R. 1922 E 545.

²⁶189 Ind. 439; 128 N.E. 103; P.U.R. 1921 A 96. On June 1, 1926, the Indiana Supreme Court in *Chicago, Lake Shore & South Bend Railway vs. Gullfoyle* fully sustained its former decisions on the effect of the acceptance of an indeterminate permit and extended this effect to include a total abrogation of the former franchise provisions.

²⁷P.U.R. 1922 E 545.

²⁸P.U.R. 1922 A 66.

²⁹P.U.R. 1922 E 341.

³⁰P.U.R. 1918 F 406.

³¹P.U.R. 1920 C. 418.

commission of Arkansas in sustaining this policy said: "The chancellor also held that the obligations of the contract are not impaired by the surrender of the franchise as provided in Section 15 of said act." The Supreme Court of this same state in the case of *Arkansas Natural Gas Company vs. Norton Company*⁽³²⁾ decided in 1924, said: "Section 15 of this act provides, in effect, that contracts, franchise and leases may be restored to utilities operating under indeterminate permits upon application made by such public utility corporation in the manner provided in the act."

This case defines the rule prohibiting discrimination by public utilities and serves as an excellent illustration of the advantages of uniformity in rates and standards of service, which is more fully and easily secured by virtue of the indeterminate permit. Under this system of control all franchise agreements are made on the same plan and for like periods, which tend to simplify the regulation and to secure uniformity and continuity in the operation of public utilities and places their investments on a secure and permanent basis, which permits of an improved, sustained service at a reduced cost.

Co-operation to Relieve Street Congestion in Philadelphia

EFFORTS are being made by the Philadelphia Rapid Transit Company, in co-operation with the Philadelphia Department of Public Safety, toward the alleviation of traffic congestion in that city. The Sesqui-Centennial Exposition in the Quaker City has brought with it a severe strain on the city's traffic facilities, with Broad Street, the main traffic artery to the exposition grounds, bearing the brunt of the congestion. This street, with its southern end terminating at the exposition gates, carries a great percentage of the north and south traffic.

Practically all the outside motorists and many of those living in the city use this thoroughfare and on certain days Broad Street has been choked with cars and buses. The resulting traffic jam taxed the ingenuity of the police to the utmost.

Fearing the condition would become chronic, the city, at the instigation of the Mayor and the Department of Public Safety, has, with the co-operation of the Philadelphia Rapid Transit Company's traffic engineers, formulated a plan which will relieve congestion in the center of the city. Motorists are encouraged to make use of numerous wide and well paved streets which parallel Broad Street or run at a slight angle with it, and which at the present time are often neglected by the outside motorist.

Metal arrows bearing the inscription "To Sesqui" have been placed on poles along the designated routes. The city police are distributing 100,000 pamphlets with maps to all incoming motorists, describing these routes, and the automobile clubs of the city are distributing thousands more. Every effort will be made to divert traffic along the routes as planned.

Such measures permit a steady flow of traffic and enable the motorist to make better time than by the use of Broad Street. Incidentally the occasion cited offers a splendid example of the opportunities which exist for co-operation between a municipality and its public utility.

Advertising Campaign Stimulated

Fort Smith Light & Traction Company Conducts Contest for a Name or Slogan to Head Its Advertising Space in Local Press

WHEN the railway management at Fort Smith, Ark., was confronted recently with the proverbial query "What's in a name?" its response was "Community Progress." Under this name through the newspaper medium the Fort Smith Light & Traction Company is appearing twice each week with items of community interest linked up with the utility service.

The preparation for the railway's newspaper debut under the name of "Community Progress" was started early in the present year when a public relations department was organized under the management of R. C. Coffy. In addition to the usual functions looking toward the promotion of good will the department also has charge of the advertising of the company. In the past this advertising was handled from the Oklahoma City office, but it was decided that not only would the type of advertising be changed but that the material would have more local interest if produced by some one in closer touch with the particular territory.

A space of 30 in., two columns, was being used in Fort Smith, and the plan was to use this space as a tabloid newspaper running local items written so that the company's business would be brought into it. The first problem was a name for the tabloid, and it was decided to offer a prize for the best name suggested by the public or the employees.

The first "ad" was inserted on March 9, with the heading "Five Dollars for a Name." The 30-in. space was used twice weekly until March 31, copy being changed each issue. In order that those submitting names might have some assistance or ideas of what was wanted in the form of a name, the company wrote several "Locals" as samples of what the column would contain. In the space it was also brought out that the service rendered was threefold—gas, electricity and railway. This hint brought out many coined and group words which carried out the three-service idea.

The results were very encouraging and surprising. In all 374 names were sent in without any indication of levity, sarcasm or "smart aleckism." Rather did the company receive many favorable personal comments on the advertising copy.

In deciding upon a name a list of suggestions was given to the departmental heads to choose the ten which, in their opinion, were best. The opinions all simmered to one, but after it was chosen it was found that a certain utility company was using one very much like it. This made it unavailable and the title "Community Progress" was chosen.

No one actually suggested the name "Community Progress," but four suggested "Progress," and that being half of the name decided upon all four people were sent one-half of the prize amount offered.

In one of its advertisements the company sums up the plan:

"What is our aim? Progress. How significant, then, is 'Community Progress' as a title for this space. We will try and tell you what progress is being made in our community."

³²165 Ark. 172; 263 S.W. 775; P.U.R. 1924 E 675.

Women, Too, Can Help Make Friends for the Railway

A Story of How a Woman Is Gaining Friends for the New Orleans Public Service Through Contact with the School Children of That City—The Public Service Idea Naturally Gets Into the Home Through Intimate Channels Barred to Other Approaches

By *Julie Paillet*

New Orleans Public Service, Inc., New Orleans, La.

EDITOR'S NOTE

Without doubt the light and power utilities have used the women of their companies to a far greater extent than railway companies as an aid to promote public relations work. At the last joint convention of the Southwestern Public Service Association and the Southwestern Geographic Division of the N.E.L.A., held at Galveston, Tex., Miss Paillet gave a talk on "A Recent Development," describing this important work in New Orleans. The present article has been written by the author to show how she applies "open house" to the railway operations of her company.

IN 1921, when broad-visioned utility executives of the National Electric Light Association inaugurated the women's public information committee, little did they realize what an important rôle the women could play in the great task of establishing better public relations.

Women in a number of companies are tactfully working their way into the clubs, civic organizations and schools. The work in the schools, however, is the most recent development. In a few localities "open house weeks" have been fostered by various utility companies. Fortunately, just about the time our company was seriously considering developing this plan, the city launched a mammoth publicity campaign, and there was the golden opportunity, for the Mayor issued a call for speakers who were familiar with all phases of the city's life—commercial, social, historical and otherwise. Our president pledged the services of our company and several employees were selected to speak for the cause. Although it had been quite a few years since I'd heard the old school bell ringing and I was rather unpolished

on my historical and geographic facts, I collected quite a few facts and figures on "America's most interesting city" and gave my first talk before the principals of the public schools. After that there were numerous school engagements to fill. Then another civic campaign was fostered—"Fire Prevention Week." Again I helped and spoke in several schools, besides acting in a motion picture film on this subject, which was given much publicity in the schools.

The early part of this year we received permission from the superintendent of schools to appear before classes in the interests of the company. Attractive invitations were sent to all the public, parochial and private schools, inviting them to visit our various plants and assuring them that the New Orleans Public Service, Inc., was ever eager to promote educational projects. We further stated that we would transport the pupils to and from the schools in our up-to-date buses, and assured them that it was our earnest desire to serve them.

In the interim I visited each of the plants with the superintendents, outlined the routes, appointed capable guides and learned quite a bit about the various technicalities, for I fully realized that the pupils would expect me to answer their numerous questions.

A few days after issuing these invitations the response from the schools was beyond all expectations. There were letters galore, and the phone refused to stop ringing. On March 10 this campaign for publicity was officially launched and it was not completed until May 14. In the early part of the campaign we made a trip each day, but the schedule soon became so heavy that it was necessary to make two trips a day and it



School Children on Visit to Carhouse of New Orleans Public Service, Inc.

continued the rest of the school year. Think of it, every day our company makes an average of about 75 new friends, and it is needless to say that these pupils carry the message home, and what parent will not listen to his own child. The teachers and principals, too, become our friends and we *do* know the amount of influence they can exert.

In handling these trips we go to the schools with buses and I first give the pupils a talk on the policy of the company and tell them what they are going to see on the trip. Then they are taken to the main power house, known as our Market Street generating station;



Showing the Children How the Electrical Equipment Works

the gas plant, and the training school for motormen and conductors. They are encouraged to ask questions that arouse their interest, and most classes take unusual notice of essential features during the entire trip and write essays afterward.

The pupils are told that the main power house has a generating capacity of 85,500 kw., and to help them visualize this they are asked to imagine 110,000 wild horses all trained and harnessed to serve them. At the gas plant I explain to them about the generator, carburetor and superheater; how the condenser system cools the gas; how the meters are tested and proved for the customer's protection, as well as the company's, and that on a cold day it is necessary that we use 250 tons of coke and 75,000 gal. of oil in order to meet the needs of the city.

At the training school it is explained that there are only two troubles that can happen to an electric circuit—an open circuit or a ground, and that the motorman is taught to locate the trouble by following a regular process. To start with, he determines whether or not the trouble is on the lines by turning on his lights,

and if the lights burn, then, of course, he knows that the line is supplied with current. He then looks for trouble in his controller by trying that out and pretty soon finds out what is wrong and goes merrily on his way.

Of course, this all goes to prove to the pupils that this avoids unnecessary tie-ups on the line which would inconvenience the passengers. They are also told that the trainmen need from fourteen to eighteen days to go through this course of instruction, and after they pass a final oral examination they are assigned to their respective divisions and become subject to discipline through the supervisors, station masters, division superintendents and, finally, the superintendent of transportation. For a period of 60 days the men are under probation, however, and after this time is half over they return to the school and must pass a final written examination, consisting of 81 questions for the motormen and 79 questions for the conductors. The thing that seems to impress the children most is the fact that our men have safety contests. Prior to the year 1924 we were reporting 25 or 30 accidents per day, and since we have inaugurated our safety contests our accidents have been reduced to about fourteen per day. We have five divisions in the system and there is a continual friendly rivalry between the men of the different divisions to turn in the lowest per cent of accidents. These per cents are calculated daily and the division having the least number of accidents hoists a pennant in front of its division headquarters the following day; besides this, a monthly

report is kept, and the division reporting the least number of accidents for the month is awarded a pennant, which it is allowed to keep for another month, or until such time as another division may turn in a better record; also, based on the monthly report, each member of the winning division is given a gold button with the picture of a street car on it. Most naturally a plan such as this is of mutual benefit, for the general public is benefited as well as the company.

BUSES USED TO TRANSPORT VISITORS

From the training school the pupils are transported back to their schools in the buses, or are let off at convenient corners. At the same time they are impressed with the idea that this is just "another public service." By the time the trip is ended the pupils enthusiastically cheer the company, and it goes without saying that all the people in the immediate vicinity are well aware that the New Orleans Public Service is on the map. After the school children have made this trip I challenge anybody to say anything but commendatory remarks about us to these pupils.

Maintenance Notes

Improving Appearance of Platform Equipment

PIPING underneath motorman's air brake valves and the space back of controllers is being incased on cars of the Department of Street Railways, Detroit, Mich. The casings, which are made of No. 20 gage



A Sheet-Iron Casing Over the Piping for Air Brake Valves and Inclosure for the Space Behind the Controllers Improve Platform Appearance of Cars in Detroit

sheet steel, improve the appearance of the platform equipment considerably. Handles of air valves are arranged to extend outside the casings so that they can be operated readily. The casings extend entirely to the floor and are painted so as to correspond with the general decorative scheme of the cars.



At Left, Assembled Bearing and One-Half of Housing. At Right, Detail Parts. Slot Holds Bearing in Place

By closing in the ordinary space back of the controllers, accumulations of refuse, papers, etc., are prevented, as is also the tendency of motormen to use these spaces as cuspidors. The railway officials plan to incorporate this improvement on all of the cars.

Armature Assembly Prevents End Play

IN ORDER to hold the armature bearing flanges tight against the housing hubs, as outlined in an article entitled "Compensating Armature Play," which appeared in the May 15 issue of *ELECTRIC RAILWAY JOURNAL*, the International Railway, Buffalo, N. Y., is using a square projection on the housing which fits into a slot sunk into the outside of the armature bearing. This takes the place of dowel pins. Steel washers of any desired number and thickness may be inserted over the armature bearing and, fitting between the flange and the housing hub, eliminate excessive end play.

The accompanying illustrations show the parts with the housing and the slot in the bearing, together with a single steel washer of $\frac{1}{8}$ in. thickness. In the assembled view the bearing is shown as it would be when firmly locked in place with the complete housing applied. Previously round dowel pins on the housing had been used. They did not prove to be entirely satisfactory, as they soon permitted a small amount of radial motion on the part of the bearing. The square projection holds the bearing with a maximum degree of firmness.

Oil and Waste Reclamation in Denver

WASTE reclamation as carried out by a cubical tumbling box on the Denver Tramway system was described in this paper for July 26, 1924. In addition to this reclamation machine an electrically driven centrifugal waste washing machine, a sump and settling tank for preliminary treatment of used car oil extracted from waste, and a centrifugal oil separator, together with drying tables and saturating tanks, make a very complete oil and waste storage and reclamation plant.

The equipment is housed in a separate building of concrete and brick construction. This has one floor and a large basement. By use of the separate building low insurance rates result, due to the minimized fire hazard. The basement of the building is used principally for storage of oil and baled waste. Oil is kept in large welded tanks, each provided with a small receiving tank, from which oil may be elevated by use of compressed air to spigots which are located above the main floor. Supply pipes for the various storage tanks are brought through the wall on one side of the building and are equipped with valves and pipe fittings, so that easy connection to tank cars on an adjacent railway track siding can be made. When connected, oil will flow by gravity from the tank cars to the large basement storage tanks. In unloading heavy oils in winter it is sometimes necessary to heat the oil in the tank cars by means of steam in order to increase its fluidity.

A covered concrete platform is provided at one end of the building. This is on the same level as the building floor, which has a height approximately the same as that from the rail to a box car floor. Waste in bales can then be unloaded from cars directly to this platform with a minimum of labor. From the platform it is lowered into the basement which extends underneath the platform. A large trapdoor is provided for communication to the basement and a jib crane with chain blocks handles

the material. Measuring hand pumps are also provided on the platform. These are connected to the underground storage tanks outside the building, which are used for gasoline and kerosene.

The main floor of the building is used for oil and waste reclamation and for the saturation of waste.

All waste used on the system is transported to and from the oil house in covered cans so as to make certain that it is kept clean. The cans are lettered with the name of the division, the kind of waste; i.e., armature, journal, etc., and also to indicate whether it is new or reclaimed.

To reclaim used waste it is first passed through the cubical box, which combs and pulls out the strands of waste. This shakes out small pieces of babbitt, short strands of waste and other refuse, all of which falls into a pan underneath. The waste is then placed in a centrifugal washing machine, where it is treated with live steam while being revolved at high speed. This extracts the dirty oil. The oil and water resulting from the steam condensation is passed to a sump tank which is located in the floor adjacent to the machine.

After the oil has been extracted the waste is loosened up in a basket of the centrifugal machine. Water and steam are again added and the machine is revolved for some time at a very slow speed in order to wash out any sand and dirty matter from the waste. The sludge which results from this operation is run directly into the sewer. The centrifugal machine is then revolved at high speed in order to extract the water from the cleaned waste. Live steam is admitted during the wringing operation. When all water has been thrown out by centrifugal action the waste is removed from the machine and spread on screen-covered benches under which are steam coils for drying. After the waste is dry it is thoroughly gone over by hand, all knots are removed and the waste is graded as armature or journal waste, according to general condition, length of strands, etc.

The waste is then ready for saturation. Two jacketed tanks are provided for this purpose. The inner tanks contain the lubricating oil to be used. The jackets contain water, which is kept hot by means of steam coils. Heating the oil in this manner materially reduces the time required for proper saturation

of the waste. Formerly waste was handled in and out of the saturating tanks by hand-forking. Later, trays having a two-leaf drop bottom with bails were used. The trays are handled by means of a small chain block supported on a rail running over the saturating tanks. Drain boards provide a means of reducing the labor required in the saturating process. One saturating tank is used for armature waste and one for journal waste. Each tank has its own drain-board and waste-handling tray.

Practically all of the reclaimed oil is used for waste saturation. When there is not sufficient reclaimed oil, new oil is transferred to the saturating tanks from the basement receivers through a pipe line by means of compressed air. This oil is measured at a point near the saturating tanks by means of a Niagara meter. Dirty oil and water from the centrifugal waste machine are held in the sump tank adjacent to the machine until approximately 100 gal. has accumulated. This mixture of oil and water is then heated, given a chemical treatment and is elevated to a conical bottom tank. The treated oil is permitted to settle for a period of approximately 24 hours, during which time it is kept near the boiling temperature by means of steam admitted to a jacket surrounding the conical lower portion of the tank. At the end of the settling period the partially cleared oil is decanted from the settling tank and is then passed through a centrifugal oil separator. The clarified oil, which is of very high quality, is then transferred to the saturating tanks. The sludge remaining in the bottom of the settling tank is discharged directly into a sewer.

A small tank is used for the cleaning of white cotton waste used in the lubrication of older type motors. The method of cleansing is to boil

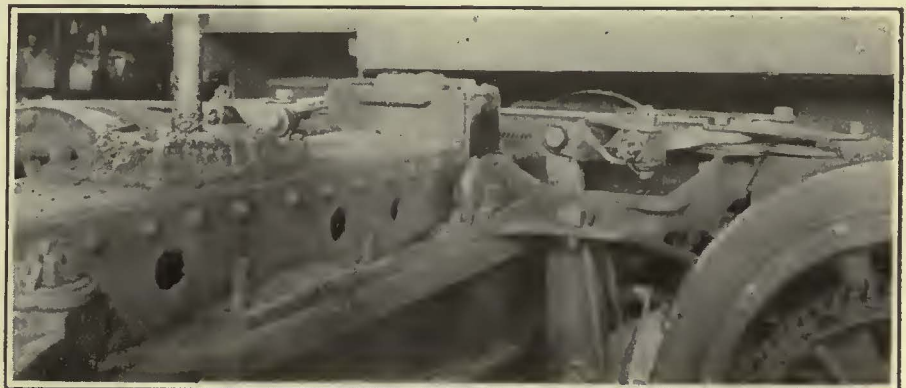
the waste in an Oakite solution, floating the oil which rises to the surface directly to the sewer. After the waste has been thoroughly washed it is passed through a hand wringer, dried and shaken out before reusing.

The waste washer used was originally designed for turbine drive by means of high-pressure steam. Owing to the fact that this company does not have available high-pressure steam during the summer season, a combination belt and gear drive was developed by means of two pairs of pulleys, one clutch and a 450-1,800-r.p.m. variable speed, $\frac{1}{2}$ -hp. motor with drum controller. Speed regulation is provided over the range necessary for oil extraction and waste washing.

Little Wear on Manganese Steel Plates

SIX points on the trucks of cars operated by the New York, Westchester & Boston Railway have manganese steel wearing plates. These are for the motor-nose supports and for bolster side wearing plates. The motors as originally furnished had a spring type of nose support. The springs were of a laminated construction and some of the leaves broke. In 1915 it was decided to do away with these springs and manganese steel supporting plates were installed in place of the springs. The same two bolts that were used for fastening the springs were used to hold the manganese plates in position.

At the same time manganese steel was installed for the bolster side wearing plates. An accompanying illustration shows a truck with these plates in position, as the truck was brought into the shop for overhauling recently. These plates have now been in service more than eleven years and show very little wear.



Manganese Steel Plates Are Used for Motor-Nose Supports and for Bolster Side Wearing Plates

New Equipment Available

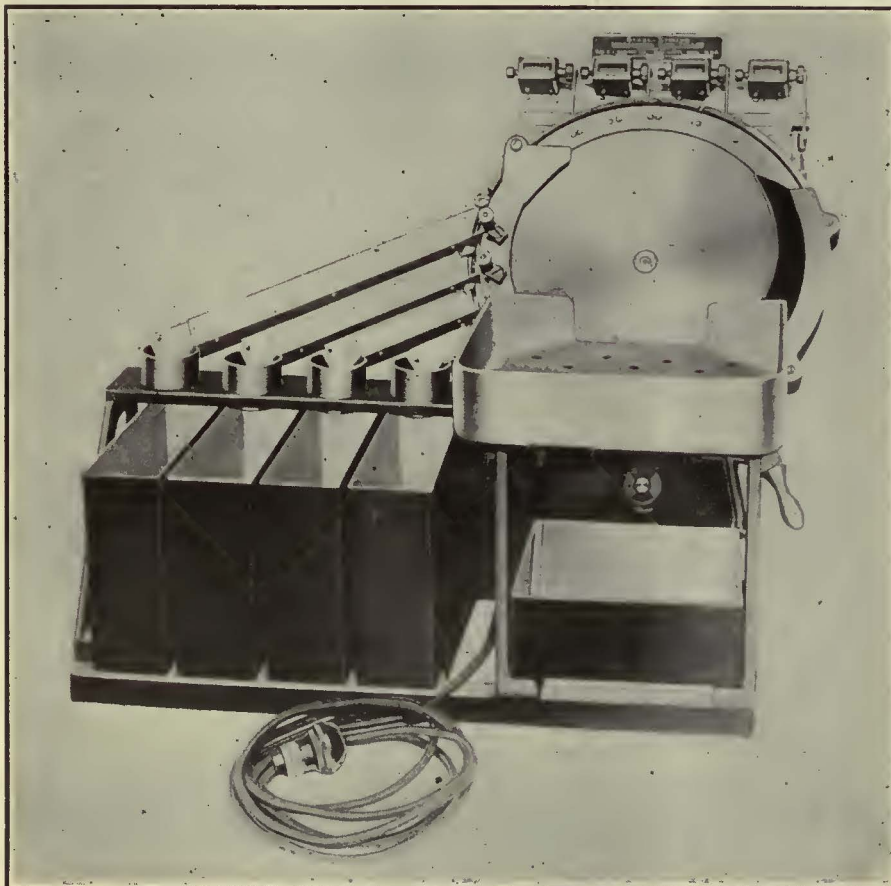
Efficient Machine Counts Coins Electrically

COUNTING and sorting of coins can be done electrically by a machine that has recently been placed on the market by the C. L. Downey Company, Cincinnati, Ohio.

This device, known as the "Steel-Strong" Mechanical Coin Teller, will sort and count pennies, nickels, dimes, quarters and half dollars at the rate of 1,000 coins per minute, it is said. The smaller coins are counted as sorted and dropped in the receiving boxes shown at the left in the illustration; half dollars are dropped in the box below after all other coins are out of the hopper and are counted by hand.

Four coin meters give numerical readings up to 99,999 and may be reset to zero by a single revolution of the reset knob.

Model B-4, shown here, is 19 in. high and occupies a table space 20½ in. x 21 in. A 110 or 220-volt a.c. or d.c. motor is supplied and the total weight is 179 lb.



Front of Coin Counter Showing Cash Boxes and Receiving Tray



View of the Mudge Inspection Car, Showing the Self-Equalizing Brake Equipment

Center Load Inspection Car

OF A weight and design which may be handled easily by one man, a new center load inspection motor car has recently been placed on the market. The car has ample seating space for four men and is designed to provide for a long continuous inspection run. It is manufactured by Mudge & Company, Chicago, Ill., and is known as the Mudge Class B-2 "Inspector."

The car is equipped with a 4-hp. free running motor, the parts of

which are interchangeable with the parts on the motors used in the new light section motor car also manufactured by this company. Transmission is by means of a multiple disk clutch which transmits the power to sprocket on the rear axle by a roller chain. The motor is water cooled with the Mudge thermosymphonic design of water hopper, which permits three times the ordinary cruising radius.

Roller bearings are used in mounting the crankshaft of the engine and also the axles of the car. The whole unit weighs less than 500 lb. with a lifting weight of 140 lb. This light lifting weight is accomplished through the perfect balance of the unit and by the aid of extension lifting handles which are provided on both ends.

Self-equalizing brakes are among the features claimed for the car. No adjustments for wear on the brakes is necessary as they adjust themselves automatically, so that the braking power is always the same on all four wheels. It is also equipped with a unique locking device designed so that when the brakes are set they hold the car in place until released by the operator. No rock or piece of wood is necessary to hold the car while the operator steps aside to do his work. He need only pull back the lever and place it in the notch provided, locking it securely to prevent the car from moving.

The frame is made of kiln-dried selected maple and has sufficient flexibility to withstand twisting in service. The lower longitudinal rail has a metal reinforced plate which facilitates removing the car from the rails and replacing it, acting as a skid.

Association News & Discussions

Southern Equipment Men Meet in Chattanooga

Car Maintenance Practices Were Discussed—Annual Report Shows Progress of Member Companies in Improvement of Pull-In Record and Reduction of Costs of Maintenance

THE Chattanooga meeting of the Electric Railway Association of Equipment Men of the Southern Properties, held July 28 to 30 inclusive, did not lag a minute. The program had many speakers who gave short, snappy talks, and one was no sooner finished than two or three delegates were on the floor with questions or discussions.

According to calculation, the latest group of 60 new cars now being built by the Cincinnati Car Company will save \$210,000 during the first year they are run, was the startling statement of Frank L. Butler, vice-president and general manager of the Georgia Railway & Power Company of Atlanta. This saving in operating costs is practically equal to a quarter of the cost of the new cars. The estimate was based on duplicate cars purchased a year or so ago, the results of which now are a matter of record. Mr. Butler further declared that every schedule in Atlanta can be operated by one man.

E. D. Reed, manager of the Chattanooga district of the Tennessee Electric Power Company, delivered an address of welcome. He also extended an invitation to all delegates to attend a dinner Thursday evening as guests of the Tennessee Electric Power Company.

A. D. McWhorter, general superintendent Memphis Street Railway, presided as president of the association. In his opening address Mr. McWhorter said that the Southern properties con-

A feature of the work of the Electric Railway Association of Equipment Men, Southern Properties, is the record kept of pull-ins and maintenance of equipment costs for the various properties. These figures are charted just prior to each meeting and form a basis for discussion.

While the average miles per pull-in varies from 92,978 down to 2,167, the most remarkable feature of the records is the pronounced improvement made since the organization of the equipment men's association about five years ago.

In 1921 New Orleans Public Service had a pull-in every 2,803 miles. For the entire six months period from January to July, 1926, this company averaged nearly 100,000 miles per pull-in. Nearly as astonishing results are shown for half of the fourteen companies.

Nor is this all. By the expenditure of disproportionate sums of money it might be expected that a pull-in record might be made. From the cost of maintenance chart it is observed that New Orleans, ranking first in the pull-in record, ranks third in the cost, and at that is maintaining its equipment for less than 2 cents a car-mile. Memphis leads in this cost chart with a record of 1.7 cents per car-mile. To a certain extent the answer may be equipment, but methods and organization have contributed to this record.—Eds.

tinued to show greater mileage per pull-in at reduced cost of maintenance. More than 16,000 cars in the country are now operated by one man, and this number is steadily increasing. More than 40 roads have adopted more comfortable seating and more than 300 roads are using bus equipment supplemental to their electric cars.

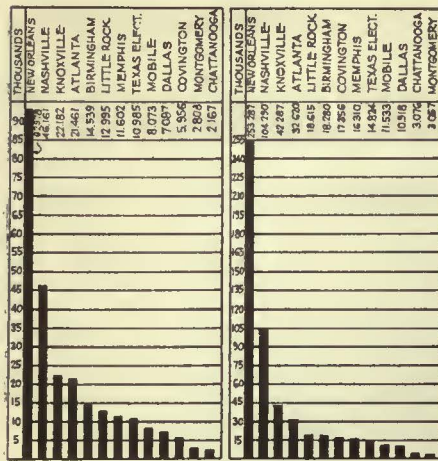
There is a direct connection between public relations and better maintenance, and this duty falls on the maintenance men. People are demanding better service and this calls for better maintenance.

John A. Dewhurst, associate editor ELECTRIC RAILWAY JOURNAL, spoke of the accomplishments of many properties in the North, following successful franchise negotiations and the purchase of new cars. Youngstown, Ohio, was one of the best examples of a rebuilt transportation situation. Many kinds of service are offered by the Pennsylvania-Ohio Electric Company. Three 20-mile interurban lines and 340 miles of coach routes serving Youngstown, a city of 165,000 population, and three small cities have been brought to a paying basis through modern equipment and methods. Pittsburgh Railways are continuing to progress, and Cincinnati is in the middle of a \$1,000,000 track reconstruction program, following the successful passage of a service-at-cost franchise last November.

J. L. Crouse, special railway engineer Westinghouse Electric & Manufacturing Company, told of the steps that manufacturers had taken toward improved maintenance, which, in turn, was an important factor in noise reduction. The dipping and baking of armature coils was one marked improvement that was reflected in a pronounced manner in a 30 per cent decrease in the sales of this class of material. Many improvements in manufacture have re-



Delegates to the Electric Railway Association of Equipment Men, Southern Properties, Meeting at Chattanooga, Tenn., July 28-30, 1926



Progress of Four and One-Half Years Work of Southern Equipment Men's Association in Increasing Miles per Pull-In Shown in This Record for Member Companies. The Chart at the Left Includes Pull-Ins for All Reasons; that at the Right, Pull-Ins for Troubles Connected with the Equipment. The Figures Are for the First Six Months of 1926.

sulted from the experience of operating men.

Dual ventilated motors give promise of reducing brush wear. Much greater brush life can be expected on these motors, due to the elimination of dirt and other foreign material in the dual ventilated motor.

By the adoption of standard sizes in armature bearings and similar equipment, often varying only 1/2 in. from similar orders from other properties, and the purchase for six months or a year at a time will save at least \$65,000 a year based on a preliminary investigation. The Westinghouse company would be willing to ship such orders on a monthly basis as required, the larger orders, however, allowing economies of manufacture accruing from a mass production basis.

Thorough inspection and repair of armatures, coils, fields, controllers, line breakers, heaters and resistance grids are accomplished once a year in Knoxville, as told by C. A. Walker of the Knoxville Power & Light Company. The average cost of overhauling motors

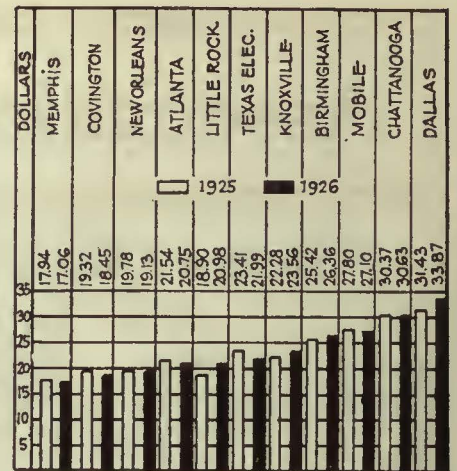
is \$55, circuit breakers \$12, heaters \$1.50 each, air compressors \$12 each and grid resistances \$7 per car set.

J. R. Anderson, superintendent of the Chattanooga Railways division of The Tennessee Electric Power Company, stated that ten cars would be delivered next month from the Light-Weight Noiseless Car Company that would at once be the latest thing in street cars and also the first new equipment to reach the property since 1913. The cars will be double truck, 40 ft. in length, with Kemi-Suede covered seats for 44 passengers. Inside mounted roller bearing journals will be used and 17-in. drums for the automobile type brakes. The painting is a secret not to be divulged until the cars reach the property.

Somewhat aside from the program, Mr. Butler of Atlanta opened a discussion on personnel matters. Educational work, foremen conferences, health examinations, company insurance, all were features under discussion. In Atlanta a foreman's school was conducted last winter and was attended by 83 men, either foremen or superintendents. Of this number, 60 men were present at least 75 per cent of the meetings and passed the course.

The New Orleans Public Service Company operates nineteen buses in conjunction with its railway. An excellent garage has been established, and J. H. Stokes, the foreman, told of the methods of training operators that have been adopted. The maintenance work is well organized. Mr. Stokes presented many forms used and outlined in an able manner the practice adopted to keep this equipment in excellent shape. The methods will have to be good if the buses are to be on a parity with the car equipment record.

James S. Mahan, president Western Section, International Association of Electrical Inspectors, Chicago, gave a very instructive paper on the National Fire Protection Association regulations for car and carhouse equipment. Mr. Mahan pointed out that with the broadened regulations allowed by this association it is possible to comply with all regulations at practically no increased cost for new equipment. Even with



Shows Cost per 1,000 Car-Miles for First Five Months of 1925 and 1926. The Pull-In Record, While Important, Must Be Considered in the Light of Maintenance Costs

old equipment many changes and improvements can be made that will net a splendid return in reduced premiums. Practically all heater manufacturers have agreed to turn out products with the Underwriters' label attached. If the equipment manufactured meets with the approval of the Underwriters' Laboratory the service of supplying approved labels is but a few cents per heater.

With improved car wiring equipment available today the laboratory is now prepared to give an inspection service to car manufacturers and to attach its label to the entire car. This service, including inspection, is nominal, being \$5 per car.

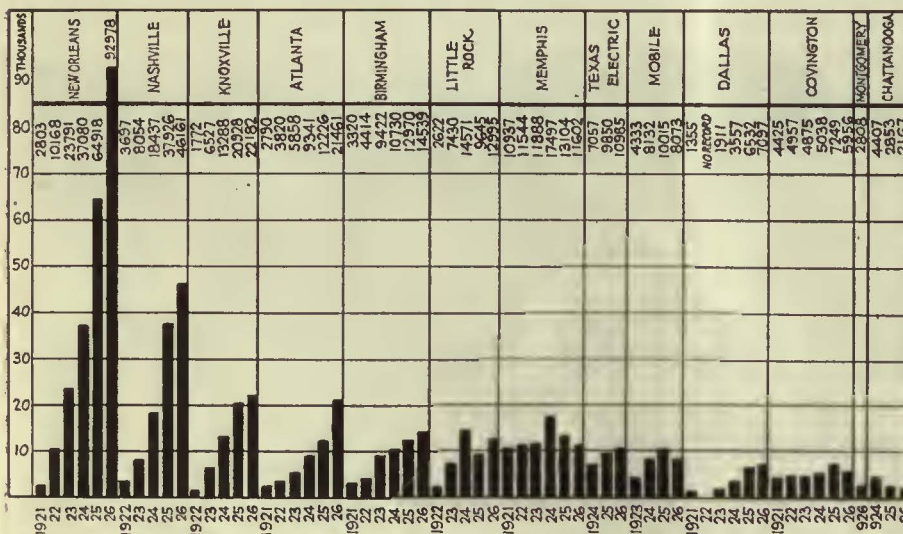
Mr. Mahan pointed out the value of using this service not alone from the saving in premiums but as a factor in establishing public relations as well. Properties could well capitalize the fact that the cars used had passed the Underwriters' Laboratory, Inc., inspection.

In discussion, Mr. Mahan said that the savings in fire insurance premiums would be from \$5 to \$20 annually per car, depending upon the old rate and the method used in determining the schedule. At least \$7.50 to \$10 could be saved each year per car, thus more than paying for the initial service the first year.

Mr. Kasemeyer, Cincinnati Car Company, said that no greater construction costs were involved in complying with this standard than were involved in any good practice. Some of the main points made in Mr. Mahan's paper will appear in a later issue.

D. J. O'Brien, Galena Signal Oil Company, read an interesting paper outlining the Galena theories of oil versus lubrication. Quality of materials and quality of manufacture have a direct bearing on the ability of maintenance men to give good service to the public.

Following Mr. O'Brien's paper, there was a general discussion on oil and waste reclamation. The consensus of opinion was that doubt was cast on the quality of reclaimed oil, but that good results had been obtained on several properties from the scrubbing and cleaning of journal box waste. With the present high price for long fiber wool



This Chart Shows the Relative Pull-In Standard of Member Companies of the Southern Properties Equipment Men's Association. The Figures Are for the Years 1921 to 1925 and for the First Half of 1926

waste, it was considered good practice to reclaim this on properties of sufficient size to warrant the installation of the necessary equipment.

Other papers presented were by F. G. Koenig, E. F. Herndon, W. N. Lariscey, Gus C. Kraus and A. Taurman. A summary of Mr. Taurman's paper will appear in a later issue. Abstracts of the other papers appear below.

The entire day of Wednesday, July 29, was spent in a discussion of 50 questions pertaining to equipment maintenance. In the evening the delegates were guests at a dinner tendered by the Tennessee Electric Power Company at the Hotel Patten and on the last day an inspection of the Tennessee Electric Power Company system was made. About 60 delegates attended the meetings.

Some Remarks on Car Troubles*

By E. F. HERNDON

Foreman Ashby Carbarn, Georgia Railway & Power Company, Atlanta, Ga.

AXLE fields on the split type motor, as we all know, have a field jumper around the axle with a connection in it for the convenience of splitting the motor casing. This jumper hangs under the collar side axle bearing and, consequently, stays oil soaked, which tends to rot and soften the insulation on the wire.

It was the practice in Atlanta to use what we call the knuckle joint connection in this jumper, which is too heavy for this particular place, and allowing the wire to swing with this connection in it is sure to break the strands of wire, reducing its size at this point. Then it is not heavy enough to carry the load and consequently burns in two, and often this jumper burns off flush with the motor casing, giving no chance for temporary repairs.

To get away from this condition we put on what we call a two-way connection. This is very light and by tinning the ends of the wire the solder is allowed to run down the wire as far as possible so as to support the strands of wire, before putting the connection on. After this connection is taped we pull it over to the eye in the bottom half of the motor casing and either tape it or tie it there so it is not continually under the oil drip of the axle bearings.

Another thing that has helped is to keep the motor leads off of the axle on the split type motors. To do this we welded a support for the lead blocks from one side of the motor to the other, not allowing them to rub in two on the axle.

Our carhouse location is 2.75 miles from the center of the city, 15.80 miles to the end of one interurban line, 20.70 miles to the end of another interurban line and 11.06 miles to the end of our farthest city and suburban line. We have just this month received a Ford car with small open body and are fitting it up with one jack and a lot of small tools and materials so that in

*Abstract of paper presented at meeting of the Electric Railway Association of Equipment Men, Southern Properties, Chattanooga, Tenn., July 28-30, 1926.

COMING MEETINGS

OF

Electric Railway and Allied Associations

Aug. 11—Metropolitan Section A.E.R.A., annual outing, Pelham Bay Park, New York.

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

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

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

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

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

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

case of trouble we can get to it quickly. We think we are going to find this useful.

Our Experiences with Safety Cars*

By W. N. LARISCY

Foreman Edgewood Barn, Georgia Railway & Power Company, Atlanta, Ga.

ATLANTA has 40 safety cars, 46 ft. 6 in. over bumpers, seating 48. They have front door entrance and exit and rear door exit. The rear door is operated by treadle interlocked with line breaker and air brake. Rear door closes within 4 in. before brakes are released. The front door is controlled by the operator and is not interlocked with line breaker or brakes.

On Dec. 13, 1925, one line of ten cars went into service and we experienced a lot of trouble with particles of pipe scale and trash blocking the valve seats, causing valves to function improperly. We next experienced trouble with leather valve seats giving way, and also with shuttle valves cutting through gaskets. We are now putting in valve seats and gaskets of material called "WABCO," which looks as though it would have a longer life and cause less trouble.

When the cars first went into service we experienced considerable trouble with dry stems in the M-28 brake valve; later the oil well was extended down to the bottom of the valve stem. We now use "Dot" fittings on them and have no trouble.

Between Dec. 13 and Jan. 13 last a total of 39 schedules were placed in service, with the 40 cars on the same headway as formerly with two-man cars, except that on two of these routes the running time was reduced five minutes for the round trip, or from 1:05 to one hour.

These new cars have been operating approximately seven months and in

that time have averaged 1,143 miles per accident of all kinds, including complaints and miscellaneous things that are reported. The system average is about 2,500 miles per accident. The month of June with the 40 safety cars there was a total of 109 accidents, which shows an average of 1,270 miles per accident.

Included in all accidents there have been about twelve at the rear door, two or three of these being where crippled folks with crutches placed their crutches on the ground and got caught in the door before they could get beyond reach. The balance of the twelve were negroes who tried to get in the rear door while other passengers were coming out. About six accidents have occurred at the front door with children placing their fingers in the frame of the sliding door.

There have been three or four cases of passengers trying to board the car as the front door was being closed, but no injuries resulted. There have been no other accidents at the front door in connection with passengers boarding or alighting. The balance of the accidents have been collisions with automobiles.

We have had the least trouble with operators who were already motormen. Training is of the utmost importance, and a few men have been found who possibly may never make good operators.

So far there has not been a single case of an operator being relieved from his run on account of not being able to make the schedules, which are the same as formerly with two-man cars. The schedule speed for the system has been increased from 9 to 9.75 m.p.h. including layover. As high an accelerating rate as is found comfortable is used. At present it is approximately 1½ m.p.h. per second.

Work Which Has Overcome Some of Our Troubles*

By F. G. KOENIG

Foreman Butler Carbarn, Georgia Railway & Power Company, Atlanta, Ga.

IN THE overhauling of controllers I've found that sand-blasting is an important factor, as it will remove all the old carbon dust and dirt that could hardly be scraped or blown out.

On K-28 controllers that had been in service for a long time the bearing at the base of the stand was reamed out, a ½-in. brass bushing inserted and the end of the controller cylinder was turned to fit the bushing. All composition connection blocks and finger bases were removed and replaced with ones made of hardwood. These were treated with a good grade of insulating varnish. This work improved our condition and has been a factor in reducing K-28 controller troubles or failures.

On all of our older type cars rotten insulation and cable covering were removed from under the platform, where they were unprotected from weather conditions. Compressor wires running from a switch on the dash were pulled up through the bulkhead and heater wires that crossed from one side to the other were taken care of likewise, doing away with all small

wires under the platform. All cables were then painted with a heavy coat of "P&B" paint. Metal splash guards were installed so as to protect the cables and equipment from wheel wash. This has done much toward getting weak points out of our system.

The equipping of all of our cars with American type E slack adjusters and the standardization of the foundation brake rigging have insured safer and smoother operation of the cars. A periodical cleaning and inspection of the air brake equipment has eliminated the bad brake situation.

We have a total of 364 double-truck cars which were equipped last fall with Economy meters. By starting a power-saving program among the trainmen they have paid more attention to the

operation of their cars, with the result that there has not only been a decrease in the consumption of power of 11 per cent but these meters have helped in locating mechanical and electrical defects that regular inspection had not determined.

A general shop and barn improvement, new machinery and labor-saving devices, etc., have given us an opportunity to do better work. Definite and thorough overhauling of cars, such as they are doing in New Orleans, and we are trying to do in Atlanta, has been a big help. We are learning that definite and careful inspection not only avoids trouble but also keeps down repairs; in other words, good overhauling and good inspection will eventually result in more reliable service.

anism has been made by our department, and the following figures are submitted:

Six hours are required to install ratchet switch mechanism on controller, and an additional two hours are required to mount controller on platform; total time of installation on platform is eight hours. Three hours are required to install LB 2-A handles on controller, and an additional hour is required to mount controller on platform; total time of installation on platform is four hours.

Car No. 801, equipped with ratchet switch mechanism, ran 37,784 miles, incurring an expense of \$5.64 for controller maintenance. This corresponds to a cost of 0.01493 cent per car-mile. Car No. 800, similar in equipment to and operating under the same conditions as No. 801, but having LB 2-A handles, ran 40,469 miles, incurring an expense of \$1.03. This corresponds to a cost of 0.00254 cent per car-mile.

Car No. 623, with ratchet switch mechanism, ran 37,004 miles, incurring an expense of \$4.26 for controller maintenance, or a cost of 0.0115 cent per car-mile. Car No. 622, similar in equipment to and operating under the same conditions as No. 623, but having LB 2-A handles, ran 28,819 miles, incurring an expense of \$1.33, or a cost of 0.00464 cent per car-mile.

Car No. 950, with ratchet switch attachment, ran 37,870 miles, incurring an expense of \$4.27 for controller maintenance, or a cost of 0.01126 cent per car-mile. Car No. 951, similar in equipment to and operating under the same conditions as No. 950, ran 9,941 miles since the installation of LB 2-A handles, incurring no expense for controller maintenance.

Advantages of the LB 2-A Controller Handle on Modern Equipments*

BY GUS C. KRAUS

Assistant to the Superintendent of Rolling Stock and Shops
New Orleans Public Service, Inc.

TO GIVE passengers the maximum of comfort and convenience at the minimum maintenance cost is the modern trend in street railway service. To this end our rolling stock and shops department employs line breakers in connection with its type K platform controllers. Line breakers are primarily an asset in that they protect the meters and other electrical equipment from abuse and high maintenance costs. In addition, the use of line breakers eliminates heavy arcing and consequent blowing of overhead switches, previously a source of annoyance to passengers.

In the operation of line breakers it is necessary to have a special form of auxiliary control. This auxiliary control takes one of two forms, either a complicated ratchet switch mechanism affixed to the main cylinder of the controller, as in our K-36-JR and K-68-A types, or the recently developed LB 2-A controller handle of General Electric Company manufacture. The LB 2-A handles have been tried on three of our cars, two for a year and one for four months, and have been found to possess so many advantages over the ratchet switch mechanism that our department has undertaken to install 177 equipments with the new handles in the immediate future.

The new handles have many advantages over the ratchet mechanism from a standpoint of operation. This handle on notching up operates just the same as all other platform controllers used with line breaker equipment, but should it be moved $\frac{1}{4}$ in. to $\frac{1}{2}$ in. back, or toward the "off" position, the auxiliary circuit of the line breaker is opened, thus opening the main contacts in the line breaker before controller contacts have left the main fingers in the controller. This eliminates all burning in the controller when throwing the handle to the "off" position. These fea-

tures help to speed up service in that they eliminate failure of pawls to engage in ratchet when pawls become worn, thus avoiding holding circuits open. On operating cars in congested districts it is possible to "creep" by notching up to the first point, then moving back $\frac{1}{4}$ in. without having to return completely to the "off" position in order to break the circuit. Then, too, platform men find the cars equipped with LB 2-A handles easier to operate because of the low handle with improved knob-grip. The handle is $1\frac{1}{2}$ in. lower than the old style. The number of controller complaints on our experimental cars has been considerably reduced over our period of operation with LB 2-A handles. For example, over a one-year period there were eleven controller complaint cards against car No. 801 with ratchet switch mechanism, while during the same time there were only three controller complaint cards against car No. 800 with LB 2-A handles, otherwise similar in equipment and operating conditions.

These handles possess many advantages over the ratchet switch mechanism from a standpoint of maintenance. Their use eliminates all special mechanism at the bottom of the main controller cylinder, which position, when controllers are mounted on the platform, is an awkward one in which to work when making repairs. Because of the position of the LB 2-A handle on top of dial plate, it is easily accessible for renewal and repairs. The use of the handles has eliminated all trouble due to stubbing fingers and burned fingers and segments. Our rolling stock and shops department has changed very few fingers and segments since the installation of LB 2-A handles on our experimental cars.

It has been found that the time for making repairs has been cut in half over that required with ratchet switch mechanism. A comparative study of inspection costs, total maintenance and time of installation of both the LB 2-A handles and the ratchet switch mech-

Wisconsin Program Arranged

COMPLETION of the program for the annual convention of the electric railway section of the Wisconsin Utilities Association in La Crosse on Aug. 12 and 13 has been announced by Nels C. Rasmussen of the Wisconsin Valley Electric Company, Wausau, chairman of the section. Improvement of local transportation conditions in all cities of the state, with the view of preventing accidents and of minimizing delays caused by continuously increasing congestion on streets, will be discussed at the convention. About 150 company representatives from all parts of the state are expected to attend.

Thursday, Aug. 12, 9 to 10:30 A.M.
Registration—Hotel Stoddard.

11 A.M.

Session held at Chamber of Commerce Hall, corner of Fifth and State Streets, one block east of Hotel Stoddard.

Address of Welcome—Hon. J. J. Verchota, Mayor of La Crosse.

Chairman's Address—Nels C. Rasmussen, Wisconsin Valley Electric Company, Wausau.

Announcements.
Address—"The Opportunities of a Transportation Man for Good Public Relations," C. R. Phenicle, Wisconsin Public Service Corporation, Green Bay.

Discussion.

12:30 P.M.

"Get-Acquainted Luncheon" at the Hotel Stoddard.

Thursday, Aug. 12, 2 P.M.

Session held at Chamber of Commerce Hall.

Paper—"Why I am Interested in Trans-

*Abstract of paper presented at meeting of the Electric Railway Association of Equipment Men, Southern Properties, Chattanooga, Tenn., July 28-30, 1926.

portation as a Vocation," Oliver Wynn, East Side High School, Madison.

Paper—"Improvements in Handling Traffic by Means of Circulating Load Through Rear Exit," P. W. Gerhardt, T. M. E. R. & L. Co., Milwaukee.

Paper—"Methods of Handling Traffic with Pneumatic Door Operation Under Different Weather Conditions," Oscar A. Broten, National Pneumatic Company, Chicago.

Discussion of above papers.

Report—"A Study of Noise in Transportation Equipment," Kent Woodriddle (railway fellowship student, now with Chicago Rapid Transit Company, Chicago).

Discussion.

4 P.M.

Inspection trip over lines and through the carbarns and automatic substation of the Mississippi Valley Public Service Company.

6:30 P.M.

Informal dinner followed by dancing—Pioneer Club (Fifth and Market Streets). To reach the Pioneer Club from the Hotel Stoddard, go one block east to Fifth Street and proceed south on Fifth several blocks to Market Street. Music by Marking Brothers Orchestra. A few songs but no speeches.

Friday, Aug. 13, 9:30 A.M.

Report—"Accident Experience in Wisconsin," R. M. Howard, Mississippi Valley Public Service Company, Winona.

Paper—"Accident Prevention from an Executive Viewpoint," E. W. Arnold, Chicago, North Shore & Milwaukee Railroad Company, Milwaukee.

Discussion.

Address—"The Present Local Transportation Situation in Wisconsin," Commissioner Andrew R. McDonald, Railroad Commission of Wisconsin, Madison.

Address—President F. R. Coates of the American Electric Railway Association, New York City.

Report of the nominating committee and election of officers for the electric railway section for the coming year.

Address—"Co-ordination of Car and Bus Operation," H. G. Monger, T. M. E. R. & L. Co., Milwaukee.

Discussion.

12:15 P.M.

Luncheon for men and women—Hotel Stoddard.

2 P.M.

Golf at the La Crosse Country Club, automobile trip to Coon Valley (the Alps of Wisconsin), or fishing trip to Galesville (where you really catch them). When registering please sign up for the trip you prefer.

American Association News

American Executive Committee Meeting

Committee Reports Predict Successful Convention at Cleveland—Exhibit Space Sales Exceed Last Year—Enlarged Facilities Provided—Affiliated Associations Plan Timely Programs

MEMBERS of the American Electric Railway Association executive committee were guests of Barron Collier, treasurer of the association, on the steam yacht *Florida* during a meeting of the committee held on July 30, 1926. Reports of various standing committees and plans for the coming convention at Cleveland were given consideration.

J. P. Barnes, as chairman of the committee on subjects and meetings, outlined the tentative program for the Cleveland convention. Prominent speakers have accepted invitations to present various phases of timely subjects of interest to the industry, which

include the topics of "unified transportation service," "modern equipment," "street congestion," "the acquirement of new capital" and "industrial education." The final program for the convention, together with a list of speakers, will be available for publication shortly after Sept. 1.

On the invitation of President Frank R. Coates, W. H. Sawyer presented a brief outline of transportation conditions in Australia.

Barron Collier reported for the committee on publicity and said that studies made by his committee indicate that approximately \$4,500,000 is being spent annually by electric railways in local advertising. The committee has made a large collection of advertising material used in newspapers, car cards, buses, etc. It is planning to reproduce the best selections in pamphlet form for distribution among members of the association as copy suggestions and examples of how to use material sent out by the association in local advertising. J. P. Barnes testified to the value of the service rendered by the association's director of advertising in the preparation of publicity material in Louisville.

J. H. Hanna, chairman of the membership committee, reported a gain of two operating companies, 23 manufac-

Plan to Reach Cleveland Sunday

DUE to the full program which is planned for the first day's session of the convention at Cleveland on Monday, Oct. 4, all delegates are urged by the executive committee to plan their arrival at Cleveland for Sunday, Oct. 3, to avoid congestion in registration and delay in reaching the meeting on Monday.



American Electric Railway Association Executive Committee, Members of the Association Staff and Guests Who Attended Meeting on Board Steam Yacht *Florida* with Barron Collier Acting as Host

Front Row, Reading from Left to Right: Charles R. Ellicott, James W. Welsh, E. J. Murphy, E. F. Wickwire, Fred C. J. Dell, Charles L. Henry, Charles Gordon, W. H. Sawyer, Barron Collier, J. N. Shannahan, B. A. Hegeman, Jr., Charles R. Harte, A. T. Davison.

Rear Row: L. F. Schrafel, John W. Colton, Robert Dougan, J. K. Newman, Edward Dana, S. J. Cotsworth, J. H. Hanna, G. H. Clifford, L. S. Storrs, Frank R. Coates, J. P. Barnes, L. H. Palmer, E. T. Faber, M. B. Lambert, G. C. Hecker and Paul E. Wilson. Captain Peter Songdahl is on the bridge.

turing companies and eighteen individual members since the last executive committee meeting.

For the committee on finance, B. A. Hegeman, Jr., reported in place of Chairman R. P. Stevens, who was absent.

L. S. Storrs outlined some of the work being done by the managing director's office. Hearings by the Interstate Commerce Commission on the bus-railway situation and the status of developments in connection with the application of Interstate Commerce Commission inspection rules to electric locomotives operated by interurban railroads was also reported by Mr. Storrs.

A memorial to Charles A. Coffin, commenting on the significance of his life and work in the development of the electrical art and the transportation industry, was read by Mr. Storrs and unanimously adopted by the association.

Paul Wilson, secretary Cleveland Railway, reporting for Col. Joseph H. Alexander, as chairman of the Cleveland convention committee, announced that the contract for the Auditorium west wing has been let to the H. K. Ferguson Company and that work has been started on the building, which will be ready in ample time to accommodate exhibitors.

Director of Exhibits Fred Dell reported that up to the close of business July 29, 112,916 sq.ft. of space had been assigned to 202 member companies, and comparing this figure with the figures on the same date the previous year it was found that there were thirteen more exhibitors using 25,648 more square feet of space, 87,268 sq.ft. having been allotted on July 29, 1925.

So far as track space is concerned, Mr. Dell reported that seven companies had applied for 720 lineal feet in Section D, on which street cars will be shown, and that additional applications were on the way for street car space. The committee was also advised that four companies would show operating maintenance of way exhibits in outdoor covered track space, known as Section E and totaling 120 lineal feet. In connection with the exhibit of improved cars, which the committee is anxious to stimulate, C. R. Ellicott suggested the advisability of having the association sponsor an exhibit of obsolete as well as modern cars for the purpose of bringing out the progress which has been made in car developments.

Chairman Cotsworth of the entertainment committee announced that his committee has definitely decided on just what activities will be arranged for the entertainment of delegates and their ladies, and while the committee has its plans under way, it has been decided not to make them public at the present time, the committee's opinion being that the element of surprise would greatly enhance the effect of the various entertainment features.

Transportation arrangements for the convention, handled by a committee under the chairmanship of Edwin C. Faber, will follow the plan used last year, that of dividing the country into six zones with a sub-chairman in charge of the arrangements in each zone. Special trains will be run from important cities through the country. Discussion brought out the importance of having delegates make arrangements to arrive

*Resolutions Commemorating
Work of Charles A. Coffin in
Transportation Field, Passed
at Executive Committee Meeting
of the American Electric
Railway Association July 30*

Thirty-eight years ago Charles Albert Coffin had the vision to see the future of street railway electrification and the far-reaching economic and social effects which it would have on our urban population. With him seeing was acting. He promptly inaugurated a department for the development of that business in his own company, and encouraged his engineers to make researches and experiments in the street railway field. At that time there were a number of important patents affecting, and many skilled and able men interested in, the project, but there was a great need of finance and organization to enable the men and the inventions to function in the public interest. It was this binding influence which Mr. Coffin supplied with his own energy and personality.

The General Electric Company in 1922 made available "A gold medal, to be known as the 'Charles A. Coffin Medal,' to be awarded annually to the electric railway company within the United States which, during the year, has made the most distinguished contribution to the development of electric transportation for the convenience and well-being of the public and the benefit of the industry." This award is symbolic of the fruitful service which Mr. Coffin has rendered our industry and our nation.

The American Electric Railway Association takes proud cognizance of these facts, and its executive committee has adopted this memorial and directed that it be spread upon its record and be sent to Mrs. Coffin, with the sympathy of the association.

in Cleveland on Sunday in order to avoid congestion of registration Monday.

The 45th annual convention of the A.E.R.A. promises to be the largest and most successful ever held by this organization, and from the advance requests for hotel reservations, as reported by Paul Wilson, chairman of the hotel and housing committee, it seems a foregone conclusion that the attendance and registration will be the heaviest for which the association has ever had to prepare.

A sample of an association flag prepared by a committee of which T. W. Casey is chairman was inspected and accepted by the executive committee. Mr. Storrs reported on the re-establishment of the Anthony Brady medal, which was discontinued during the war. This is to be awarded to the company making the best contribution toward increasing safety of railway operation.

For the Engineering Association, President C. R. Harte reported the resignation of M. B. Rosevear from the Engineering Association executive committee. Reports of various engineer-

ing committees are being completed and plans are being made by the engineering group to build interest and stimulate discussion of current problems during the convention.

President G. H. Clifford of the Transportation and Traffic Association, said that the convention program of that association has been practically completed and will follow very closely the transportation phases of the general topics contemplated in the A.E.R.A. program.

Regarding the work of the committee on co-operation with manufacturers, Chairman E. F. Wickwire discussed a plan for preparing a series of electric railway slogans.

On the subject of education, Chairman Edward Dana said that various prominent railroads have agreed to send representatives to participate in the special foreman's conference planned for the convention program. An effort is also being made by the committee to prepare an exhibit of educational work at the convention.

The insurance committee, through its chairman, Paul Wilson, reported that there is from \$13,000,000 to \$15,000,000 more insurance carried by the electric railroads in 1925 than in 1924 at a reduction in the total premium. Despite this fact, however, the committee is of the opinion that the rates are still higher than are justified by the loss records of the industry. Relative to bus depreciation, Chairman L. H. Palmer could report only progress in the studies of this subject, because there has not yet been enough experience to determine what a fair rate should be. Director of Publicity Labert St. Clair reported for the committee on public speaking in the absence of B. I. Budd and said that the work of this committee is being handled largely by the local organizations set up in various districts.

Both Mr. Storrs and Mr. Hecker discussed the work of the committee on essential features of modern cars. Mr. Hecker indicated the cost of publishing this information according to the recommendations made by the executive committee of manufacturers, which received the report. It was recommended that a certain number of paper-covered copies be prepared as pamphlets, together with a number of bound copies for distribution and sale to member companies. The executive committee approved the recommendation to print 3,500 copies, of which 1,500 are to be bound in book form.

On the subject of special taxes, A. T. Davison, chairman, outlined the progress of his committee's work. He discussed plans of the committee for making a study of the tax situation in various states by appointing representatives to co-operate in this work for each state. It is the intention of the committee to handle this subject as a general utility problem, and it was suggested that the final recommendations resulting from the committee's studies be submitted to various state associations, where they existed, for preliminary approval before final adoption. These tentative plans were approved by the executive committee.

J. K. Newman addressed the committee on the general subject of publicity and outlined the need for a coordinated national campaign.

Mr. Shannahan, as chairman of the nominating committee, read that committee's recommendations for officers and members of the executive committee to fill expiring terms: President, W. H. Sawyer, president East St. Louis & Suburban Railway; first vice-president, R. P. Stevens, president Republic Railway & Light Company; second vice-president, James P. Barnes, president Louisville Railway; third vice-president, Paul Shoup, president Pacific Electric Railway; fourth vice-president, J. H. Hanna, president Capital Traction Company; treasurer, Barron Collier, president Barron G. Collier, Inc.

For operating and manufacturer members of the executive committee at large for the three-year terms expiring in 1929 the following nominations were made: Operating members—Luke C. Bradley, president Virginia Electric & Power Company; C. E. Groesbeck, vice-president Electric Bond & Share Company. Manufacturer members—Harry L. Brown, secretary the Ohio Brass Company; T. W. Casey, vice-president National Pneumatic Company; Edwin B. Meissner, president and general manager St. Louis Car Company.

The adoption of these names was unanimously approved by the executive committee.

Attendance at the meeting included the following: President Frank R. Coates, W. H. Sawyer, James P. Barnes, Lucius S. Storrs, Barron Collier, J. N. Shannahan, J. H. Hanna, E. F. Wickwire, B. A. Hegeman, Jr., M. B. Lambert, S. J. Cotsworth, Charles R. Elliott, Charles L. Henry, C. R. Harte, G. H. Clifford, J. W. Welsh, Paul E. Wilson, L. H. Palmer, E. T. Faber, A. T. Davison, Edward Dana and J. K. Newman.

Transportation & Traffic Executive

REPORTS of the various committees of the Transportation & Traffic Association were submitted to the executive committee for approval at a meeting held at association headquarters, New York, July 29. With minor amendments the reports of the committees on accident prevention, traffic congestion and merchandising transportation were approved. For the committee on bus operation, J. B. Stewart, Jr., chairman, reported that the work had not yet been completed. For that reason copies of the report when ready will be sent to the members of the executive committee for their consideration, and they, in turn, will transmit their suggestions for approval to J. V. Sullivan, sponsor.

Plans for the convention program were tentatively agreed upon. The report of the committee on merchandising transportation will be presented on Monday, Oct. 4. It is planned that this report, with its discussions, will consume the first two hours of the session. This will be followed by several speakers on publicity and advertising as applied to merchandising transportation.

A joint session with the Claims Association will be held on Tuesday, Oct. 5. The report of the committee on traffic congestion will first be presented and

discussed. It is expected that this will occupy approximately one hour of the program. Following this the report of the joint committee on accident prevention will be presented and discussed. The executive committee is anxious that there be brought out fully in the discussions the necessity of the closest kind of co-operation between the claim department and the operating department, in order that accidents may be reduced to a minimum.

No regular sessions of any of the associations will be held on Wednesday, Oct. 6, as in past years this day has been set aside exclusively for the inspection of manufacturers' exhibits.

Thursday, Oct. 7, will be devoted entirely to a presentation and discussion of the report of the committee on bus operation. It was stated that the supply of pamphlets entitled "Bus Rules" drafted by the committee on trackless vehicle operation in 1924 had been exhausted and that it was planned to have a new supply printed. These rules are to be forwarded to the chairman of the present committee on bus operation with the request that he review them and suggest necessary modifications, after which they will be reprinted.

The next meeting of the executive committee will be held at the Hotel Hollenden, Cleveland, Sunday evening, Oct. 3, at 8 o'clock. Election of new officers of the association will be held on Monday afternoon, Oct. 4.

Those present at the meeting were: G. H. Clifford, chairman; Samuel Riddle, J. V. Sullivan, E. M. Walker, Paul E. Wilson, George B. Anderson, W. H. Boyce and J. W. Welsh.

Many Additions to Association Membership

NUMEROUS applications for company and associate membership in the American Electric Railway Association received since May 14 were approved at a meeting of the executive committee, July 30. These include two railway companies, 28 manufacturing companies and 24 individuals. Following are a list of company applications:

Cincinnati, Georgetown & Portsmouth Railroad, Cincinnati, Ohio.
Cincinnati Street Railway, Cincinnati, Ohio.
Ahlberg Bearing Company, Chicago, Ill.
American Brown Boveri Electric Corporation, New York, N. Y.
Baker-Raulang Company, Cleveland, Ohio.
Cleveland Tanning Company, Cleveland, Ohio.
D'Arcy Spring Company, Kalamazoo, Mich.
Joseph Dixon Crucible Company, Jersey City, N. J.
Erie Malleable Iron Company, Erie, Pa.
Falls Rubber Company of Akron, Inc., Akron, Ohio.
Kelton-Aurand Manufacturing Company, Bay City, Mich.
Macdonald Manufacturing Company, Cleveland, Ohio.
Manley Manufacturing Company, York, Pa.
Metropolitan Coach & Cab Corporation, Cleveland, Ohio.
Mohawk Rubber Company of New York, Inc., Akron, Ohio.
Motor Improvements, Inc., Newark, N. J.
Motor Products Corporation, Detroit, Mich.
North American Railway Construction Company, Chicago, Ill.
John C. Paige & Company (insurance), Boston, Mass.
Rollway Bearing Company, Inc., Syracuse, N. Y.
Phoenix Ice Machine Company, Cleveland, Ohio.

Pneumatic Scale Corporation, Ltd., Norfolk Downs, Mass.
Scovill Manufacturing Company, Waterbury, Conn.
Sisson Supply Company, New York, N. Y.
Stengel & Rothschild, Inc., Newark, N. J.
Vellumoid Company, Boston, Mass.
W-A Manufacturing & Sales Company, Newark, N. J.
Wellman Bronze Company, Cleveland, Ohio.
Leon L. Wolf Waterproof Fabric Company, Cincinnati, Ohio.
Wright Rubber Products Company, Racine, Wis.

Latest Bulletins Available

SPECIAL reports have been prepared and are available to member companies upon request, as follows:

Bulletin No. 93. Analysis of Wage Agreements on Interurban Lines.—An analytical digest of the provisions appearing in the labor contracts of a group of representative interurban companies, arranged in such a way as to make possible a ready comparison of working conditions.

Bulletin No. 94. Motor Bus Operations in California.—Contains a comparison of the results of motor bus operations of class A companies in California in 1924 and 1925, including comparative income statement, balance sheet and operating statistics. Also contains the individual income statements, balance sheets and operating statistics reported to the California Railroad Commission by all class A companies for the calendar year 1925. Freight as well as passenger operations are included. Extracted from the annual report of the California Railroad Commission for the year ended June 30, 1925.

Bulletin No. 95. Recent Developments of One-Man Car Operation.—Containing complete list of electric railways now operating one-man cars, showing the number of cars operated by each company. Also gives a comparison of the results of operations with one-man and two-man cars, including the comparative accident record of each; and a record and summary of all recent cases in which the legality or propriety of operating one-man cars has been attacked.

Bulletin No. 96. Rate of Return Allowed Electric Railways.—Extracts from decisions of public utility commissions in which the rate has been fixed after an official determination of the amount upon which the company is entitled to earn a return. This is a new edition of Bulletin 18 of April 1, 1925, and includes decisions handed down since that date.

Bulletin No. 97. Traffic Ratios, Part 3. Combination City and Interurban Lines.—A tabulation of figures derived from the operating reports of these companies for 1925. Included in the data given are average speed, revenue passenger per car-mile, per mile of track, and per car operated, the operating ratio, revenue per mile of track, operating income, etc.

In addition to the above, the following supplements have been prepared, bringing the information they cover down to Aug. 1, 1926:

Supplement No. 5 to Trainmen's Wage Bulletin No. 69.
Supplement No. 5 to Busmen's Wage Bulletin No. 70.
Supplement No. 11 to City and Interurban Fare Bulletin Nos. 40 and 41.
Cost of Living Studies (Bulletin No. 98).

A cumulative list of the reports and bulletins of the Bureau of Information and Service is now available to member companies. This includes all bulletins issued in the past, of which there is now on hand sufficient supply to meet the request of members that may be interested.

New England Outing Held

MEMBERS of the New England Street Railway Club and office employees of the Cumberland County Power & Light Company recently held a joint outing at Long Island, near Portland, Me. This was the annual picnic of each organization and was well attended. A baseball game and various other sporting events were on the program, which included also a sail on Casco Bay and a clambake.

The News of the Industry

New Plan for Subway in Chicago

A new subway plan for Chicago, calling for a tube under State Street from Chicago Avenue south to Twelfth Street and another under Jackson and Washington Boulevards from Michigan Avenue west to Clinton Street, is soon to be submitted to the local transportation committee of the City Council by the Citizens' Subway Commission. The commission is composed of representatives of loop property owners, hotels, banks and theaters.

The plan, some of the outstanding features of which were made known recently, differs from numerous other subway schemes that have been proposed for Chicago, particularly in its recommendations for a reduction in the number of streets in which bores should be made.

Instead of an initial subway under State Street from North Avenue to 22d Street, the recommendations of the commission will probably be for the construction of a much shorter line at a saving of millions of dollars.

It is reported that the existing Washington and Van Buren Street tunnels, now used by surface cars in passing under the Chicago River, will be used in connection with a loop in Washington and Jackson Boulevards for east and west subways. This loop would be exclusively for street cars, while the north and south subway on State Street would be for the elevated lines alone.

The cost of building this initial system, which is based on operating unification of the traction lines as provided for in the ordinance now pending, will be defrayed by special assessment. The general public benefit will be paid out of the city's \$45,000,000 traction fund.

Invaluable work has been done by the commission in organizing downtown property owners into a group that has indicated almost unanimous willingness to stand assessment for subway construction.

The commission has announced that it is also prepared to recommend a number of extensions of the elevated lines, action on which has long been delayed.

Confusion Continues in Columbia

The transportation tangle in Columbia, S. C., with jitneys, street cars and 29-passenger buses all playing a hand, is still giving the City Council some uneasy moments.

The Columbia Chamber of Commerce recently took some small part in the affair, but has definitely withdrawn, leaving the matter in the hands of the City Council. The Carolina Transit Company, which operates the bus lines, addressed the Chamber of Commerce to the effect that unless the 10-cent jitneys were curtailed in their operations, it, the bus company, would be compelled

to discontinue operations. When the bus company began operating lines covering practically all of the city, street car service, with the exception of three lines, was discontinued, so that no competition might be offered the bus company by the trolleys, and the railway was apparently glad to get out, it claiming that it was losing steadily, month by month. The bus company manager, Chester Hawkins, was of the opinion that if the buses were allowed to operate untrammelled they would be able to drive out the jitneys, but this belief has proved erroneous and the jitneys, to the number of about 130, operate daily with no set schedules and without having any fixed routes.

City Council has an ordinance to the effect that operators of jitneys and transfer cars must carry bond in the sum of \$250. This ordinance has only recently become effective. It was thought that its enforcement would push the jitneys to the wall, but the operators of jitneys and other conveyances plan to organize a bonding company of their own.

There was some talk of having the railway restore its service on the lines discontinued when the buses began operating, but the State Railroad Commission, which has charge of this matter, apparently has no intention of requesting the railway to operate its lines at a loss.

Jail Sentences for Indianapolis Men

Strike Leaders Who Pretended Not to Take Seriously a Court Order Are Committed by U. S. District Judge Baltzell—A Review of the Proceedings and the Statements that Caused the Court to Act

NINETY days in jail was the sentence imposed upon John M. Parker and Robert B. Armstrong, vice-presidents of the Amalgamated Association and organizers of the employees of the Indianapolis Street Railway, Indianapolis, Ind. Sentence was passed on July 31 by Judge Robert C. Baltzell in the United States District Court. Both men, together with nine others, were charged with violating the terms of an injunction issued on July 3 relating to the strike.

Steps will be taken to appeal the decision, but the two organizers have been in jail since July 28, when they were found guilty in court, after a hearing which lasted most of the day.

In passing sentence on Parker and Armstrong the judge remarked that their case was the most flagrant of its kind that had come to his attention. Looking at Parker, the court said:

You bragged in a speech to the union the morning the strike vote was taken that if you were cited for contempt you would appeal the case. You are going to have that opportunity.

Albert Ward, United States district attorney, said the government would oppose bail for Parker and Armstrong pending appeal. Attorneys for the men asked for 60 days to file a bill of exceptions, but this was opposed by Mr. Ward, who said that evidence would be submitted to court on the right of the defendants to a writ of *supersedeas*.

Eight other men, all former employees of the Indianapolis Street Railway, were before the court for disposition of their cases. One man, who had been found guilty, was not present.

Efforts were made the afternoon of July 30 by R. D. Bland, Detroit, secretary-treasurer of the Amalgamated Association, and attorneys for the or-

ganizers to end the strike, but the strikers protested.

In the meantime operatives of the Department of Justice are preparing for the return of Harry Boggs from West Virginia. Mr. Boggs is temporary president of the Indianapolis union and is wanted for violation of the court injunction.

At the last meeting of strikers it was voted to request the entire labor movement of Indianapolis to stage a demonstration against the action taken by city and state officials in connection with the strike. A resolution also was passed at the meeting urging "that a request be made at the next American Federation of Labor convention, to be held in October at Detroit, that all money, stocks and bonds be withdrawn from the banks of Indianapolis and deposited in Washington, D. C."

At the offices of the railway it was said that on July 31, 30 former employees applied for their old positions. James P. Tretton, superintendent, said that in cases in which it was found that the record of the former employee was good and officials were convinced he had not taken part in any acts of violence during the strike, the man would be re-employed, but seniority rights would be forfeited.

Edgar Day, former employee, convicted of contempt by a jury, was sentenced to 30 days in jail and fined the amount of the costs in the case. The cases of seven other former employees who pleaded guilty to the contempt charges were disposed of as follows:

Everett Ellis, twenty days in jail; Russell Bane, who provided the government with most of its information, taken under advisement and released on his own recognizance; John Frakes, twenty days in jail; Oscar Southern,

ten days; Joe Wittington, ten days; Mervin McNew, taken under advisement and released.

Everett Talley's case was taken under advisement. Most of the minor offenders had been in jail ten and eleven days before sentence was passed, but all sentences are from the day of issuance.

Jefferson Fade, who was convicted by the court, was sent back to jail without sentence. At the time of his conviction the court told Fade if he could get a reliable citizen to vouch for his good behavior the court might release him.

When Judge Baltzell called Parker and Armstrong before him he asked whether they had anything to say and whether they felt they had violated the injunction. Both said they had not intended to violate the injunction.

"What do you think would be the natural effect of your speeches in a meeting of 800 men?" the court asked.

"Your Honor, we had no intention to violate the injunction in those speeches," said Parker. "I have been served with several injunctions and never before have been convicted of violating any of them. It's the way you read those speeches that counts, your Honor."

"The speeches," interrupted Judge Baltzell, "contain boasts that you have been able to defy courts and I never have seen a more contemptuous case. The more I read those speeches, and I have read them several times, the more convinced I am of their contemptuous character."

"Those speeches," said Parker, "were made within an hour after the injunction had been served upon us by the United States marshal. We did not have legal advice as to what would constitute a violation of this injunction. All we two knew was just what we could read in the injunction. Had we had time to dissect the injunction we would not have made any utterances that might be construed to be in contempt of court."

"But," came back the judge, "you say you have read more injunctions than Will Latta or even myself, that you know about injunctions. You said this in your speech."

In commenting on the jail sentence, the court said that "to fix a fine in this case merely would mean the fixing of a license fee for contempt of court. That would permit you to go free and know the price to be paid for future violations in case you saw fit to be in contempt again."

Day, Ellis, Bane and Frakes were alleged to have met at Day's house and planned acts of violence. Following the meeting, stones were hurled at street cars, wires were thrown over trolley wires and explosives placed on the tracks. Southern, Wittington, McNew and Talley were alleged to have hurled stones at cars and to have committed other acts of violence. Fade was found guilty of having called another employee a scab and to have influenced Jacobs to quit working for the company in violation of his labor contract.

Speeches made by John M. Parker and Robert B. Armstrong, organizers for the Amalgamated Association, at the meeting at which a strike was called got them into jail. In order that the organizers might not be misquoted, they had a court reporter at the meeting to

take down exactly what was said. This reporter, put on the witness stand in federal court by the defendants' own counsel, read what had been said.

The court then said to the defendant attorneys:

I don't see how a lawyer can listen to these speeches and honestly tell me, as an officer of this court, that there has been no violation of that injunction.

Parker was quoted:

I don't know anything about the interpretation of this injunction any more than to read it, but I say that I have read more injunctions than Bill Latta or Watson and, I say it without fear of contradiction, Mr. Judge Baltzell himself. I know something about injunctions. I have a bushel basket full of them home, if anybody wants to look them over, and it doesn't worry me very much.

I never violated an injunction, never was cited for contempt of an injunction, and I want to say to you men that it has been broadcast over this city that I was indicted for dynamiting. I have a telegram in my grip in the hotel received about three weeks ago stating that those charges have been wiped off the books. So that I am not indicted at the present time for anything.

So now, brothers, I am going to quit and give Brother Armstrong an opportunity to say something to you. I have tried to make my position clear. I do not want anybody to misquote me in this hall. I say I am going to live up to every letter in that contract as interpreted to me by our attorneys, who are paid for that advice. If some one wants to make an affidavit that we have counseled you men tonight, then they can cite us for contempt of court. If they cite us for contempt, we will take our medicine, but I don't think they are going to do it, and if Judge Baltzell rules against us you can take this message to the judge that we are going to appeal from his decision. We are not going to take his decision on it.

I am not going to take up very much more of your time. I am going to say this to you, that our attorneys have informed us, which the injunction reads, that we are the plaintiffs, Brother Armstrong and myself—or the defendants rather—and that we are enjoined from advising soliciting you or in any manner whatsoever trying to intimidate you to do anything.

I say again we are going to live up to that order. We are not going to, or wouldn't if there wasn't any injunction, advise you men either to strike or not to strike. There has never been mention made in this hall or any other hall by Brother Armstrong or myself up to the present time about a strike.

They have said on different occasions on June 2 that we were going to strike. We had no intention of striking, because at that time we had only about 750 men. We have been perfecting this organization for the last month, and if I am any judge of human nature, by G-d, it is pretty near perfected.

Another paragraph read:

So we have tried and exhausted all our efforts to bring about some peaceable settlement for you men. We have been to the Governor of the State through the mediator and conciliator of labor, Mr. Dynes, we have been to his Worship Mayor Duvall, on two different occasions. On the last time, last Monday, he dictated a letter to Mr. Todd requesting him to meet us in conference and settle this question and dispute, and anything that could not be settled to submit it to the Public Service Commission for arbitration. So that we have nothing in view at the present for you.

In the meantime attorneys continue their activities toward perfecting an appeal from the contempt judgments. In addition to appealing the cases of Parker and Armstrong, Frank P. Baker, chief counsel for the men, said he would appeal the case of Edgar Day. Mr. Baker said:

The cases involve the question as to the right of the court to issue an injunction which enjoins men from giving advice to the employees. If the Clayton act applies to these cases, there is no question as to the innocence of Parker and Armstrong. The Clayton act provides that no court can issue an injunction to prevent men from advising employees of a company in such a case as this was.

Judge Robert C. Baltzell ruled that the Clayton act did not apply and that under the law Parker and Arm-

strong were not entitled to a jury trial. Mr. Baker said he would ask for bond for the defendants pending their appeal. Albert Ward, United States district attorney, said the government would oppose granting of bond and "the government may have some evidence to present on that bail question."

As to Day's case, Mr. Baker said he did not think that the injunction would be enforceable as to him because, he believed, it could not be made to apply to a man not a party to the suit.

Parker and Armstrong continue in jail. Little is heard of disorders on the cars, but isolated acts of vandalism are being committed.

New Chicago Traffic Film Being Prepared

"The Magic of Transportation," a two-reel motion picture film, produced by the Chicago Surface Lines was received so favorably during the past winter season that a new film is now in the course of preparation.

"The Magic of Transportation" tells the story of the development of electric street car service in Chicago and shows some of the problems faced in street car operation and the importance of street cars to city life. It was shown during the past winter and spring to audiences totaling nearly 100,000.

The new picture will emphasize the difficulties which must be overcome in providing regular and adequate railway service. It will show the effects of interferences of other vehicles with street cars and such obstacles as flooded subways under railway crossings, fires and snowstorms. The picture will be ready for use early in the fall and, like "The Magic of Transportation," will be shown before schools, clubs, civic organizations and similar audiences.

Information compiled by the publicity department indicates that motion pictures are an important factor in creating better public relations.

Plea for Paving Relief in Denver

Despite the material growth of the population of Denver, the Denver Tramway Corporation carried 11,000,000 fewer passengers in 1925 than in 1910. Moreover, gross receipts are declining. These facts are set forth in a petition filed by the company with the City Council of Denver to show cause why the company cannot meet paving assessments.

Total passengers carried were 68,000,000 in 1910 and 57,000,000 in 1925. The petition points out that the company is now paying 13.21 per cent of its gross income for imposts and taxes.

Since 1906 wages have advanced from 22 cents an hour to 59 cents. Materials have advanced 100 per cent in the same period. The fare is 8 cents, two tickets for 15 cents, compared with 5 cents until a few years ago. Gross revenue has declined from \$5,219,094 in 1922 to \$4,814,212 in 1925. On a valuation of \$24,018,047, the corporation is earning 4.22 per cent, or more than 3 per cent less than it is legally allowed.

The company is 30 miles behind in its paving work.

Hearing Starts on Rerouting in Baltimore

The Maryland Public Service Commission on Aug. 3 opened a series of hearings for the purpose of considering changes in the routes of the United Railways lines in Baltimore as recommended by the recent survey of the Baltimore Traffic Survey Commission. The first group of proposed changes considered was known as No. 1 and included nine lines. At the same time this subject was taken up by the commission that body also heard testimony in regard to another recommendation made as a result of the survey. This was to make the City Hall, at Holliday and Fayette Streets, the western terminus of the bus lines operating between the center of the city and the eastern territory, along Fayette Street. The United operates a line of buses along the Fayette Street route and there also are several independent operators.

Most of the discussion before the commission was in regard to the proposed change in the bus terminus. Several of the independent operators declared that 80 per cent of the passengers on the buses are carried to and from points beyond that which the survey commission wants used as the terminus and that to make the change would mean that their business would be ruined.

H. B. Potter, vice-president of the United, explained the advantages and disadvantages of the proposed changes embodied in Group No. 1. Track construction and other necessary work incident to the changes proposed in Group No. 1, he estimated, would cost \$12,000 and it would require at least three months to make. He said, however, that the United does not want to carry out the rerouting plan until all details of the report made by the Survey Commission are ready to be put into effect.

Rebuilding Program at Cincinnati to Be Speeded

To permit the Cincinnati Street Railway, Cincinnati, Ohio, to proceed with an accelerated program of improvements, the City Council has passed an ordinance allowing the railway to borrow \$400,000 so that the betterments may be made within three instead of four years. The money will augment the amounts to be paid into the special depreciation reserve fund as provided for in the franchise ordinance passed last August. The ordinance just passed by the City Council permits the railway to borrow the money in the open market or to take it out of any funds in which the amount is available, except the fare control fund. The franchise ordinance provides that the railway must rehabilitate its system by Dec. 31, 1929, and that each month it must set aside a sum sufficient for that purpose so that an aggregate of \$1,750,000 may be expended for betterments within that period. The action of the City Council enables the company to make these improvements within three years and to advance the financing of the fourth year by borrowing the money. By

following this procedure the railway also will be enabled to keep pace with the street improvement program of the city. It was at the suggestion of C. O. Sherrill, city manager, that the work has been accelerated.

Westchester Road to Continue

Trolley cars will continue to be operated on the lines of the old Westchester Street Railroad, which was officially taken over on July 28 by the Third Avenue Railroad through its subsidiary, the Union Railway. S. W. Huff, president of the Third Avenue Company, declared he felt sure that trolleys would give a less expensive and more satisfactory service than the proposed bus lines. He also explained that it would be practically impossible to install bus service, as that would necessitate obtaining the permission of every municipality on the proposed routes.

Mr. Huff said that he proposed to give Westchester its best trolley service in many years. Twenty cars from the Third Avenue Company's surplus stock will be substituted immediately for the old equipment formerly in use. Also, on the Tarrytown-White Plains line the headway will be cut from twenty to ten minutes. Mr. Huff admitted that a 5-cent fare cannot be maintained and said that application will soon be made to the Public Service Commission for permission to collect a 10-cent fare in each zone.

Service will be resumed at once on the Silver Lake Park line, which was abandoned June 1, and will be continued on the Tarrytown, Scarsdale, Mamaroneck Avenue and White Plains lines.

Tunnels Suggested for Providence

A subway system which would eliminate electric railways from the surface of the streets in the center of Providence, R. I., has been devised by William W. Lewis, Boston subway expert, who was retained by the city to assist Robert Whitten, city planning expert, in devising relief of traffic congestion.

Mr. Lewis's plan consists of two tunnels, one to run approximately north and south and the other approximately east and west, the latter connecting with the present tunnel to the East Side. The tubes would deliver passengers beneath Exchange Place Plaza, where they would run parallel. That location would serve as the transfer point for all sub-surface lines. The total length of the two tunnels would be 2.832 miles, and the average cost of construction per mile would be \$5,714,000.

According to the plan the East Side tunnel would continue to carry its present trolley lines, and, in addition, it might carry the lines now using Washington bridge, which would be rerouted through Fox Point to enter the tube at Thayer Street.

It is believed that eventually the East Side tunnel will be continued to the Seekonk River, thus caring for all lines bound the East Side or to East Providence, and relieving Waterman and Angell Streets of trolley traffic. In such case the Fox Point section would also be relieved of all trolley traffic except that which originated therein.

Jitney Fight Renewed in Detroit

Jitney drivers are again operating in Detroit, Mich., unmolested after having been "written up" or taken to the automobile pound for any possible infraction of the traffic ordinance. The contempt case of the jitney drivers' associations against Police Commissioner William P. Rutledge and fourteen Detroit policemen is pending and the hearing is to be resumed on Aug. 10.

Last week Judge Dingeman of the Circuit Court issued an order restraining the police from interfering with the operation of the jitneys. When no longer permitted to keep the jitneys from taking on passengers at their regular loading stations as usual, the police commissioner placed traffic officers at the various points with instructions to give the drivers tickets for violating in any way the city traffic ordinances. This action is claimed by the attorney for the jitney drivers to be in contravention of the United States Supreme Court, the Michigan Supreme Court and the Circuit Court orders.

The writ of error issued by the United States Supreme Court stating that federal questions were involved in the case caused the Michigan Supreme Court to issue a stay of proceedings and to revive the original injunction issued by Judge Hunt in 1923, which allowed the jitneys to operate unmolested until the recent attempt of the police department to drive them off the street, following the ruling of the Michigan Supreme Court that the jitney ouster ordinance was valid.

Meanwhile a contract has been entered into between the Department of Street Railways and Thomas J. Doyle, representing Dodge Brothers, Inc., for a rental of 50 single-deck motor coaches, each with a seating capacity of 21 passengers; one double-deck 60-passenger coach and one single-deck 29-passenger coach. These buses will care for traffic formerly handled by the jitneys. The contract covers payment on a mileage basis, and in the case of the 21-passenger buses can be applied on the purchase price in event the department decides to buy them later. Forty of the buses are to be put on the Woodward Avenue run between the Detroit River and the Six-Mile Road. A statement issued by the Mayor following the meeting of the Mayor and the Street Railway Commission is quoted:

The operation of the jitneys has been a serious drain on the revenues of the Department of Street Railways. If we are to accept as correct the figures of the jitney associations, the D. S. R. has lost in a period of four years approximately \$6,000,000 of revenue, or an amount which would reduce by more than half the present outstanding indebtedness to the Detroit United Railway.

The Department of Street Railways is being asked daily to establish new routes in outlying territory. It is conducting many of these routes at a loss trying to serve the public. It needs additional buses and cars and funds to repair its tracks and foundations. If it is to give the public adequate service without increase of fares, it is entitled to receive all the revenue from passengers immediately tributary to its existing lines.

Further, it has been the policy of the present administration to establish new routes without asking for additional bond issues. It will be impossible to continue this policy if the courts permit unfair competition with the city lines.

Rate of Return a Stumbling Block at St. Louis

Mayor Victor J. Miller of St. Louis, Mo., has stated that he will insist upon a provision in the new franchise ordinance under which the St. Louis Public Service Company will operate when it takes over the property of the United Railways Company limiting the rate of return on the investment at not more than 6 per cent.

He declared that the next move in the negotiations is up to the company, and that when representatives of the reorganizers decide to accept a 6 per cent return and so notify him negotiations will be continued. Until that time, he said, there is nothing further to negotiate.

The reorganization committee contends a return of 7 per cent is necessary.

When the tentative draft of the service-at-cost franchise was made public by Mayor Miller a few weeks ago the rate of return to be allowed the company was left blank. In the tentative draft the valuation was also blank. Both sides have agreed to abide by the findings of experts of the State Public Service Commission covering this point.

Stagger Plan Nearer in New York

Tabulation was begun on Aug. 2 of traffic census statistics taken in New York City in connection with the effort to be made to stagger the hours of workers. Health Commissioner Harris has announced that figures on 20,000 workers a day can be tabulated. When they have all been classified the actual question of staggering their hours will be taken up with the employers. The tabulation work is the classifying of information about where each worker works, what time he leaves for work, what time he quits work and what routes he uses. After this has been accomplished, "action can then be taken to broaden the rush-hour periods so that passengers may travel in comparative safety and comfort." The success of the plan will, of course, depend upon the extent of the co-operation of the employers.

Seattle Cuts Railway Budget, While Employees Ask Raise

The finance committee of the City Council of Seattle, Wash., has asked the Municipal Railway Department to cut its budget estimate from \$6,618,405 to \$5,750,000.

Asked where the committee could make cuts, D. W. Henderson, general superintendent, said \$100,000 might be cut off by reducing the number of trainmen, \$100,000 from way and structures and \$100,000 from supplies. He explained that he had made no recommendation for revamping any more cars to the one-man type because of the cost.

In the meantime the City Council has under consideration a request from 1,200 street railway employees for increased wages. Trainmen ask that their compensation be advanced to 75 cents an hour, a 5-cent increase over the present wage; shop employees ask an increase from \$6 to \$6.25 a day to

\$7 and \$7.25, while track workers, now paid by the day, ask to be placed on a monthly basis.

Municipal Railway Employees Want More

An increase in wages of 40 cents a day for the four classes of employees of the San Francisco Municipal Railway, San Francisco, Cal., not affected by the recent raise for platform men is asked in a communication to the Board of Supervisors by the San Francisco Labor Council. The resolution asks that the Board of Supervisors request Mayor Rolph to ask the Board of Public Works to authorize the increase in pay. The four classes of workmen named are janitors, car repairers, trackmen and clerical employees. The request is based on the fact that the Board of Supervisors intended that all employees of the railway should be benefited when it adopted the resolution affecting the platform men.

Two-Man Cars Restored on Chicago Line

As a result of an investigation by the local transportation committee of the Chicago City Council into an alleged frequency of accidents on the 79th Street crosstown line of the Chicago Surface Lines, the company has agreed to replace the 26 one-man cars which it now operates over this line with standard two-man cars. The one-man cars were installed three years ago in order to give a more frequent headway, and the number of rides on this line has increased rapidly since then. Due to this fact and to the extreme narrowness of the thoroughfare the number of accidents recently has shown a large increase. Automobiles can pass street cars only at street intersections, thus increasing the hazard to passengers boarding and leaving cars at the front end.

Illinois Traction Building Belt Line Around Twin Cities

In compliance with an ordinance passed by the city of Champaign, Ill., which prohibits the hauling of freight through its streets, the Illinois Traction System has entered into a compact with the Illinois Central and the Wabash Railroads, giving the traction system a 6-mile belt line around the twin cities of Champaign and Urbana.

The two steam roads have agreed to electrify certain sections of their track and lease them to the electric line. Practically all of the wire has been strung and the Illinois Traction System is now constructing spur tracks to connect with the Wabash and Illinois Central tracks. Completion of the work, estimated to cost about \$200,000, is expected early in the fall.

By virtue of this arrangement, the traction system will be enabled to operate standard M.C.B. equipment over the entire length of the Danville Division and thus considerably increase its line haul. The new line will also accommodate longer trains and provide improved freight house and team track facilities.

Franchise at Louisville to Be Taken Up Again

It is expected that the new ordinance of the Louisville Railway, Louisville, Ky., introduced recently, will come up before the City Council for discussion or action in early August. The delay in considering the franchise grant has been due in part to the absence of Mayor A. A. Will.

Plans Being Matured for Construction of Illinois Roads

Permission to build the first railroad to enter Calhoun County, Illinois, has been asked of the Illinois Commerce Commission at Springfield, Ill., by promoters of the Alton, Quincy & Northern Electric Railroad. It will be a southern branch of the Quincy & Northeast Railway. Preliminary surveys have been run for the new line. It will be 120 miles between Alton, Ill., and Quincy, Ill., and tentative plans are to start construction within two years.

The new line has not definitely decided on its route through Madison and Jersey Counties out of Alton, but plans to bridge the Illinois River near its mouth at Grafton to enter Calhoun County and to cut backward southwest to the little town of Deerplain. Thence it will pursue a northerly direction.

It is proposed to handle both passenger and freight with a new type of Diesel electric engine.

Charles H. Petsch, New York, is head of both undertakings.

Two-Car Train Constructed by Twin City Company

Experiments are being conducted with a light-weight two-car train recently built by the Twin City Rapid Transit Company, Minneapolis, Minn. One of these cars was recently demonstrated in the Home Products Show held in St. Paul and mentioned briefly in the issue of ELECTRIC RAILWAY JOURNAL for July 3. It is planned to place additional units such as those which constitute this train into service in the Twin Cities, with certain modifications in their general construction, if the results of the tests now being conducted are satisfactory.

Restoration of Intercity Service Urged at Kansas City

The Chamber of Commerce of Kansas City, Mo., will urge a restoration of electric railway service between Kansas City, Mo., and Kansas City, Kan., via the Eighth Street tunnel through the construction of an incline. The chamber has been working for relief in railway service conditions for workers in the district since the condemnation of the viaduct as unsafe on Dec. 29, 1922. The matter was considered by the Public Improvement Committee because it was coupled with a second proposal for a new tunnel for vehicular traffic to join with Eighth Street and afford a new trafficway into the district. No action was taken on the latter project pending more complete information.

Board Appointed to Arbitrate Chicago Elevated Wage Dispute

Submission of the demands of Chicago elevated trainmen for a wage increase of 5 cents an hour over the present scale of from 72 to 77 cents an hour as well as the counter proposal made by the Chicago Rapid Transit Company for a reduction of 5 cents an hour to immediate arbitration was agreed upon by both factions at a meeting during the week ended Aug. 7.

The Elevated Railway employees' union selected Maclay Hoyne as its representative in the mediations. Bernard J. Fallon, vice-president of the Chicago Rapid Transit Company, was designated representative for the employers. It was announced that in the event the two arbiters cannot agree on any point they shall select a third man.

Trainmen and shopmen of the Chicago Surface Lines, who have asked similar increases, have declared that they will await the outcome of the elevated arbitration hearings before negotiating any further.

Fare Case at Rome Concluded

Public Service Commissioner Lunn on Aug. 3 closed for determination the petition of the New York State Railways for permission to increase its fare rates in the city of Rome. The city and the railroad were allowed two weeks in which to file briefs. At the request of the city the commission will send an engineer to Rome to inspect the condition of the company's tracks and equipment in the city.

News Notes

Franchise Survey Ordered in San Francisco.—A survey of the franchises of the Market Street Railway and other non-municipal lines operating in San Francisco, Cal., has been ordered by the Board of Supervisors, which has passed a resolution introduced by Supervisor John B. Badaracco. Following the passage of the resolution, Mr. Badaracco announced that when the survey is completed he will move for an immediate evaluation of all the non-municipal lines.

Cheaper to Purchase Power for Ohio Line.—Abandonment of its only remaining power plant and the purchase of current from the Union Gas & Electric Company, is a proposal which has been submitted to directors of the Cincinnati Street Railway, Cincinnati, Ohio. The power plant in question is known as the Pendleton Station. It has been in operation for more than twenty years. Officials of the railway contend that the power can be purchased cheaper from the utility power company than it can be produced in their own establishment.

Sunday Excursions on Pittsburgh Lines.—Excursions to Washington, Pa., and intermediate points, with reduced rates, were started a few weeks ago on the Washington interurban lines of the Pittsburgh Railways, Pittsburgh, Pa.

Inducements to visit historic spots along the Washington and Charleroi lines, by reductions in fares on Sundays, persuaded many car-riders to leave their week-day haunts.

Single-Door Cars in Baltimore to Go.—Steps have been taken by the United Railways & Electric Company, Baltimore, to discontinue the use of all its single-door one-man cars. Eighteen of the 33 that have been in operation have been sold and efforts will be made to dispose of the remaining fifteen. The double-door one-man cars, however, will be kept in service.

Rehearing on Franchise Granted Albany Company.—On July 30 the Public Service Commission granted the application of the United Traction Company Albany, N. Y., for a rehearing of the commission's holdings over franchise provisions in Rensselaer and Troy which are under consideration on the company's petition for an increase in rates of fare in the various cities served. The rehearing will be held at Albany on Aug. 11.

Increased Rates Sought.—The York Utilities Company, Sanford, Me., has applied to the Public Utilities Commission at Augusta for authority to increase freight and passenger rates on certain of its railway lines. The company operates an electric line connecting Springvale, Sanford, Kennebunk and Biddeford. The fare between Springvale and Sanford is at present 5 cents. The company wishes to increase the rate to 10 cents.

East St. Louis Employees Awarded Increase.—Employees of the East St. Louis & Suburban Railway, East St. Louis, Ill. have been awarded a flat increase of 2 cents an hour retroactive to May 1 by a board of arbitration which was appointed to investigate the question of increased wages when the wage contract expired at midnight on April 30. The increase affects about 700 employees in various classifications, including motormen, conductors and shopmen, bringing the top wage to 59 cents an hour. About \$9,000 in back wages will be paid them. The arbitration board reached its decision on July 24 and the results were made public on July 26. The question of wages was the only point of difference between the company and the employees.

Reduced Fare in Pittsburgh.—Effective July 24, 1926, a 5-cent fare was put into effect on Route No. 94 of the Pittsburgh Railways, Pittsburgh, Pa., between 62d Street loop and Aspinwall. No transfers will be issued on this fare. The regular token fare of 8½ cents will continue to be in effect and car riders are entitled to transfers by paying the 8½-cent fare.

Special Rate for Children.—The New York Transit Commission has announced approval of a 10-cent round-trip fare for children's outings on the New York, Westchester & Boston Railroad between the Harlem River and Baychester Avenue stations. The present fare is 7 cents each way. The new rate is available only for parties of children being escorted to the playgrounds by community organizations, civic associations, charitable institutions and the like.

Foreign News

Making London Trams Comfortable

Cushioned seats are being tried out on one of the cars of the Metropolitan Electric Tramways, which is one of the companies in the London underground group. The seats are placed transversely and have reversible backs. They are covered in Moquette of a pleasing design of fawn and blue. Rubber flooring is also used on the lower deck in place of the usual slats. The lighting has been improved by a 50 per cent increase in units. Special shades are used to insure even distribution of light and to avoid glare. The interior decoration of the car is carried out in light oak and white enamel. Staircases to the upper deck have also been redesigned for safety and ease in ascent. These changes have been made as the result of competition from the buses. If successful, they probably will be adopted as standards for use by the railway.

New Zealand Issues Regulations for Buses

Revised regulations of the Board of Trade of the Division of New Zealand as regards motor buses took effect May 7. One of the principal clauses is that relating to fares to be charged between any two places which are also served by a tramway or trackless trolley. A clause of the new act provides that in such cases the bus fare must be at least 2d. more than the corresponding tramway or trackless trolley fare. Where the route only partly parallels a tram line the bus fare must be at least equal to that of the tram line for the distance covered.

All bus operators must secure a license showing that there are no other adequate means of transport on the route proposed. They must file a liability bond of £2,000 for damages to any single person and £500 per passenger for the carrying capacity of the bus, with a minimum limit of £3,500. The bus and equipment must be of an approved type and the operator's license may be revoked if the authorities consider the operator unfit to hold such a license.

South Shields Tramways Shows Profit

The county borough of South Shields, England, for the year ended March 31, 1926, shows net revenue or profit from operation of £21,413, as compared with £14,590 last year. After interest and amortization were deducted, the net income this year is £3,084, as compared with a deficit of £2,262 last year. There was a loss in gross revenue, but the operating expenses were decreased by a much larger amount. The tramcar mileage was 1,126,034 and the bus mileage was 117,028. J. Austin Baker, the present manager and engineer, has been in charge since April, 1925. Previously

he was technical assistant to the electrical and rolling stock engineer of the Manchester City Tramways.

South African Tramway Systems.—Eleven tramway systems now operate in South Africa, including two trackless trolleys. Greater proportionate profit is shown by the four companies owned and operated by private interests than by the seven controlled by municipalities. According to a recent report, statistics of the combined companies are, for the years 1924-25: Passengers carried, 138,048,233; car-miles run, 14,431,151; persons employed, 3,472. Johannesburg has just put into service the first tram car constructed in entirety in South Africa. Heretofore, certain parts, such as trucks and motors have been imported. During 1924 imports of tramway materials for operation and construction purposes were valued at £94,492, of which £71,293 came from the United Kingdom and £23,059 from the United States.

Ground Broken for Bermuda Railway.—The Bermuda Light Railway will now put into effect its franchise granted to run its line from one end of the island to the other, even though the House of Assembly refused to insert the clause that motor transportation be barred for 40 years. It is hoped that the road will be completed within two years.

Tramway and Bus Advertising in Peru.—Car card advertising is taking hold rapidly in Lima, Peru. Both the Lima Tramway and the independent buses are selling space in their vehicles. This is a new venture and the cards are printed locally. A few foreign advertisements have appeared, but there is much room for improvement in appearance.

Berlin Line Earns 7 per cent.—The Berlin Overhead & Underground Railways, reports that for 1925 its balance sheet shows a gross profit of 24,380,000 marks. After deducting various expenses, including 12,700,000 marks for taxes and administration, there remains a net profit of 8,800,000 marks, out of which a 7 per cent dividend is paid and 739,290 marks are carried forward.

Car with Worm Drive.—Experiment is being made by the Halifax Corporation Tramways with a single-deck car fitted with worm drive instead of ordinary gears. It is a light-weight, low-floor car with 25-in. wheels, and seats 36 passengers. Noise reduction has been given particular attention.

Subway Planned for Tokyo.—Plans for subway construction in Tokyo at an estimated cost of 187,485,959 yen (approximately \$80,620,000) have been completed. The expenditures will extend over a period of thirteen years, commencing with the fiscal year ending March 31, 1927, and terminating March 31, 1939. It is proposed to finance this project with loans aggregating 240,000,000 yen, to be issued each year in the amounts required.

Revival of Half-penny Fares.—Pre-war half-penny fares are proposed for short journeys by the Aberdeen Tramway companies in Scotland. The zones are to include about 1,000 yd. Other pre-war reductions are being considered, such as season tickets, etc.

Recent Bus Developments

Buses to Be Replaced by Cars in Alliance

Officials of the Stark Electric Railroad, Alliance, Ohio, have completed plans to withdraw buses on Sept. 20 and return to railway service. They say city bus service is not profitable.

Nine months ago the Stark Electric put on buses to replace antiquated street cars which were being operated at a loss. Additional service was offered residents of the city, but the routes failed to produce the revenue expected by company officials.

Shortly after permission was secured from the City Council, to operate buses, the Stark Electric was taken over by New York capitalists. Although the belief was held that buses would not pay, service has been continued by the new owners.

Next month, six city bus routes will be discontinued and railway service again adopted in the city.

The request of the company for permission to increase car and bus fares from 7 to 8 cents was refused by the City Council. Shortly after presenting the request for the increased fare, officials of the railway announced plans for discontinuing bus service.

Buffalo-Niagara Falls Bus-Line Proposed

The International Bus Corporation, Buffalo, N. Y., applied on July 27 to the Public Service Commission for a certificate for the operation of a bus line between Buffalo and Niagara Falls under consents received from the municipalities through which the proposed bus line will pass.

The company says that adequate service in the transportation of persons and property on interurban electric railroad cars and trains is being furnished to the public upon the high speed line of the International Railway, but that there has come with the development of motor vehicle transportation by means of high class buses a demand among certain classes of travelers for that kind of transportation. In the opinion of the petitioner, many persons would prefer to patronize a bus line and to pay for such transportation a fare greater than that now charged upon the interurban line. This demand the petitioner desires to fill by the proposed operation.

Inasmuch as the proposed bus and motor vehicle line and route will in a measure compete with the high speed line of the International Railway, the new company deems it appropriate that these additional transportation facilities shall be furnished by it as a subsidiary of the International Railway. The proposed line may also compete with the New York Central Railroad, but the petitioner holds that the different character of service to be rendered and the fact that the buses will carry passengers direct, without transfer to

the territories through which the route will extend will make such competition, if it exists at all, inconsiderable.

Charters for Bus Lines Sought by Pennsylvania Steam Roads

Charter applications of the Reading Transportation Company and the Pennsylvania General Transit Company have been referred to the Attorney-General of Pennsylvania for a "thorough investigation," the companies seek charters for the operation of buses and trucks. The Public Service Commission announced its approval of the applications, but before a charter may be issued it must bear the Governor's approval. However, approval of the commission carried with it a provision making it obligatory for the companies to have the commission's approval for each individual route proposed.

The application of the Reading Transportation Company seeks charter rights in twenty-four counties and that of the Pennsylvania General Transit Company in 55 counties.

One of the companies will be affiliated with the Reading Railroad and the other with the Pennsylvania Railroad, both steam railroads. As explained previously in the *ELECTRIC RAILWAY JOURNAL*, more particularly the issue of July 24, page 160, the rights sought by the Reading Company were opposed by the electric railways on the ground that the system of routes outlined for operation by that company contemplated the use of buses by the company in territory that would bring the service into competition with the electric railways.

Adjunct to Gray Line in Colorado Springs

David P. Strickler, president of the Colorado Springs & Interurban Railway, Colorado Springs, Col., has completed negotiations with officials of the Gray Line Corporation for a new bus unit which will link the Pike's Peak region with the co-operative sightseeing transportation service. New equipment will be purchased by the Colorado Springs & Interurban company, which will give the tramway a fleet of the finest cross-country sightseeing buses manufactured. Points of interest in the entire state will be the realm of the new organization.

The new Broadmoor-Stratton Park-Manitou sightseeing route of the Colorado Springs & Interurban Railway, upon which three new buses will operate will be a part of the new Gray Line service. The three buses will be emblazoned with the insignia of the Gray line before they are put into service.

The Gray Line is a co-operative sight-seeing service and transportation organization composed of innumerable units in this country, Canada and abroad. All units closely interlock and each sends its clients to the Gray Line

of the city to which the travelers are going. The Gray Line is in short a series of small units, each operated by an independent company, and all running according to the standards laid down by the head of the company.

The prospective extent of the new Gray Line unit at Colorado Springs has not yet been decided, Mr. Strickler stated. This will be taken up in detail at a meeting to be held later.

Union Opposes San Francisco Bus Grant

Action on the granting of a franchise for a new privately owned bus line in the Mission district of San Francisco, Cal., has been postponed by the city authorities pending further investigation of the city's rights in the matter. W. J. Gaffney, applicant for the franchise, made a modified proposal in which he said that he and his associates would give the city a chance to acquire the line before any other agency, should the original owners at any time decide to dispose of it. The franchise was opposed by John O'Connell, secretary of the Labor Council, and by Edward D. Vandalur, president of the platform men's union of the Municipal Railway.

Buses Substituted for Dover Cars

The Public Service Commission of New Hampshire has authorized the substitution of bus service on all lines of the Dover, Somersworth & Rochester Street Railway, Dover, N. H. The commission ordered the change July 20. Announcement of the railway company's petition to make this substitution was made in the ELECTRIC RAILWAY JOURNAL of April 3.

Bus Operation Curtailed by Indiana Road

The Interstate Public Service Company, operating traction and bus lines from Indianapolis south to Louisville, has been authorized by the Indiana Public Service Commission to suspend bus operation between Franklin and Columbus, Ind., and to abandon operation of buses on its through line between Indianapolis and Louisville, and on its line between Seymour and Jeffersonville. This will leave the company operating bus lines only between Indianapolis and Franklin and between Columbus and Seymour. The operation of buses between Franklin and Columbus is expected to be resumed when the paving between those cities is completed. The company sought this relief because the lines were being operated at a loss.

Bus Line Authorized in Iowa

The Iowa Railroad Commission has authorized the Fort Dodge, Des Moines & Southern Railroad, Boone, Iowa, to operate motor carriers between Harcourt and Rockwell City, and its associated company, the Fort Dodge, Des Moines & Southern Transportation company, Fort Dodge, Iowa, to establish a Fort Dodge-Spence bus line, but permit for a similar line between Spirit Lake and Spencer was denied.

Railway Receivers to Turn Bus to Advantage

William H. Riley and Edwin M. Walker, equity receivers of the Binghamton Railway, Binghamton, N. Y., have applied to Federal Judge Frank Cooper, in United States District Court, for an order allowing the railway to take over the lines of the Triple Cities Bus Lines, Inc., formed by Edward J. Dorey, who also is the directing head.

The bus lines would be taken over by the Binghamton Railway Bus Lines, Inc., a subsidiary corporation and in preparation for this, the Binghamton Railway Bus Lines, Inc., has filed a certificate of incorporation.

Four bus passenger routes are contemplated, extending through the Third and Fourth Wards, Johnson City, Endicott, Vestal, Willow Point and intermediate points and touching the Town of Dickinson on the north.

Judge Cooper is expected to approve the petition of the receivers. The next move will be to apply to the Public Service Commission for permission to take over the Dorey lines and for permission to exercise the franchises for the Third and Fourth Wards purchased at the city of Binghamton public auction a few weeks ago.

Specifically, the petition put before Judge Cooper by the equity receivers was for permission on the part of the Binghamton Railway Bus Lines, Inc., to lease the Dorey lines for a period of five months with the privilege of buying the business outright at the expiration of that time.

Mr. Riley stated that the Dorey lines will be taken over before Aug. 10 and operated by the railway. By Sept. 1, he declared, the new bus system will be in complete operation.

Eight buses used now by the Dorey lines will be added to the present railway bus equipment. That will be sufficient to operate the four routes to be established.

There is no consideration or price stipulated at present, for the leasing privilege. But the equity receivers guarantee the payments, as they fall due, on condition sales contracts for certain buses used by the Dorey lines.

Rival Bus Company Bought Out by Tacoma Railway

Fourteen buses of the Puget Transportation Company, operating on various streets served by the railway, have ceased operations following completion of negotiations for purchase of the transportation company's preferred stock by the Tacoma Railway & Power Company. An agreement now under way will protect the preferred stockholders, it is stated, and in some measure the creditors of the organization.

Note was made in the ELECTRIC RAILWAY JOURNAL of July 3 of the bus company's attitude that the City Council was within its rights in revoking its operating permits and that it had no desire to cause friction in the attempt to solve the transportation problem.

Supplementing the service into the districts beyond the end of the street car lines, the railway company plans to institute bus service. It has purchased

a number of former jitneys and withdrawn them from service, and some of these cars will be used in the bus service. The company has now taken over 21 buses.

Competitive Rights Refused

The Pennsylvania Public Service Commission has denied an applicant the privilege of running a passenger bus service between Bangor and Nazareth through the Wind Gap. The opposition came not primarily from the railway with which the bus line would have competed but from the borough authorities of Wind Gap. They feared that the operation of the buses would mean the eventual removal of the surface tracks and the abandonment of the trolley service.

Decision Awaited on Western Motor Coach Petition

All evidence bearing on the petition of the Western Motor Coach Company to operate buses from the western city limits along Jackson Boulevard to the Wells Street terminal of the Chicago, Aurora & Elgin Railroad in Chicago, and from the city limits westward to Aurora, Elgin and Geneva, was taken at the final hearing conducted by the Illinois Commerce Commission in Chicago recently.

Opposition to the project was voiced by representatives of the cities of LaGrange, Oak Park and Maywood, who maintained that the territory is already adequately served by three steam railroads. It was further contended that the operation of additional buses would aggravate the already serious congestion on the main highways traversing this district.

The coach routes, according to the petition, are designed to feed an supplement train service on the Chicago, Aurora & Elgin Railroad, which line they will closely parallel.

Buses Proposed for Berkeley, Cal.

A system of bus lines, augmenting the street cars in Berkeley, Cal., is proposed as a method of solving the transportation problems of that city. The removal of the Key Division trains from Shattuck Avenue is understood to be the basis of all of the plans now being studied. The specific plan that will finally be presented to the City Council has not yet been drafted, according to the officials, and the Key officials refused to discuss the matter until City Manager Edy has acted.

Bus Experiment in Wisconsin Town

Manitowoc began its three months test of city-wide bus service on July 19, replacing the street cars of the Wisconsin Public Service Corporation. Under this experimental bus plan there will be an increase in fares, seven tickets selling for 50 cents and cash fares 10 cents. A charge of 4 cents will be made for transfers from the Two Rivers-Manitowoc interurban railway to city buses.

Financial and Corporate

Non-Recurrent Income Helps Interborough

For the twelve months ended June 30, 1926, the total revenue of the Interborough Rapid Transit Company, New York, from all sources was \$61,985,794, an increase of \$3,274,602 over the preceding year. This increase is due in part to the receipt of approximately \$1,167,000 additional growing out of the new advertising contract which became effective last November. Of this increase in advertising receipts \$770,000 was due to a lump sum payment upon the signing of the contract, against which no similar payments are to be made in subsequent years. Operating expenses, taxes and rentals paid to the city for the old subway increased \$2,951. Income deductions increased \$482,448.

The net result for the twelve months was a surplus of \$2,443,694. This represents an improvement of \$2,789,203 over the preceding year, due to a large extent to the new advertising contract.

Frank Hedley, president and general manager notes that all available balances must be utilized for the old debts and outstanding obligations. These are mainly unpaid taxes, cost of new cars and certain contractual obligations.

The cost of the strike just ended, is not reflected in these figures. This loss will show in the July statement and will, of course, represent an additional and unexpected drain on the balance for the year ended June 30.

It is explained that from the commencement of operations under Contract No. 3 and the related certificates respectively it has been the practice to include in all reports of operating expenses 14 per cent of the gross operating revenue upon the Manhattan division and 17 per cent on the subway division, to cover maintenance and depreciation. These are the percentages

fixed for the first year of operation in each case. Negotiations have been pending between the company and the Public Service Commission ever since the end of the first year to determine what, if any, changes in these percentages should be made for subsequent years. Prior to July 1, 1923, the amount expended in excess of 14 per cent upon the Manhattan was approximately offset by the amount under 17 per cent expended upon the subway division. The net expenditures for maintenance in excess of the amounts therefor included in "operating expenses, taxes and rental paid city for the old subway" are shown as "maintenance in excess of contractual provisions."

Traffic, Fare and Wage Figures Reported

The month of June continued the record of improvement in electric railway traffic in 1926 over 1925 that has been returned every month since the beginning of the year. The number of revenue passengers, including bus passengers, reported by the American Electric Railway Association for 206 companies in June, 1926, compared with June, 1925, was as follows:

June, 1926	780,549,894
June, 1925	766,449,184
Increase	1.84%

Average cash fare in cities of 25,000 population and over:

July 1, 1926	7.6946c.
June 1, 1926	7.6946c.
July 1, 1925	7.5551c.

Average maximum hourly rates paid motormen and conductors in two-man service by companies operating 100 miles or more of single track:

	Average Hourly Rate	Index Number 1913=100%
July 1, 1926	56.77	208.33
June 1, 1926	56.75	208.26
July 1, 1925	56.27	206.50

Steady Gain for Twin City Company

Net income of the Twin City Rapid Transit Company, Minneapolis, Minn., for the first half of 1926 shows a gain of \$64,222 over the similar period for 1925, the total being \$722,445, or \$2.80 a share on the common stock after preferred dividends. Last year this was \$2.51. T. Julian McGill, vice-president, said:

If our present rate is continued through the year I believe the return will be 7 per cent on the preferred and 5 per cent on the common stock, as authorized by the State Railroad and Warehouse Commission. The increase is due entirely to the increase in fare from 6 to 6½ cents. There has been a decrease in passenger haul of 7 per cent since the fare was raised, but the difference in fare more than compensates the lighter business.

The rate of fare was increased to 8 cents cash with tokens remaining at 6 cents on Aug. 1, 1925, and Jan. 1, 1926, the rate became 8 cents cash and 6 tokens for 40 cents, or 6½ cents.

Net income of the Minneapolis Street Railway division for the second quarter of 1926 was \$188,417, or a gain of \$16,475 over the like period for 1925. Gross operating revenues for the quarter were \$1,900,407, an increase of \$66,437 over last year. Operating expenses were \$1,294,749, compared with \$1,256,344. Net operating revenue was \$605,657 compared with \$577,626 in 1925.

The income of the St. Paul City Railway for the first half of the year showed a gain of 18 per cent, reaching a total of \$376,556 gross income compared with \$307,155. Total operating revenue was \$2,356,499 compared with \$1,778,724 operating expense.

STATEMENT OF TWIN CITY RAPID TRANSIT COMPANY FOR SIX MONTHS

	1926	1925	Per Cent Inc. or Dec.
Gross revenues	\$6,597,165	\$6,384,466	+03.33
Operating expense	4,746,786	4,599,710	+03.20
Net revenue	1,850,378	1,784,755	+03.68
Fixed charges and taxes	1,127,933	1,126,531	+00.12
Net income	722,445	658,223	+09.76

Terms of Providence Merger Plan

Interests identified with Bodell & Company, Providence, R. I.; Harris, Forbes & Company, Boston, and the First National Bank, Boston, have announced a plan under which the Narragansett Electric Lighting Company and the United Electric Railways, Providence, may be consolidated if the necessary approvals of stockholders and the public authorities are obtained. It is proposed that the Narragansett company be acquired by the recently created United Electric Power Company, all the stock of which will be owned by the Rhode Island Public Service Company, a new corporation, and the last-named will also hold such stock of the railway as is exchanged under the plan.

In an announcement by the Rhode Island Public Service Company it is pointed out that the plan strengthens to a considerable degree the position of the bonds of the United Electric Railways. The market of the bonds will be benefited by the association of the lighting and power property and the railway.

STATEMENT OF EARNINGS OF INTERBOROUGH RAPID TRANSIT COMPANY

	Twelve Months Ended June 30, 1926	Comparison with
		Twelve Months Ended June 30, 1925
Total revenue	\$61,985,794	\$3,274,602
(A) Operating expenses, taxes and rentals paid city for the old subway	39,564,781	513,901
(A) Maintenance in excess of contractual provisions	\$22,439,012	\$2,760,701
	981,345	510,950
Income available for all purposes	\$21,457,666	\$3,271,651
Fixed charges:		
Interest on I. R. T. first mortgage 5 per cent bonds	\$8,074,066	\$3,104
Interest on Manhattan Railway bonds	1,808,240	
Interest on I. R. T. 7 per cent secured notes	2,379,073	3,211
Interest on I. R. T. 6 per cent ten-year notes	526,899	128,726
Interest on equipment trust certificates	291,321	121,899
Miscellaneous income deductions	414,131	12,842
Sinking fund on I. R. T. first mortgage 5 per cent bonds	2,453,753	236,673
Total	\$15,947,485	\$481,272
	\$5,510,180	\$2,790,379
Dividend rental at 7 per cent on capital stock of Manhattan Railway not assenting to the "plan of readjustment"	\$232,701	\$1,069
Dividend rental on Manhattan Railway stock under the "plan of readjustment"	2,833,785	106
	\$3,066,486	\$1,176
Balance after actual maintenance	\$2,443,694	\$2,789,203

Figures in italic denote decrease.

\$5,000,000 Bonds of Dallas Railway Offered Publicly

At a recent meeting of the directors of the Dallas Railway, Dallas, Tex., an amendment to its charter was authorized changing the name to the Dallas Railway & Terminal Company. The directors also adopted a refinancing program which provides that 10,000 shares of preferred stock and 10,000 shares of common stock will be issued, with a par value of \$100. The sale of \$5,000,000 first mortgage bonds was approved.

The issuance of the new securities will enable the company to pay off past due mortgages and notes and place the company upon a financial basis that is expected to enable it to meet the growing transportation needs of Dallas.

The company operates, under a modern franchise, the entire electric railway service in the city of Dallas, Tex., serving a population estimated at about 250,000. The company also owns and operates a modern eight-story terminal station and office building near the center of the business district of the city. In addition the company operates under lease the electric railway serving that part of Dallas known as Oak Cliff.

The earnings of the company for the four years ended Dec. 31, 1925, were as follows:

Year	Gross Earnings	Operating Expenses, Including Maintenance, Taxes and Rentals	Net Earnings
1922	\$3,270,827	\$2,532,958	\$737,869
1923	3,330,425	2,632,349	698,076
1924	3,322,215	2,547,246	774,969
1925	3,429,298	2,578,079	851,219

The bonds will be secured by a direct first mortgage on all the company's property and equipment, including the terminal building. The principal amount of the \$5,000,000 bonds to be issued is less than 60 per cent of the value of the company's wholly owned property as of May 31, 1926, as established under the franchise for rate-making purposes.

A syndicate in which Tucker, Anthony & Company, the Old Colony Corporation, Halsey, Stuart & Company and W. C. Langley participated offered the bonds on July 23 at 96½ and interest to yield 6.25 per cent.

Cuban Deal Approved

Stockholders of the Havana Electric Railway, Light & Power Company, Havana, Cuba, have approved the plan to merge the company with Cuban Utilities Company. The new company is to be known as Havana Electric Railway, Light & Power Company. The Cuban Utilities Company, in addition to owning the electric railway systems in Santiago and Comaguey, Cuba, owned more than 86 per cent of the preferred and more than 98 per cent of the common stock of the old Havana Electric Railway, Light & Power Company. Consequently the merger brings together the electric power and light, gas and railway properties in Havana, and the electric railway properties in Santiago and Camaguey. Substantially all the stock of the new company is owned by the Havana Electric & Utilities Company. The electric railway systems

in Santiago and Camaguey now owned by the new Havana Electric Railway, Light & Power Company were acquired by Cuban Utilities Company from subsidiary interests of American & Foreign Power Company, Inc., operating in Cuba.

Dividend Cut by New Bedford Road

The Union Street Railway, New Bedford, Mass., has halved its dividend, current declaration being on \$4 annual basis. With the textile situation in the doldrums and bus competition on the increase, the company decided to conserve assets. For years it paid 8 per cent annually on its \$2,437,500 stock.

Receivership for Sharon-New Castle Road

Rufus Moses has been appointed receiver of the Sharon & New Castle Street Railway, New Castle, Pa., by Judge Gibson in the United States District Court.

The appointment was made at the request of the New York Trust Company, which filed an equity suit against the railway to recover interest on \$120,000 of first mortgage bonds, issued by the railway in 1901.

The appointment of a receiver was by mutual consent of the defendant concern and the New York Trust Company, which, as trustee for the bondholders, cited in its bill of complaint that no interest had been paid on any of the bonds since January, 1903.

The present action is a friendly one as explained in the *ELECTRIC RAILWAY JOURNAL* for July 24, page 162.

Insulls Buy Into National Electric Power

Announcement has been made that Insull Son & Company, Inc., have purchased an interest in the common stock of the National Electric Power Company and that the company would be continued as organized, with Victor Emanuel as vice-president.

The principal New England property controlled by the Emanuel interests, is the Cumberland County Power & Light Company. It is expected that this will be merged with the New England Public Service Company, an Insull organization, thus further strengthening the Insull interests that already dominate in New Hampshire, Maine and Vermont.

Albert Emanuel, president of the National Electric, is in retirement, and Victor Emanuel has been the acting head of the company for several years.

The Cumberland County Power & Light Company provides all electric light and power for Portland and vicinity. It also operates the street railway in Portland.

Representatives of the Insull interests in Chicago described as an investment the acquisition of a common stock interest in the National Electric Power Company by Insull Son & Company, Inc. The latter is an Illinois corporation formed two years ago to do a financial business with Samuel Insull, chairman of the board, and his brother, Martin J. Insull, as president.

Maryland Interurban Sold at Foreclosure

The property, franchise and equipment of the Cumberland & Westernport Electric Railway, Cumberland, Md., in Allegany County, have been sold at trustees' sale for \$50,000 to R. H. Koch, Paul L. Hitchins and F. Brooke Whiting, a committee representing the bondholders.

It is stated that the purchasers will reorganize the company and continue operation by trolley from Cumberland to Frostburg and by bus between Frostburg and Westernport.

The line was offered in four parcels. This is the way it was organized prior to the merger in 1906. The first parcel, between Westernport and Lonaconing, was bid in at \$17,000; the second parcel, the franchise and property between Lonaconing and Frostburg, brought \$12,000; a third parcel, the line between Frostburg and Narrows Park, \$10,000, and the fourth parcel, consisting largely of buildings and local freight stations, brought only \$10,000, or a total of \$49,000. When the property was offered in its entirety the bid of \$50,000 of the bondholders' committee was not raised.

The company's franchise covers the right to run from Narrows Park to Frostburg and thence to Westernport, through the George's Creek Valley. The trackage between Frostburg and Westernport has been abandoned in the last year and traffic has been handled in buses. The company has a trackage agreement with the Potomac Edison Company to operate the Frostburg cars into Cumberland. It owns power houses and carhouses at Clarysville and Reynolds.

Upon a petition of the Real Estate Trust Company, Philadelphia, Pa., a decree was passed by the Circuit Court on June 17 naming trustees and ordering the sale.

Washington-Virginia Road Near the End

Receivers for the Washington-Virginia Railway, Washington, D. C., have announced their intention of closing up the affairs of the company at the earliest possible moment, but are said to have made known their willingness to consider sale of the system—rolling stock, carhouses, buses and all—on the basis of their scrap value.

The disclosure was made by F. W. Woodcock, representing the receivership, at a meeting in Alexandria of a special citizens' committee formed to seek continuance of the railway's operation, even though it should be sold for "scrap."

Preliminary intimation of the agreement of the receivers to wind up the affairs of the company was given some time ago at a meeting in Alexandria of interested parties, called at the instance of Day & Zimmermann, operating engineers, of Philadelphia, who are advisers in the receivership. At that time Mr. Woodcock is said to have declared that the receivership must end shortly, since the revenues had been badly depleted by bus competition, and the road was barely paying expenses.

A committee was then appointed to

confer on the matter, and attempt to reach a solution as to the disposition that might be made of the company's property. This committee met again a few days ago, with Mr. Woodcock again present. Formal organization of the group for the purposes outlined was effected.

Chairman Church announced after the meeting that Mr. Woodcock had assured the committee that any proposal to purchase the road with a view to continuing its operation would be entertained by the receivers on basis of "scrap" valuation of \$750,000, as estimated by the road's engineers.

Financial Plan of Danbury Company Approved

The Danbury Power & Traction Company, Danbury, Conn., formerly identified under the name of the Danbury & Bethel Traction Company and the Danbury & Bethel Street Railway, has been authorized to issue \$500,000 of 6 per cent bonds and also 5,000 shares of common stock without stated par value. The latest decision of the Public Utility Commission supersedes a previous finding and allows changes in the capital structure of the company to provide for the purchase of the franchise and property rights of the Danbury & Bethel Traction Company.

The new company will continue to operate a street railway and bus service, and is further allowed to distribute electric power. The railway has been in the hands of Receiver Edward M. Bradley. In acquiring control the Danbury Power & Traction Company proposes to deliver in payment \$400,000 in first mortgage bonds and virtually the whole of the 5,000 shares of capital stock without nominal value. The proceeds of the balance of the authorized issue of stock, amounting to \$100,000, will be used for improvements and additions.

Concluding Ohio Traction Deal

Holders of preferred stock of the Ohio Traction Company, Cincinnati, Ohio who are not disposed to deposit their stock under the plan of the committees of the common and preferred shareholders will receive \$70 a share for their holdings. This was made known in a letter sent out by E. C. Bernhold, secretary of the company. Attention was called to the fact that at the recent meeting of the stockholders to ratify and confirm the purchase of the assets of the Ohio Traction Company 168,714 shares were voted in favor of the plan and 246 against the agreement. More than 90 per cent of both classes of stock have been deposited with the Western Bank & Trust Company. Stockholders who have withheld may deposit their stock until the deal is concluded.

It is expected that the plan for the liquidation of the company's properties will be completed within a short time. Stock which is not to be deposited should be surrendered without delay the letter states.

The assets of the Ohio Traction Company will be converted to the Cincinnati Car Company, which will have jur-

isdiction over all the properties formerly held by that company. The Ohio Traction Company owned the Cincinnati Traction Company, which until last fall operated the electric railway system in Cincinnati under lease.

Merger Plan in Indiana Approved

Purchase of four electric railway and light and power properties in northwestern Indiana by the Indiana Service Corporation has been authorized by the Indiana Public Service Commission. The properties which pass in the transaction are the Marion & Bluffton Traction Company, both railway and power property; the Bryant Electric Company, the Wells County Electric Company and the Berne Electric Company. The total valuation placed by the commission on these utilities was \$1,295,992. By this transaction the corporation will serve 39 communities with electric light and power service and 37 towns will be connected by the company's electric railroad lines. The transaction is to be in cash or by the exchange of no par common stock of the Indiana Service Corporation for stock in the selling companies. To complete the transaction, the commission authorized the Service corporation to issue 76,000 shares of no par common stock. The order provides that the reserves which have accrued for depreciation and other purposes be kept separate for the benefit of the individual properties.

Chicago City Railway Bond Interest.—Announcement was made that interest on the first mortgage 5 per cent bonds of the Chicago City Railway and Calumet & South Chicago Railway deposited under the bondholders' protective agreements would be paid on Aug. 1. Coupons due on that date will be detached from deposited bonds, collected and checks sent to registered holders of certificates of deposit as of Aug. 1 next upon receipt of ownership certificates or authority to sign them by the First Trust & Savings Bank, Chicago, the depository.

Authority Sought to Issue \$351,000 in Notes.—Authority to issue notes totaling \$351,000 to be used in the purchase of land and in the construction and equipment of substations is asked in a petition filed with the Indiana Public Service Commission by the Indianapolis Street Railway. Construction of the substations, the company claims, would result in faster operation of the cars, more dependable operation and a saving of energy. Eighteen notes of \$5,500 each will carry an interest rate of 7 per cent and the rest 6 per cent.

Security Hearing Put Over Indefinitely.—The hearing on the application of the Wyandotte Railways, Kansas City, Kan., to permit it to issue securities totaling \$1,750,000, scheduled for the week ended July 24, has been postponed indefinitely by the Kansas Public Service Commission. The company desires to issue first mortgage bonds on its property in Wyandotte County. This company will take over under reorganization the lines of the present Kansas City Railways in Kansas City, Kan.

Line Abandoned as Economy Move.—The Cincinnati Street Railway Cincinnati, Ohio, has abandoned its Glendale to Hamilton, Ohio, line, which it recently acquired, together with the Zoo-Glendale route from the Cincinnati & Hamilton Traction Company. For years the line had been operated at a loss and authority to abandon it was given by the Ohio Public Utilities Commission. The railway will continue to operate the Zoo-Glendale route as a part of the original Cincinnati & Hamilton Traction system.

West Penn Railways Calls Debentures.—The West Penn Railways, Pittsburgh, Pa., will redeem on Sept. 1 the entire \$3,500,000 principal amount of the three-year 6½ per cent gold debentures.

Asks Street Railway Foreclosure.—Foreclosure of a mortgage protecting a bond issue of \$180,000 by the Milford & Uxbridge Street Railway, Milford, Mass., is sought by a bill in equity brought in the Supreme Court at Boston by the American Trust Company, Boston. The bank also asked for a receiver. The principal of the mortgage, issued in 1898, was payable on Jan. 1, 1923.

Toledo Line Abandoned.—The City Council of Toledo, has approved abandonment of the Indiana Avenue line of the Community Traction Company, Toledo, Ohio, in order to prepare for repaving of the streets and removal of tracks. Company officials have contended for more than five years that the line was unnecessary and a burden.

Successor to Westchester Company Chartered.—The Westchester Street Transportation Company, Inc., has been chartered at Albany with capital of \$180,000 in \$100 shares, with duration of 1,000 years to operate a street surface railroad in Westchester County. Alfred T. Davidson, 2396 Third Avenue, New York City, is attorney for the corporation. It will be recalled that it was Mr. Davidson who purchased for the Third Avenue Railroad the Westchester Street Railroad, sold under foreclosure recently. Presumably the new company is the successor under foreclosure to the Westchester Street Railroad.

Certificate of Dissolution Filed.—A certificate has been filed in the office of the Secretary of State at Albany, N. Y., dissolving the corporate existence of the Nassau County Railway, Sea Cliff, L. I., which suspended operation of its 10-mile line some months ago.

Massachusetts Line Reports Surplus.—Eastern Massachusetts Street Railway, Boston, Mass., reports June gross of \$740,924, against \$744,423 in June, 1925. June surplus after taxes and charges was \$46,313, comparing with \$36,823 for the similar month of the previous year.

Milwaukee Electric Calls Bonds.—The Milwaukee Electric Railway & Light Company, Milwaukee, Wis., has announced that it will redeem and pay on Sept. 1 at the office of the Central Union Trust Company in Milwaukee, all refunding and first mortgage 6 per cent gold bonds outstanding under this mortgage, series C. The bonds will be redeemed at 104½ and accrued interest.

Legal Notes

FEDERAL SUPREME COURT—*Private Carrier Cannot Be Converted Against His Will Into a Common Carrier by Legislative Demand.*

This decision declares unconstitutional the auto-stage and truck transportation act of California as applied to the Frost & Frost Trucking Company, in which the California Railroad Commission attempted to class this company as a common carrier, although it claimed to be purely a private carrier. The Federal Supreme Court did not question the power of the state to prohibit the use of public highways in proper cases, but it did question the right of the state to permit the use of the highways only on conditions which required the relinquishment by the grantee of his constitutional rights. The majority of the opinion also says that it did not challenge the power of the state or of the railroad commission under the present statute, whenever it shall appear that a carrier, posing as a private carrier, is in reality a common carrier. Dissenting opinions were held by three justices. [Frost vs. Railroad Commission, 42 Supreme Court Rep., 605.]

COLORADO—*Power of Utilities Commission Over Common Carriers Defined*

When a business is affected with a public interest, as is that of the common carrier, the right of the public to regulate it is unquestioned. When a common carrier seeks to utilize public property such as streets and highways, the authority of the public becomes twofold. Motor common carriers attempting to operate without a certificate of convenience and necessity can be stopped by injunction. [Greeley Transportation Co. vs. People, 245 Pacific Rep., 720.]

INDIANA—*Surrender of Franchise for Indeterminate Permit Voids Former Franchise Conditions.*

In 1922 a railway surrendered its franchise in a city and took out an indeterminate permit, pursuant to the provisions of an act of the General Assembly. Subsequently, it secured permission from the city to operate freight cars over its tracks, a service which was forbidden by the former franchise. The right to do so was upheld in a case brought for damages by a number of property owners, the court holding that with the indeterminate permit such freight operation does not constitute an additional servitude on the property. [Chicago, L. S. & S. B. Railway, vs. Guilfoyle et al, 152 Northeast. Rep., 167.]

MARYLAND—*Collision at Street Intersection of Railway Built on Reservation*

Where a railway in the suburbs is built in a reservation except where it crosses intersecting streets, its rate of speed is usually much higher than allowed on a street. Hence, more caution

is expected of those crossing the railway track at such street intersections. The obligation to exercise ordinary care is not fulfilled by looking once, but by continuing to look until all danger of a collision is past. [Crystal et al. vs. Baltimore & B. A. Elec. Ry., 132 Atlantic Rep., 629.]

MICHIGAN—*Duty of Prudent Man at Street Intersection*

"A reasonably prudent man will not take a chance of street cars slowing up to let him cross a street." [Public Administrator of State of Michigan vs. City of Detroit, 207 Northwest. Rep., 882.]

MISSOURI—*Definition of "Vigilant Watch"*

Under the "Vigilant Watch" ordinance in St. Louis, a motorman must keep, not ordinary, but vigilant watch for persons and vehicles approaching or crossing the tracks. This duty is broader and stronger than the usual common-law duty of ordinary care, except in situations where common law would impose a very high degree of care, as in highly congested places of travel. Under this law, however, vehicle drivers and pedestrians are required to exercise only ordinary care to protect themselves. [Grossman vs. Wells, 282 Southwest. Rep. 710.]

NEBRASKA—*Ordinance Regulating Auto Buses Held Not to Be a Franchise but Regulatory and Therefore Valid*

The city of Omaha passed an ordinance authorizing the issue of permits for auto buses, provided they fulfill certain provisions. This ordinance was attacked by the plaintiff on the ground that the city did not have power under its charter to grant "franchises." The Nebraska Supreme Court held, however, that the permits contemplated were not "franchises," a number of definitions of franchises being given. Instead the permits were in the direction of regulating the use of the streets. The ordinance, therefore, was within the power of the city to pass under its charter. [O. & C. B. Street Railway vs. City of Omaha, 208 Northwest. Rep., 123.]

NEW JERSEY—*Care Required in Stairway Maintenance in Railroad Stations*

An instruction that a passenger, who was injured by falling on the steps of a railway station, was entitled to have the stairway "in good condition for her to be carried on it" was held erroneous, because it made the railway an insurer and imposed a greater burden on it than was justified by law. The railway need only exercise reasonable care to provide a safe place for passengers going to and from the trains. [Pabst et al. vs. The Hudson & M. R. Co., 133 Atlantic Rep. 74.]

NEW HAMPSHIRE—*Liability in Collision at Railroad Grade Crossing*

A state statute requires drivers of street railway cars, before crossing steam railroad tracks, to stop their cars before crossing and to examine carefully for approaching trains. Where a street car operator, depending upon the fact that the gates were open, crossed the track and was struck by a train hidden behind a line of standing cars, he was held contributorily negligent, barring recovery. [Carleton vs. B. & M. R.R., 132 Atlantic Rep., 680.]

NEW YORK—*Examination of Railway Official in Negligence Case*

Under civil practice act, Sec. 289, the vice-president and general manager of a railroad is subject to examination by the plaintiff in a negligence case respecting the operation, maintenance, equipment and management practice of the railroad. But the court should be careful, especially in such a case, to limit the inquiries to matters clearly necessary and material, such as the facts and circumstances of the accident itself, the equipment, weight and condition of the railway car, the time schedule and the operating rules and regulations having reference to the occasion in question. Expert opinions and experimental tests do not fall within the scope of permissive examination. The railroad's claim agent is not a person subject to examination concerning operation, maintenance, equipment and management of the railroad under the act. [Warner vs. Rochester & S. R. Co., 214 N. Y. Sup., 579.]

TEXAS—*Duties to Alighting Passenger.*

A passenger signaled for a car to stop and thinking it was about to do so attempted to alight and was injured. The company was held not responsible, the court holding: "It is only at such places where it may be reasonably anticipated that a passenger may attempt to leave the car that the duty rests on the carrier to use care in allowing time for passengers to alight therefrom." [Galveston Elec. Co. vs. Marangola, 283 Southwest. Rep., 777.]

VIRGINIA—*Duty to Person Who Gives Signal to Board Car When Not at a Regular Stopping Point*

A person standing at a corner where she knew cars did not usually receive passengers signaled an approaching car, thinking it might stop, then crossed in front of the car to get on the side on which the entrance was. The car did not stop and she was struck by the rear of the car as it swung around the curve. The company was held not to be negligent as a matter of law. [Beale vs. Virginia R. & P. Co., 131 Southeast. Rep., 200.]

WASHINGTON—*Motorman May Assume Automobile Will Change Course to Avoid Collision.*

Where an automobile and a street car approach head on, the motorman may assume that the automobile will change its course to avoid a collision, where it has time and opportunity to do so. [McKinney et ux. vs. City of Seattle, 245 Pacific Rep., 913.]

Personal Items

Superintendent of Galveston-Houston Interurban Named

James W. Howard has taken over the position of superintendent of the Galveston-Houston Electric Railway, Galveston, Tex. He succeeds C. A. Brann in this position.

Mr. Howard is a graduate in mechanical engineering, class of 1921, Stevens Institute of Technology, Hoboken, N. J. After his graduation he worked for three months in the home office of Stone & Webster, Inc., at Boston. Following this he was transferred to the Fall River Gas Works Company at Fall River, Mass., where he remained for six months. He was then transferred to the Blackstone Valley Gas & Electric Company at Pawtucket, R. I., where he stayed for 3½ years as the company's engineer of industrial service. Following this connection Mr. Howard went to Houston as superintendent of the Galveston-Houston Interurban, another utility property under Stone & Webster direction. He is a native of Brooklyn, N. Y.

George W. Burgess with Houston Electric Company

George W. Burgess recently was transferred from the Boston office of Stone & Webster, Inc., to the Houston Electric Company, Houston, Tex. Mr. Burgess is connected with the traffic department of the Houston Electric Company. He is a native of Milton, Mass., and received his A.B. degree at Harvard University in 1925. In September, 1925, he joined the Stone & Webster organization at its office in Boston.

Charles Jones Made General Manager of South Shore

The appointment of Charles Jones, former electrical engineer of the Chicago Rapid Transit Company and Chicago, North Shore & Milwaukee Railroad, as general manager of the Chicago, South Shore & South Bend Railroad and the removal of the company's operating headquarters from Gary to Michigan City, Ind., have been announced by Charles W. Chase, vice-president and former general manager of the South Shore Lines. Mr. Jones has spent twenty years in various electric railway executive positions. He will succeed Mr. Chase as general manager.

The operating department of the railroad was established in Gary following the purchase of the insolvent Lake Shore system by the Insull interests a year ago. The executive offices and accounting department will remain in Gary, but the entire operating force, including the electric, maintenance and purchasing departments, will be transferred to Michigan City at once.

Thomas W. Hamilton, assistant general manager; J. K. Gray, general

superintendent, and their assistants, will continue in these capacities, but will likewise be assigned to the new headquarters.

The re-electrification program was completed on July 28. The company's new steel passenger cars are now being operated over the entire line from South Bend to Kensington.

L. E. Lippitt in Charge of Central New York Road

Laurence E. Lippitt, newly-appointed manager of the Auburn & Syracuse Electric Railroad, Auburn, N. Y., is a veteran in experience in electric railroading, and virtually has climbed from the bottom of the ladder to the top in the score of years he has been in the industry.

He is only 37 years old, one of the



Laurence E. Lippitt

youngest of electric railway executives in central New York state. He began his career as an employee of the Oneida Construction Company, which electrified the West Shore Railroad between Syracuse and Utica, a line now operated by the New York State Railways. This was in 1906.

In September, 1907, he entered the employ of the New York State Railways and served in various positions in the accounting department.

In July, 1913, he was appointed auditor of the Syracuse & Suburban Railroad, under the management of Allen & Peck, Inc.

Three years later he became auditor-treasurer of the Auburn & Syracuse Electric Railroad under the management of Peck, Shanahan & Cherry, Inc.

He held this position until July 1, 1926, when he was named general manager of the company to succeed W. J. Harvie, resigned.

The Auburn & Syracuse operates between Syracuse and Auburn and also the lines in Auburn and to Owasco Lake, where it controls Lakeside Park.

D. P. Morrison has been appointed general manager of the Dundee Corporation Tramways, Dundee, Scotland, to succeed W. T. Young. Mr. Morrison has hitherto been engineer and deputy-manager to the Gateshead & District Tramways, while Mr. Young has gone to be general manager of the Halifax Corporation Tramways.

Thomas J. Brennan, whose resignation as general manager of the Dayton, Covington & Piqua Traction Company, West Milton, Ohio, was reported in the May 1 issue of the ELECTRIC RAILWAY JOURNAL, announces that he has reconsidered his intention to sever his connection with that company and decided to remain at his old post of general manager. Mr. Brennan has served the Dayton company for more than twenty years.

Obituary

J. W. McCrosky

J. W. McCrosky, for many years in charge of electrical construction work in this country and South America for the J. G. White Company, New York, is dead at Pasadena, Cal., at the age of 57.

Mr. McCrosky was a Nebraskan and one of the first electrical engineers graduated at the University of Nebraska, where he studied under Mr. White, then a professor at the university. His first work was the electrification of the Lincoln railway system. Mr. White sent him to South America first, and later he looked after the English end of the business. Many street railways and other electric utilities were built under his supervision in different parts of the world. He served the government during the war as an expert at Washington, and following that was in charge of the foreign trade department of the Bankers Trust Company, New York. He retired from business some time ago.

F. S. Terry

Franklin S. Terry, Cleveland, Ohio, vice-president of the General Electric Company and for years a leader in the incandescent lamp business, died suddenly, of heart failure, at his summer home at Black Mountain, near Asheville, N. C., on July 23. Mr. Terry was born in Ansonia, Conn., in 1862 and held his first position with the Electrical Supply Company of Ansonia. In 1889 he organized the Incandescent Lamp Company, Chicago, and four years later took personal charge of the company.

In 1901 the National Lamp Company, of which Mr. Terry was a founder, purchased the Sunbeam Company. A few years later the National Lamp Company merged with the General Electric, Mr. Terry remaining with the National Lamp Works, Nela Park, Cleveland, Ohio. He was one of the organizers of the National Electric Light Association. Mr. Terry devoted his genius as an organizer to the betterment of the manufacture and quality of incandescent lamps.

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

More Cars for Cleveland Exhibit

Applications for space at the convention in Cleveland, Ohio, Oct 4, for the exhibit of street railway cars in special Section D, allotted to them, continue to be received by the American Electric Railway Association. The list of car exhibitors follows:

Beaver Valley Traction Company.
J. G. Brill Company.
Cummings Car & Coach Company.
Differential Steel Car Company.
Northern Ohio Power & Light Company.
Phoenix Ice Machine Company (Northern Ohio Refrigerator Car).
Pittsburgh Railways.
St. Louis Car.
Perley A. Thomas Car Works.
United Railways & Electric Company, Baltimore.

In addition the following companies have applied for track space on which to show operating maintenance of way equipment:

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

The sub-committee of the exhibit committee on decorations, L. W. Shugg chairman, will hold a meeting during the week ending Aug. 14, at which time contracts will be let covering decorations for both floors of the public auditorium and the auditorium's west wing.

The total list of exhibitors who have been assigned space to date numbers 208. The total square footage assigned amounts to 113,526. The total lineal feet of track space to be occupied by both car exhibitors and exhibitors of operating maintenance of way apparatus is 1,030 lineal feet.

An account of the proceedings of the meetings of the executive committee, including Fred Dell's report, is published elsewhere in the JOURNAL.

Midsummer Business Conditions Appear Unusually Prosperous

Business since 1923 has been, on the whole, better than for any other three-year period, except during the war, and there is no reason to expect serious depression in the near future. This is the substance of a review of national economic conditions given out by President Coolidge on Aug. 3.

Production in general is well above normal, particularly in the steel industry, which has been setting records for July. Consumption, however, is keeping up the pace, and prices remain practically unchanged.

The railroads show unusual activity. In June 4,112,150 cars were loaded, compared with 3,965,872 cars a year ago. This, of course, is an indication of the high level of general trade activity. Recent purchases of rails and inquiries for freight cars by the railroads testify to their activity.

Labor conditions are good. Wages

remain high, but commodity prices have dropped in the last few years. Thus there is not much dissatisfaction among the workers.

It is true that the textile industry continues in the doldrums, but none of the usual premonitory symptoms of depression are visible, and there is nothing to indicate any drastic decline in the general activity so prevalent at present.

Light-Weight Interurban Cars Now Operated by Gary Railway



Five new light-weight double-truck interurban cars built by the Cummings Car & Coach Company of Paris, Ill., have just been placed in service by the Gary Railways, Gary, Ind. The cars are now in operation on the Gary-Hobart and Gary-Indiana Harbor divisions. The company expects materially to reduce power requirements and running time through the use of these new cars, which were built at a cost of \$16,800 each. The new units weigh only 37,000 lb. and will replace cars of approximately 50,000 lb. in weight. Each car is equipped with all modern safety devices and seats 46 passengers. Some of the outstanding features of their construction are mahogany finished interiors, green plush upholstery, battleship gray linoleum floor covering, low entrance steps, safety windows and dome ceiling lights. Specifications follow:

Date order was placed.....March, 1926
Date of delivery.....July, 1926
Type of car.....Light-weight, double-end, one-man, two-man interurban
Seating capacity.....46
Weight:
Car body.....17,600 lb.
Trucks.....11,000 lb.
Equipment.....8,400 lb.
Total.....37,000 lb.
Bolster centers, length.....21 ft. 0 in.
Length over all.....44 ft. 8½ in.

Largest Electric Locomotive Is Sesqui-Centennial Exhibit

The largest and most powerful electric locomotive in the world has just been installed for exhibition at the Sesqui-Centennial Exposition in Philadelphia. Built by the General Electric Company for the Chicago, Milwaukee & St. Paul Railway to haul its "Olympian" and other transcontinental trains through the Rocky and the Cascade Mountains, the giant locomotive left Tacoma, Wash., a month ago on a journey of 3,000 miles to reach Philadelphia. Because of its immense size it was necessary to make several detours to reach Philadelphia, as movement under bridges and through tunnels on the direct route was impossible in several instances.

Truck wheelbase.....5 ft. 4 in.
Width over all.....8 ft. 8½ in.
Height, rail to roof.....10 ft. 9½ in.
Body.....All steel
Interior trim.....Mahogany
Headlining.....Agasote
Roof.....Arch
Air brakes.....General Electric
Armature bearings.....Sleeve
Axles.....Forged steel 4 in.
Bumpers.....Channel
Car signal system.....Faraday high voltage
Car trimmings.....Statuary bronze
Center and side bearings.....Cummings Car & Coach
Compressor.....CP-27B, 15 ft.
Control.....Double-end K-35 with line breaker
Curtain fixtures.....National Lock Washer
Curtain material.....Pantasote double coated
Destination signs.....Cummings Car & Coach
Door-operating mechanism.....National Pneumatic
Fenders.....Steel pilots
Gears and pinions.....General Electric
Hand brakes.....Drop type
Heater equipment.....Railway Utility
Headlights.....Golden Glow
Journal bearings.....3½ in. x 7 in.
Journal boxes.....Cummings Car & Coach
Lightning arresters.....General Electric
Motors.....Four GE-265, 35-hp., inside hung
Paint.....Detroit Graphite Company
Registers.....Ohmer
Sanders.....Ohio Brass
Sash fixtures.....O. M. Edwards
Seats.....Hale & Kilburn reversible
Seating material.....Push
Step treads.....Feralun
Trolley catchers.....Ohio Brass
Trolley base.....General Electric
Trolley wheels.....General Electric
Trucks.....Cummings Car & Coach, MC-62
Ventilators.....Nichols-Lintern
Wheels.....Davis steel, 26 in.

Reduction of Physical Hazards in Industry Planned

Plans looking toward an intensive study of physical hazards in industry, with a view to conclusions which will bring remedies and remove the causes of accidents, were discussed in Washington, July 14, 15 and 16, at the Industrial Accident Prevention Conference called by Secretary of Labor Davis.

Resolutions were adopted at the closing session favoring a plan of detailed industries accident reports to some department of each state, these in turn to be forwarded to the United States Department of Labor. A bill to create in the bureau of labor statistics a division of safety, to gather and study accident statistics, met with considerable favor before Congress.

Speakers at the conference stressed the need of more adequate statistics in order more accurately to judge the cause of accidents in industry, which Secretary Davis estimated are costing 23,000 lives and 2,500,000 injuries annually. Frank Morrison, secretary of the American Federation of Labor, using Secretary Davis' further estimate that 85 per cent of industrial accidents are preventable, said that 19,550 are killed needlessly and 2,125,000 injured needlessly each year. He estimated the annual wage loss due to accidents at a billion dollars.

Seattle Bids Are In

Bids for supplying 80 new street cars for the Seattle Municipal Street Railway, Seattle, Wash., were opened on July 29 by the Board of Public Works. No action has been taken on the bids as yet as there seem to be a few technical details which must be straightened out before the contract is let. The following bids were received: St. Louis Car Company, \$17,500 each; Cummings Car & Coach Company, \$20,675; J. G. Brill Company, \$19,969. It is estimated that \$1,875,000 will be required to cover the total cost of these new units. They are to be double-truck cars, with a seating capacity of 58, and are to be used in city operation.

General Electric Board Pays Tribute to C. A. Coffin

Resolutions expressing deep sorrow over the death of Charles Albert Coffin, founder of the General Electric Company, have just been adopted by the board of directors of that organization, meeting for the first time since his death on July 14. The resolutions are as follows:

"Charles A. Coffin was the founder of the General Electric Company, and throughout his life its leader. His spirit was its inspiration. He had unfaltering courage in trying times. He had modesty and self-restraint in the days of great success. He developed an art and built an industry so that his company might succeed and his country prosper. No man could do this without force and tact and sympathy. No man could do it without the capacity to select and the personality to stimulate other men. No man could do it without that modesty in his own achievements which repre-

sents the highest generosity to his associates. Truly, if an organization may be a monument to a man, then this company is a monument to him. Some of the members of this board have been associated with Mr. Coffin throughout the life of the organization, and others are indebted to him for their opportunity. For themselves and for every member of the organization, in whatever capacity, they record their gratitude, their appreciation of his service and their sorrow."

Extreme Lightness and Flexibility of Service Mark New Bus Body

Several unusual features mark the bus body recently developed by the Six-Wheel Company of Philadelphia and now being manufactured by the Alex Wolfington Company. Particularly in the matter of weight this body is inter-



Unusual Rear Entrance, Showing Taxi-Type Folding Seats

esting in its possibilities. Realizing that the proper place to obtain information regarding extreme lightness with the maximum of strength was the aircraft industry, the builders made a close study of general procedure in this field, and the body as finally evolved followed closely along airplane construction lines. The pillars themselves are copies of hollow airplane struts and the belt and head rails are modeled after the thick single wings of monoplanes. By combining these two types vertical and horizontal strength were obtained with extreme lightness.

The body subframe has been entirely eliminated, the pillars resting directly on steel channels. The side paneling is 14 gage aluminum, the body being ar-

ranged for servicing any section so that in case of collision a section can be removed and another installed.

Another outstanding feature of the body is that it is available for either city type or parlor car type of service. This is accomplished by having the center headroom 76½ in. high. By the removal of the curtains and present windows, the installation of raise type brass sash windows and outside window guards and handrails inside, over the aisle, the body becomes available for street car type service.

It will be seen from the accompanying exterior view of the body that a full headroom jack-knife street car type door has been built into the parlor car model. Two rear doors are in the body and folding taxi-type seats are available if desired, with baggage carrying space in the rear. All doors are connected with a red bullseye tell-tale light on the dash. Doors must be entirely closed before this light goes out.

The seating capacity of the body is 29 passengers, all facing forward, and the over-all length, bumper to bumper, is 27 ft. 11½ in. The body shell without seats weighs 2,702 lb. Complete with seats and ready for road service it weighs 3,518 lb. It is expected that within a few months, due to possible savings in weight of seats and hardware, it will be possible to reduce the combined weight of body and seats to approximately 3,000 lb., this being nearly 2,000 lb. less than ordinary construction.

John F. Ohmer Sizes Up the European Situation

That America has a hard battle before her if she expects to retain her present industrial supremacy was the substance of a statement recently made by John F. Ohmer, president of the Ohmer Register Company, upon his return from a three months' tour of Europe. Mr. Ohmer visited Italy, Switzerland, France and England, and was particularly impressed by the long strides which have been taken in Italy toward regaining pre-war economic prosperity. He also emphasized the fact that the English pound sterling being at a slight premium over the United States dollar shows the imposing financial stability of Great Britain. In spite of these facts, however, Mr. Ohmer believes that, with sane legislation and large scale production, the United States will continue to hold her commanding position in the commerce of the world.



Combination City and Parlor Car with Aluminum Body

Bridgeport Brass Ads Take First Place in Competition

A selection of the historical advertisements by the Bridgeport Brass Company, Bridgeport, Conn., similar to the ones which have appeared currently in *ELECTRIC RAILWAY JOURNAL*, received first prize for "the best use of art in industrial advertising" at the annual convention of the National Industrial Advertisers Association, held June 21 to 25 in Philadelphia. The three types of selling appeals which the Bridgeport company entered were a series of their Phono-Electric advertisements, a similar series on brass products and a third on plumbing fixtures.

Rolling Stock

Los Angeles Railway, Los Angeles, Cal., has placed an order for three more single-deck, 29-passenger buses. One of these is a six-cylinder gas-electric bus to be built by the Yellow Truck & Coach Manufacturing Company, equipped with air brakes, and the other two are six-cylinder Fageol buses.

Lincoln Traction Company, Lincoln, Neb., is double-ending its Birney cars in order to permit of the elimination of loops and wyes and the lessening of track maintenance costs thereby. Reversible seats with full leather upholstery and floors covered with linoleum will represent the company's efforts to make car interiors more inviting.

Track and Line

Winnipeg Electric Company, Winnipeg, Man., has completed plans and placed orders for material for the construction of double track on Osborne Street extension and Memorial Boulevard from Broadway to Portage. This work, it is expected, will be completed by Oct. 1. Special construction is necessary in connection with this work. A new grand union will be installed at Broadway and Osborne and a double wye at Portage and Memorial Boulevard. The tracks will be laid on concrete foundation with asphalt pavement and will be insulated with elastite rail filler, which eliminates the use of stone liners and reduces track noises. The city proposes to carry out a scheme of ornamental lighting standards which will at the same time be suitable for supporting the overhead trolley wires, thus eliminating the use of special poles for trolley wiring.

Wisconsin Gas & Electric Company, Kenosha, Wis., has applied to the Common Council for permission to lay a single track on Center Street to extend from Sixth Street to Washington Avenue. If the company's request is granted this new line will speed up railway service during rush hours in the downtown district, as cars from the north will then be permitted to be returned to that section without traveling to the west limits of the city.

Williamsport Passenger Railway, Williamsport, Pa., has submitted to the Council plans for the new trackage and

street improvements. The company desires additional franchises as a result of rerouting and the relocation of the carhouse. The company also asks to install new switches and rebuild and replace track on Basin, Fourth, East Fourth, Washington, West Fourth and Beeber Streets.

Lincoln Traction Company, Lincoln, Neb., with the permission of the City Council, will substitute a single track for a double track on a part of its line that serves the state fair.

Los Angeles Railway, Los Angeles, Cal., has received a consignment of 825 tons of 116-lb. steel girder rail, part of the 2,000 tons ordered from the Bethlehem Steel Company. The rail will be used in the extensive track reconstruction program on which the railway is now engaged. At present there are four large jobs under way. The old 60-lb. rail on the West Adams line is being replaced with 116-lb. grooved girder rail.

Trade Notes

Triumph Electric Corporation, Cincinnati, Ohio, has been organized to take over the good will, designs, records, patent rights and inventions of the Triumph Electric Company. So far as practical the new company will retain the old personnel and Triumph customers are promised prompt service on existing installations and the same high quality in new product for which the old company was so well known. The new company will specialize on its TR self-start automatic heavy-duty motor and at the same time be in a position to supply its other lines of electrical and refrigeration products.

Charles W. Harris, San Francisco, has been selected to build up a sales organization for the Dunn Painting Machine Company of the same city. The sales division of the company will be located on the second floor of the Dettner Building, 335 Howard Street, San Francisco, Cal.

R. J. Tiedeken has been appointed raw material salesman in the Philadelphia territory of the Bridgeport Brass Company of Bridgeport, Conn. Mr. Tiedeken has had considerable experience in the manufacture and sale of brass goods, having been associated with several different firms in that field.

Metal, Coal and Material Prices

Metals—New York		Aug. 3, 1926
Copper, electrolytic, cents per lb.	.....	14.50
Copper wire, cents per lb.	.....	16.25
Lead, cents per lb.	.....	8.925
Zinc, cents per lb.	.....	7.75
Tin, Straits, cents per lb.	.....	65.00
Bituminous Coal f.o.b. Mines		
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons	.....	\$4.675
Somerset mine run, Boston, net tons	.....	2.075
Pittsburgh mine run, Pittsburgh, net tons	.....	1.75
Franklin, Ill., screenings, Chicago, net tons	.....	1.825
Central, Ill., screenings, Chicago, net tons	.....	1.50
Kansas screenings, Kansas City, net tons	.....	2.50
Materials		
Rubber-covered wire, N. Y., No. 14, per 1,000 ft.	.....	\$6.25
Weatherproof wire base, N. Y., cents per lb.	.....	18.00
Cement, Chicago net prices, without bags	.....	2.10
Linseed oil (5-bbl. lots), N. Y., cents per lb.	.....	12.6
White lead in oil (100-lb. keg), N. Y., cents per lb.	.....	15.50
Turpentine (bbl lots), N. Y., per gal.	.....	\$0.95

New Advertising Literature

Condit Electrical Manufacturing Corporation, Boston, Mass., asks in its most recent circular, "Do You Need a Chaperon?" It then completes the analogy by pointing out that Condit M-4 safety switches equipped with thermal cutouts provide complete safety in supervisory control for motors up to 5 hp. and 600 volts. Industrial Handbook 5007 provides information on these switches.

Hill, Hubbell & Company, San Francisco, Cal., have issued a booklet which comprises 77 questions and answers on Bitulumin and other aluminum paints and metal primers. The treatment of the information given is such that it will satisfy both the executive and the scientific expert, the answers having been couched in language as non-technical as possible, although containing accurate information on practically every phase of metal painting.

Roller-Smith Company, New York, N. Y., has issued bulletin No. 550, covering new type SR line of relays. These type SR relays supersede the old Imperial type relays and have many marked advantages over the old type. The scales are longer, the accuracy is much greater, the torque has been increased several times and the new 7½-in. round pattern style of case matches the type SA and type SD lines of indicating instruments. Complete technical details are given in the bulletin.

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has issued special publication No. 1734, a 55-page discussion of regulators for generator-voltage control. Data contained in this pamphlet have not heretofore been published, in particular the sections on rheostatic type automatic voltage regulators and special regulator applications having just been released by the Westinghouse company.

General Electric Company, Schenectady, N. Y., has issued booklet GEA 441, entitled "Gas-Electric Drive for Buses." In this publication the various advantages of single motor and dual motor electric drives are discussed, and the features which all gas-electric equipment has in common are outlined. The subject is considered generally rather than individually in the matter of manufacturers of this type of vehicle.

American Brown Boveri Electric Corporation, New York, N. Y., has issued circular No. 400, which describes the newly developed electric locomotive with individual axle drive. The general advantages of this type of drive are given as well as a number of specific ways in which the Brown Boveri development has attacked the various problems.

J. G. Brill Company, Philadelphia, Pa., has issued the second reprint of a series of advertisements from *ELECTRIC RAILWAY JOURNAL* setting forth the advantages of modern cars.

Copperweld Steel Company, Rankin, Pa., has issued revised engineering data and wire tables on messenger, guy and span wire for insertion in the standard loose-leaf binder which it furnishes for all of its engineering data sheets.

Equip those modern cars with modern hand brakes

When specifying equipment for those modern cars, do as so many other leading railways have done—specify Peacock Staffless Brakes.

They have a demonstrated capacity for winding in 144 inches of chain—so that even though chains are slack and brake shoes worn, adequate braking is assured at all times. They are light in weight and occupy little platform space.

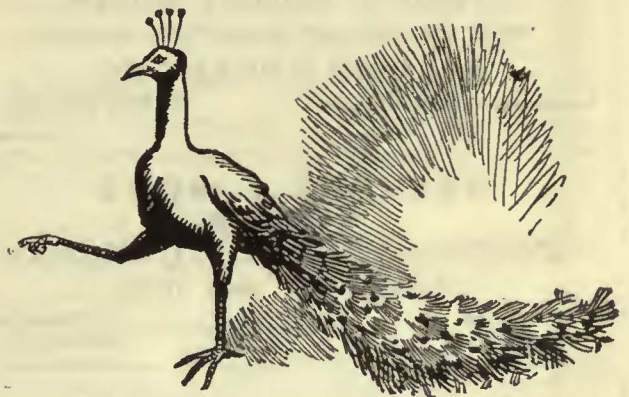
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Coin Counting and Sorting Machines

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Lever-Operated and Slip Change Carriers

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

A Single Segment or a Complete Commutator

is turned out with equal care in our shops. The orders we fill differ only in magnitude; small orders command our utmost care and skill just as do large orders. CAMERON quality applies to every coil or segment that we can make, as well as to every commutator we build. That's why so many electric railway men rely absolutely on our name.

Cameron Electrical Mfg. Co., Ansonia, Connecticut



Gets Every Fare

PEREY TURNSTILES or PASSIMETERS

Use them in your Prepayment Areas and Street Cars

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UNA RAIL BONDS-RAIL JOINTS
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 WELDING ROD
UNA Welding & Bonding Co.
 Cleveland, Ohio.

Your Name

in this space in all issues where larger display space is not used backs up your advertising campaign and keeps your name in the alphabetical index.



GODWIN Steel Paving Guards

Proven by service to economically prevent seepage and disintegration of street railway paving.

Write for Illustrated Catalog No. 20

W. S. GODWIN CO., Inc.
 Race and McComas St., Baltimore, Md.



"I buy Acme in sheer self-protection" says the P. A.



I could save a little on magnet wire, but with Acme we get better production, and the shop doesn't complain of defects; so I feel I'm "sound" in buying it, even on a slightly higher quotation.

ACME MAGNET WIRE

Saves Time in the Shop

To the observer Acme Magnet Wire may look about the same as four or five other brands. But, to the people in the shop whose job it is to work it into the finished product it's another story. They notice very soon that

Acme Magnet Wire

- is firmly spooled, making possible rapid, accurate winding;
- runs smooth and uniform from end to end;

Acme Wire Enamel

- is applied in an even film;
- is extremely flexible under all sorts of winding conditions;

Acme Cotton and Silk Coverings

- are wrapped firmly, closely, evenly and continuously;
- will not open up on small diameter winding

There are many points about Acme Magnet Wire which are cause for constant satisfaction after the product is in service, but we mention here only the ones that smooth the way of production in the shop. . . the ones that justify the payment of a little more than the lowest competitive price.

The complete story of the tests Acme Magnet Wire have to undergo is contained in our

Magnet Wire Specifications No. 3-J

Every Purchasing Agent should have this folder on file, and should read it before filing. May we send you yours now?

THE ACME WIRE CO.

Main Office and Plant, NEW HAVEN, CONN.

New York, 52 Vanderbilt Ave.
 Boston, 80 Federal St.

Chicago, 427 West Erie St.
 Cleveland, Guardian Bldg.



Goodyear-equipped motorbus of Detroit Motorbus Company, on one of their regular routes

GOODYEAR

Copyright 1926, by The Goodyear Tire & Rubber Co., Inc.

M I L E A G E

Tells the Story

Detroit Motorbus Company operates 357 buses in city, suburban and private hire services.

All of them are equipped with Goodyear Tires—242 of them on Goodyear Pneumatic Bus Tires.

Both the Company and our Detroit Branch keep a very accurate record of the tire performance of this fleet, the miles each tire runs, the tire cost per bus-mile and per passenger-mile.

These records show a uniformly high mileage for Goodyear Tires in this exacting service.

Among the exceptional mileages registered is the record of Goodyear Pneumatic Bus Tire No. 296, which gave 73,152.9 miles

—never punctured and never taken off its original position—on a rear wheel, where it got the worst of the load and the traction.

Others include No. 186, Goodyear Pneumatic Cord Bus Tire, which gave 58,495.6 miles of service; No. 528, 65,667.6 miles; No. 530, 51,075.1. Any number of them show on the cards from 40,000 to 50,000 miles.

Goodyear Tires, made with that extra-durable, extra-elastic fabric developed by Goodyear for Goodyear Pneumatic Tires—SUPERTWIST—provide the last word in active, tractive, secure and long-wearing service—low tire cost per mile. Only Goodyear Tires are made with SUPERTWIST—yet they cost you no more.

For every Goodyear Cord Bus Tire there is an equally fine Goodyear Tube, built especially to the needs of bus service

BUS TIRES

Made with SUPERTWIST



Transportation Accounting

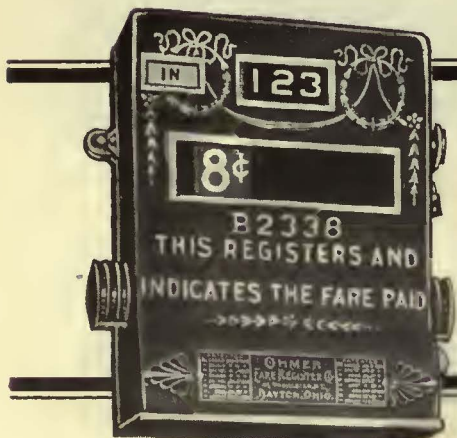
An Ohmer Fare Register in an electric railway car or a motorbus records each sale of transportation more accurately, more quickly and more permanently than could an expert accountant stationed at a desk at the point where the sale is made.

The Ohmer Fare Register is a mechanical accountant which plainly indicates the amount and the class of the fare paid and records it in the form of a condensed detailed printed report which remains forever a permanent record of the day's business.

Ohmer Fare Registers are made in many types and sizes with capacities for recording any possible cash or ticket denomination and with operating equipments adapted to all types of cars and buses.

Ohmer Fare Register Company

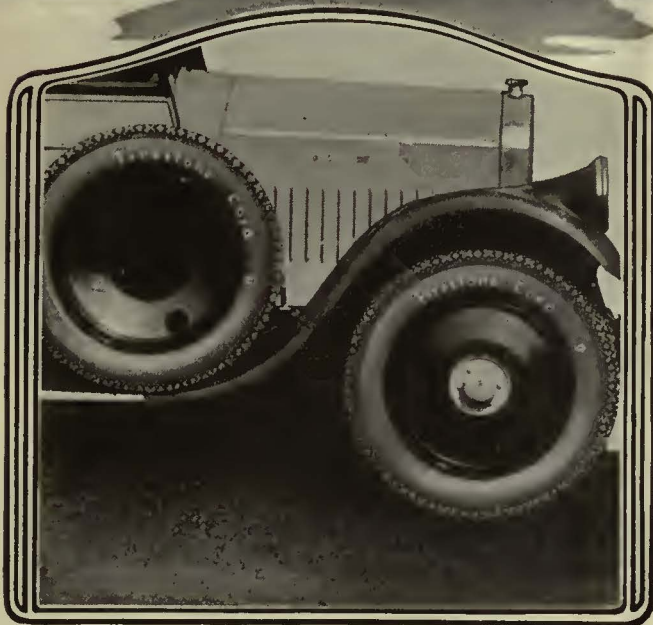
Dayton, Ohio, U. S. A.



OHMER
 REG. U.S. PAT. OFF.
FARE REGISTERS



Part of the Firestone equipped Pierce-Arrow Buses owned and operated by the company quoted below



A Close View of the Tire Equipment

“Firestone Makes it Possible for us to Maintain Accurate Schedules”

“Having just completed an audit of our books for the 1925 fiscal year just ended, we feel very gratified to find that our tire mileage average has been slightly in excess of 24,000 miles per tire, which was far beyond

our expectations. I am doubly pleased with this performance, as it has occasioned no road delays to our coaches due to tire failures. We feel that only by this service, has it been possible for us to maintain accurate schedules with our fleet of coaches.”

In Firestone Bus Pneumatics only are Gum-Dipped Cords used—the exclusive Firestone rubber-insulating process that adds greater strength to every cord and fiber—reducing costly internal friction and heat—increasing tire mileage and giving greater operating economy. Let the Firestone Bus Tire Engineers help your fleets maintain schedules at lowest cost per mile. See nearest Firestone dealer.

MOST MILES PER DOLLAR



Firestone

Gum-Dipped Bus Pneumatics

AMERICANS SHOULD PRODUCE THEIR OWN RUBBER. . . *Harvey Firestone*

HASKELITE

HASKELITE

Haskelite, the structural plywood. Cemented with blood albumen glue, producing a waterproof and practically unbreakable bond.

Illinois Traction System Cars with Haskelite Roof, Floor and Truss Planks.



Car floors deserve increased attention

IN DESIGNING modern equipment, the floor of the car deserves more consideration than it has been given in many cases. It may be improved in appearance. We can't speak positively on that point. But we do know that it can be greatly reduced in weight with a corresponding reduction in cost of operation.

A typical car can show a saving in weight of 200 pounds by replacing the 13/16-inch fir sub-floor with 1/2-inch Haskelite panel. That one change saves \$12.00 a year in operating cost on every car, the equivalent of 170 free rides.

The Haskelite sub-floor can be furnished in large panels cut to size, making it simple and economical to install. Its strength is greater than fir and it retains its original strength through a long, useful life.

Haskelite is also being used by scores of progressive companies for roofs, headlining, sideling, seatbacks, and so forth; and Plymetl, the armored plywood, is rapidly becoming standard practice for side panels, dash, inside vestibule lining, and so forth. When these materials are properly applied, the total saving in weight can easily reach 935 pounds per car, or an annual operating economy of \$56 per car.

Are you utilizing these modern construction materials to the fullest extent? Blueprint booklets showing applications to car and bus construction will be sent on request.

HASKELITE MANUFACTURING CORPORATION

133 W. Washington Street, Chicago, Illinois

Canadian Representatives: Railway and Power Engineering Corp., Ltd.,
Toronto, Ont. and Montreal, Que.

PLYMETL

Plymetl, a plywood or pulp wood core with thin sheets of stretcher levelled steel glued to one or both faces. Maximum strength and minimum weight.

PLYMETL



A PORTION of one of the main assembly lines where steel, wood and expert craftsmanship are here wrought into form, making every complete unit a high standard of strength, appearance and comfort.

The AUTO BODY Co.

LANSING •

MICHIGAN

Designers and Manufacturers of Motor Coach and

Bus Bodies, Open and Enclosed Automobile Bodies

Gibraltar

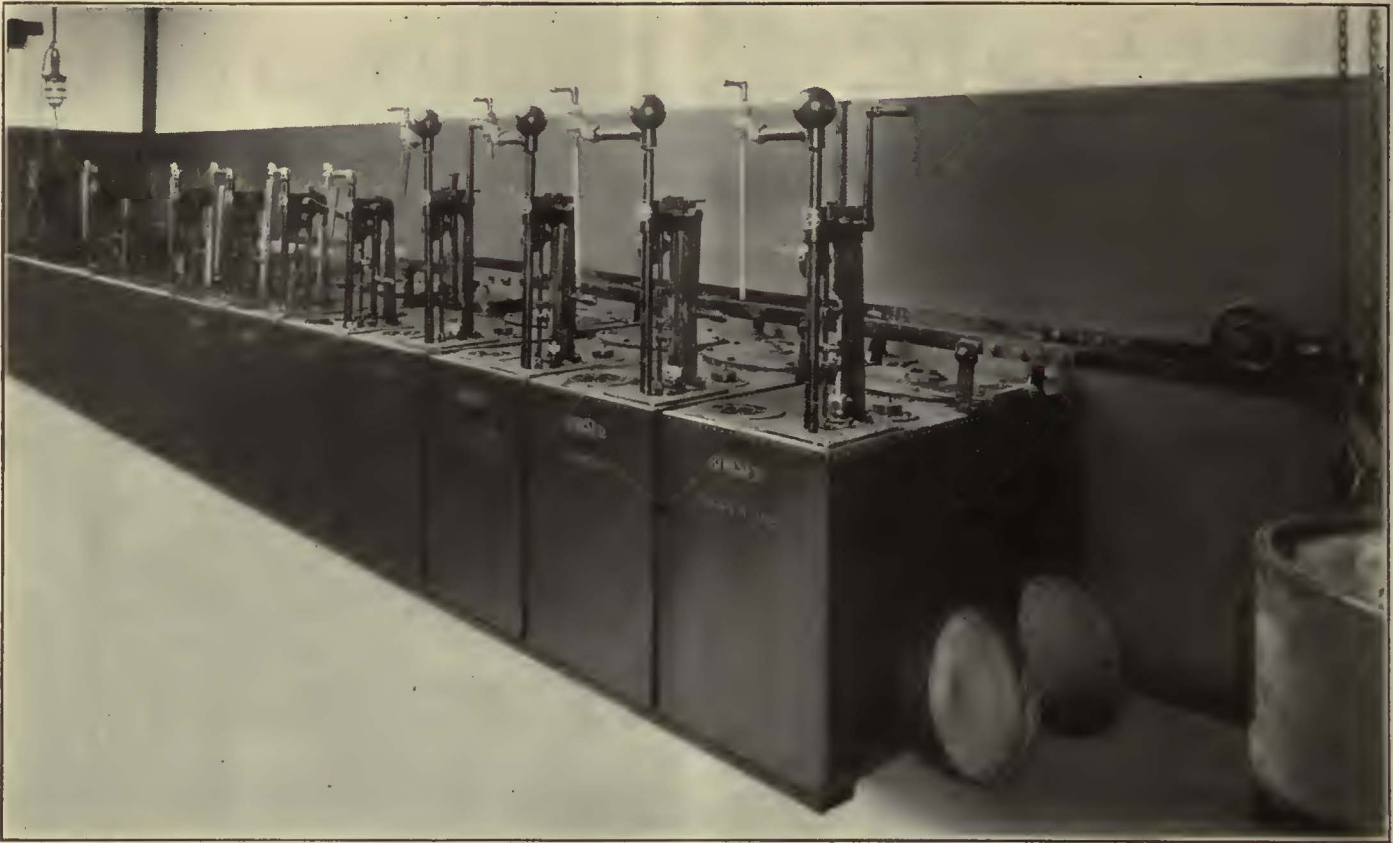
Trademark Registered in United States and



Bodies ~

Canada. Applied for in foreign countries





Interior of George St. Terminal,
Charlestown—Boston Elevated
Railways.

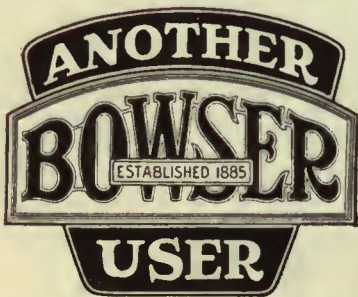
Leaky Spigots Lose Dividends

Drum and barrel storage is vastly wasteful, whether it is paint oils or lubricants. Such losses come out of net earnings and dividends, and are absolute waste.

The Boston Elevated job, pictured here, was engineered by Bowser, after study of operating requirements.

Your needs can be similarly studied, analyzed and provided for, by men who have helped electric and steam railways to economy—and to better lubrication!

Give us a chance and we'll prove our case before a dollar is spent—address Dept. 51, please.



S.F. BOWSER & COMPANY, Inc.
Pump and Tank Headquarters
FORT WAYNE, INDIANA.

A Quality Specification!

March 10, 1923

ELECTRIC RAILWAY JOURNAL

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

Details of Philadelphia Order for 576 Cars

On Jan. 22 the board of directors of the Philadelphia Rapid Transit Company authorized the lease and purchase by car trust agreement of 576 cars of which 520 will be passenger cars. A brief note in regard to the order, which is said to be the single order for trolley cars in this country, was made in an issue of the ELECTRIC RAILWAY JOURNAL.

MANUFACTURERS OF EQUIPMENT. TOGETHER WITH TYPE FURNISHED

Air brakes	G.E. Co.
Armature bearings	Plain
Axles	Carnegie Steel Co.'s heat treated
Bumpers	Six-inch Channel reinforced
Car signal system	Brill's standard and push button contact bases—Faraday Type-E
Car trimmings	
	Malleable and bronze statuary finish
Center and side bearings	Brill's standard
Conduits and junction boxes	Galvanized
Control G.E. 2-K-68 with ratchet attachment	
Couplers	Drawbar pockets
Curtain fixtures	Curtain Supply Co.'s No. 88
Curtain material	Double face pantasote
Destination signs	Hunter
Door operating mechanism	
	National Pneumatic Co.
Wheelguards	H. B. Life Guard
Gears and pinions	Tool Steel Gear & Pinion Co.
Headlights	Peacock
Heater equipment	Consolidated Car Heating Co.'s
	Crouse Hinds semaphore lens
Headlights	Plain
bearings	Plain cast-iron

1040
"Tool Steel" gears
and pinions

go on this new equipment.

A quality specification.

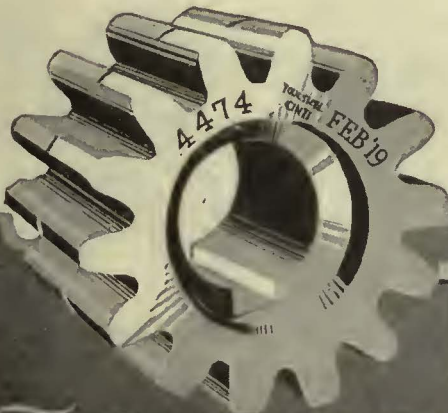
1923—1040 sets "Tool Steel"

1925— 200 sets "Tool Steel"

1926— 100 sets "Tool Steel"

Philadelphia believes in getting the best when they buy.

The Tool Steel Gear & Pinion Company
Cincinnati, Ohio



TOOL-STEEL QUALITY GEARS AND PINIONS

The Standard of Quality

“NATIONAL” TUBULAR STEEL POLES

Appearance—Plus Quality

THE tendency to improve the character of overhead construction by using Tubular Steel Poles is reflected in statistics prepared by the American Electric Railway Association. Figures compiled each year since 1916, for 25 of the larger electric railway companies indicate an increasing preference for the type of pole of maximum dependability. For electric traction construction ultimate economy has indisputable advantages over initial economy and these statistics show a fuller realization of this fact.

More consideration is being given today to Safety—Strength—Durability—Upkeep—Appearance—and General Dependability. Consequently, Traction Companies are finding it worth while to build with greater foresight; and when this principle guides in the selection, “NATIONAL” Tubular Steel Poles have usually been given preference.

In localities, as illustrated here, where civic dignity and beauty are in high esteem, “NATIONAL” Tubular Steel Poles are most satisfactory from every standpoint.

Ask for Bulletin No. 14—“NATIONAL”
Tubular Steel Poles

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

GENERAL SALES OFFICES: FRICK BUILDING

DISTRICT SALES OFFICES

Atlanta Boston Chicago Denver Detroit New Orleans New York Salt Lake City Philadelphia Pittsburgh St. Louis St. Paul
Pacific Coast Representatives: U. S. Steel Products Co. San Francisco Los Angeles Portland Seattle
Export Representatives: U. S. Steel Products Co. New York City



Milwaukee

THIS De Luxe Coach on the Milwaukee-Racine-Kenosha interurban line of the Milwaukee Electric Railway & Light Company is equipped with "STANDARD" Rolled Steel Wheels.



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

STANDARD STEEL

WORKS COMPANY

PHILADELPHIA, PA.

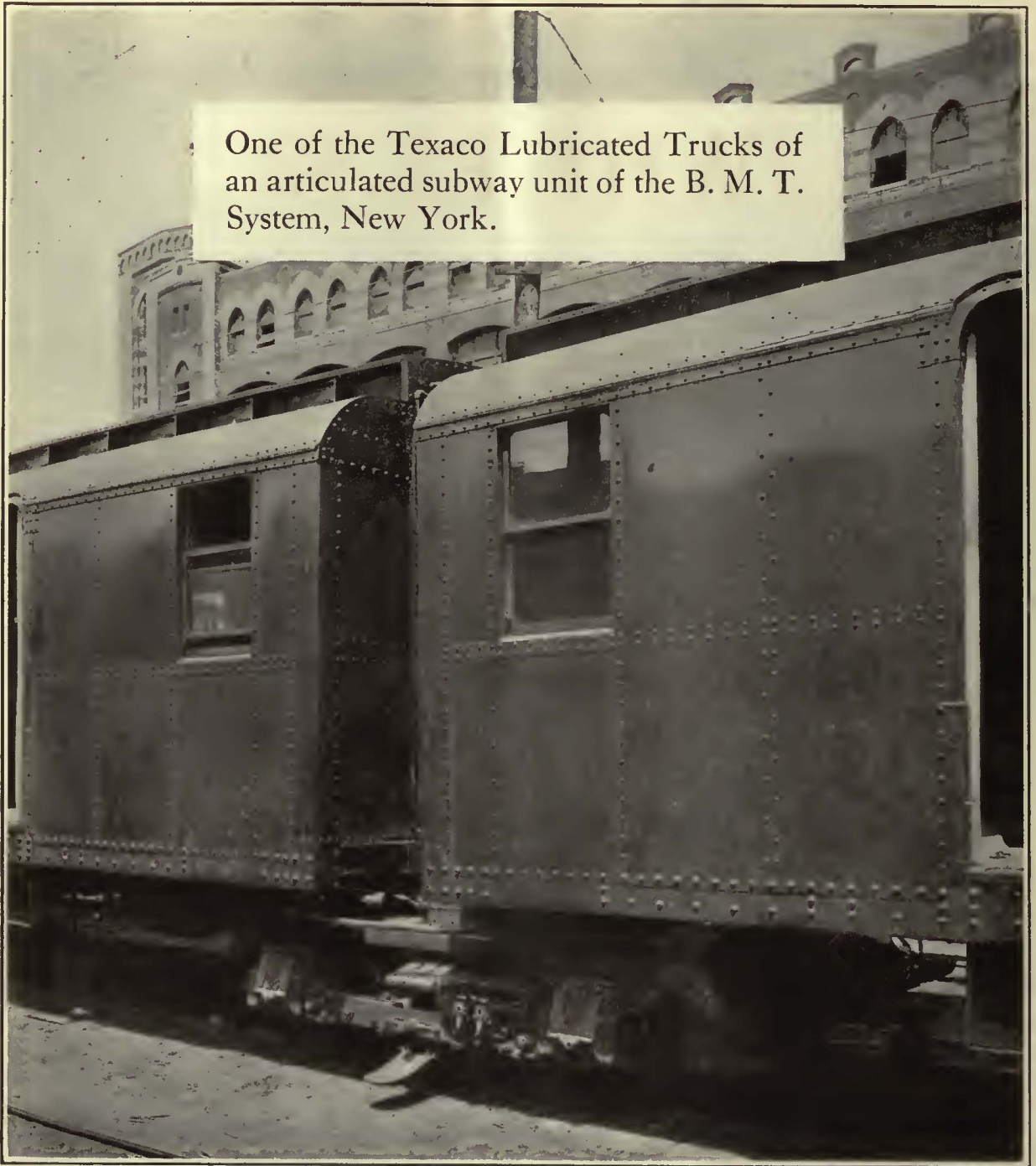
BRANCH OFFICES:

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 PITTSBURGH, PA.
 LOS ANGELES, CAL.
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WORKS: BURNHAM, PA.



One of the Texaco Lubricated Trucks of an articulated subway unit of the B. M. T. System, New York.

TEXACO



The Chosen Lubricant
of **ELECTRIC RAILWAYS**

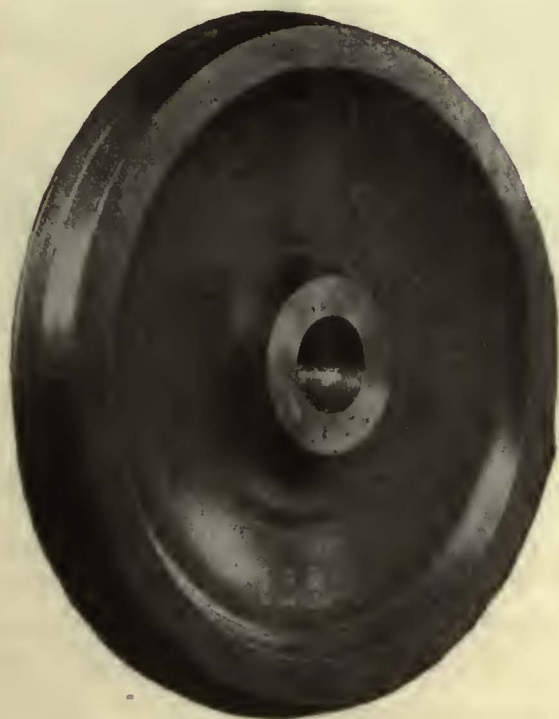


The Texas Company, U. S. A., 17 Battery Place, New York City
OFFICES IN PRINCIPAL CITIES

CARNEGIE

Wrought Steel

WHEELS



for minimum trouble
for minimum expense
for maximum mileage
for maximum safety

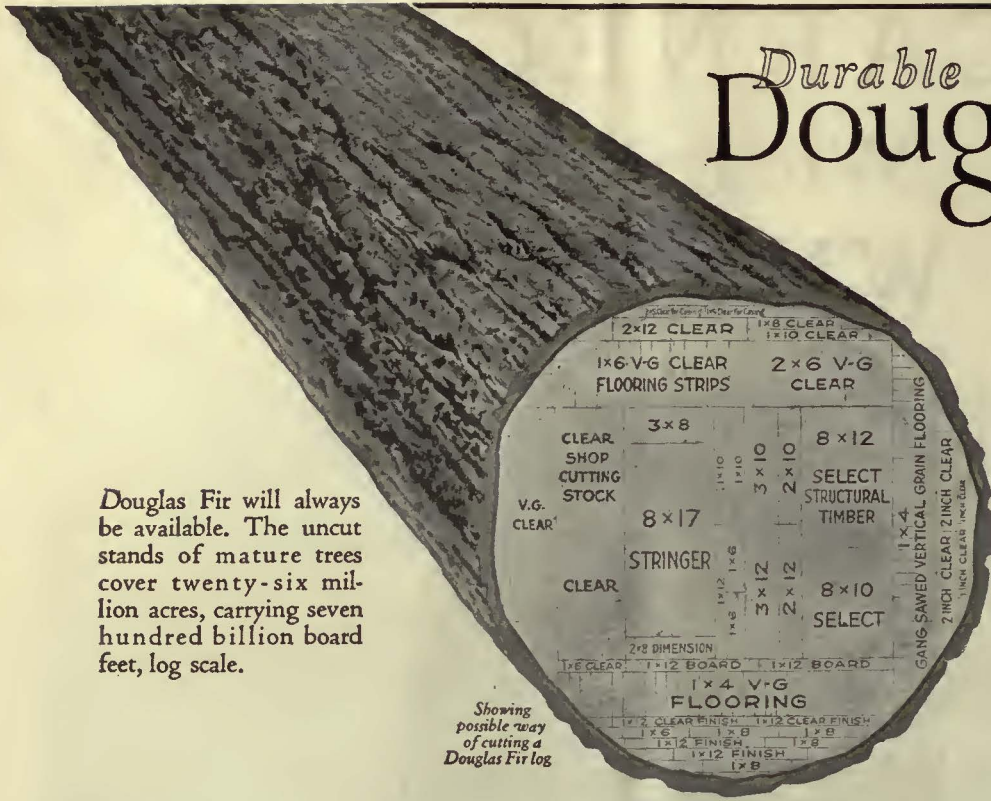
CARNEGIE STEEL COMPANY

General Offices - Carnegie Building - 434 Fifth Avenue

PITTSBURGH



PENNSYLVANIA



Douglas Fir will always be available. The uncut stands of mature trees cover twenty-six million acres, carrying seven hundred billion board feet, log scale.

Durable Douglas Fir

AMERICA'S PERMANENT LUMBER SUPPLY

for Railway Purposes!

Durability—strength. Resistance to weathering. Ability to hold paint. Resistance to checking. Great size and length. Freedom from warping. Light weight—stiffness—name any required property in wood for railroad purposes—and Douglas Fir has it!

Available in every A. R. E. A. combination

EVERY ONE of the sixty-eight different combinations of the coded structural grades of the American Railway Engineering Association can be made in Douglas Fir.

Three structural grades, three timber grades and four special provisions adopted by the mills producing Douglas Fir make this possible.

Usual sizes and lengths are always available at short notice.

Special sizes, including timbers forty inches high and more than a hundred feet long, can readily be supplied *on grade*.

For car construction, Douglas Fir offers great savings, due to its light weight and durability,

with lower maintenance costs and definitely lower operating costs per ton mile. Douglas Fir resists mechanical wear as well as decay and is, therefore, equally suitable for longitudinal and end sills, nailing sills, running boards, roofing, siding, lining, decking, grain strips, nailing boards and sub floors.

Decking in cattle cars lasts longer when of Douglas Fir, as it is relatively non-absorbent and will withstand hard wear.

For tanks, towers, signal equipment, bridges, trestles, car construction, buildings, cross arms, ties — in fact for every railroad purpose, Douglas Fir is America's most useful softwood.

Write for booklet — use the coupon.

WEST COAST LUMBER BUREAU, 5562-T STUART BUILDING, SEATTLE, WASHINGTON

Durable Douglas Fir

AMERICA'S PERMANENT LUMBER SUPPLY

R-39
Send me your forester's booklet on Douglas Fir

NAME _____

COMPANY _____

ADDRESS _____

To WEST COAST LUMBER BUREAU, 5562-T Stuart Bldg., Seattle, Wn.

Important West Coast Woods — DOUGLAS FIR · WEST COAST HEMLOCK · WESTERN RED CEDAR · SITKA SPRUCE

Fort Snelling - Mendota Bridge across Minnesota River near Minneapolis will contain 76,000 cubic yards of concrete. Length 4119 feet. Height, from normal low water to bridge floor, 120 feet.

Walter H. Wheeler, Designing and Consulting Engineer with the C. A. P. Turner Company Associated, prepared the plans and specifications for this job, and is also supervising the construction.



These Engineers Get Quality Concrete Using Economical Mix

QUALITY control jobs now attract attention not because there are few of them, but because there are so many. The Fort Snelling-Mendota Bridge now being built across the Minnesota River near Minneapolis is one of the outstanding examples.

Those in charge of this job are following this basic principle: Assuming a workable mix, the strength of the concrete is determined by the relation which the volume of mixing water bears to the volume of cement.

Field tests, made regularly during the progress of the work, show that predetermined strengths are being consistently obtained.

In addition, grading and proportioning of aggregates within the range of workability are giving the most economical mix and a fine, uniform texture.

Further information about field control will be gladly sent on request, if you will write the nearest office listed below. Ask for a copy of "Design and Control of Concrete Mixtures." There is no obligation.

PORTLAND CEMENT ASSOCIATION

A National Organization to Improve and Extend the Uses of Concrete

Atlanta	Denver	Lincoln, Nebr.	Oklahoma City	Salt Lake City
Birmingham	Des Moines	Los Angeles	Parkersburg	San Francisco
Boston	Detroit	Milwaukee	Philadelphia	Seattle
Chicago	Indianapolis	Minneapolis	Pittsburgh	St. Louis
Columbus	Jacksonville	Nashville	Portland, Oreg.	Vancouver, B. C.
Dallas	Kansas City	New Orleans	Richmond, Va.	Washington, D. C.
		New York		

Big—Bigger—Biggest!

Last year's convention was *big!*

This year's will be *bigger!*

In fact actual Exhibitors' space reservations already made indicate that it will be the *biggest* Convention of the American Electric Railway Association.

It all means more interest, more optimism—and *more buying* by the electric railway companies.

and to get the biggest benefits from the Annual A. E. R. A. Convention — use

ELECTRIC RAILWAY JOURNAL'S *Complete Convention Service*

New attractions for the reader—and new opportunities for the advertiser. A service which will afford the only effective and permanent meeting place for buyer and seller. It will enable you to put *your* message before the entire railway field, the stay-at-homes as well as the Delegates, before, during and after the Convention. This *is* complete service.

Advertising rates on request.

Annual Convention Number dated September 25

A complete volume on the theme of "Modern Cars Pay," written by recognized authorities. The big opportunity to ally your products with the thinking of the industry in the biggest single sales factor in the electric railway industry.

Three Daily Convention Issues dated October 5, 6, 7

The only way to reach every delegate at the Convention. Distributed on three mornings at the breakfast table and at the pier.

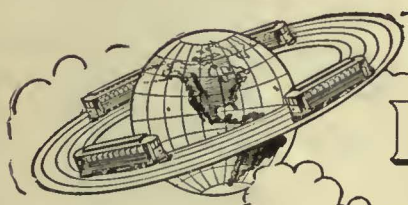
Annual Convention Report Number dated October 9

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

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

Member A.B.C., A.B.P., A.E.R.A.

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



Barron G. Collier

INCORPORATED

CANDLER BLDG. NEW YORK

ELECTRICAL INSULATION

MICANITE and **EMPIRE**

- Micanite Sheets for all Purposes
- Micanite Commutator Segments
- Micanite Commutator Rings
- Micanite Tubes and Washers
- Linotape, Seamless or Sewn Bias
(Yellow or Black Varnished Tapes)
- Empire Oiled Cloths and Papers
(Yellow or Black)
- Compounds, Varnishes, Etc.

Send for catalog and helpful booklet on Commutator Insulation and Assembly

MICA INSULATOR COMPANY
Largest manufacturers in the world of mica insulation.

Established 1893

New York: 68 Church St. Chicago: 542 So. Dearborn St.
Works: Schenectady, New York. Victoriaville, Canada; London, England

DIXON'S ALUMINUM-GRAPHITE PAINT

Prepared primarily to meet the requirements of gas, oil and industrial companies and particularly recommended wherever a light colored paint is desired.

Back of this new product stands our century-old reputation, as well as 65 years' experience in paint manufacturing.

Dixon's Aluminum Graphite Paint is composed of aluminum and flake silica-graphite as a pigment and boiled linseed oil as a vehicle. The aluminum is of flake formation and thus easily combines with the flake graphite, lapping over like fish scales and providing a covering of unusual elasticity and durability.

The value of flake-graphite as a pigment has been thoroughly proven and is generally accepted. The combination of aluminum and graphite results in a paint that is not affected by gases, fumes, and which resists sunlight, air and moisture. Reflecting light and heat, it will keep the temperature of tanks, etc., considerably lower than is possible with darker paints.

Ask for Circular 180-AB.

Additional information and prices will be sent upon request.

Joseph Dixon Crucible Company

Established 1827  Jersey City, N. J.

PANTASOTE

Trade Mark

Seat and Curtain Materials
There is no substitute for Pantasote

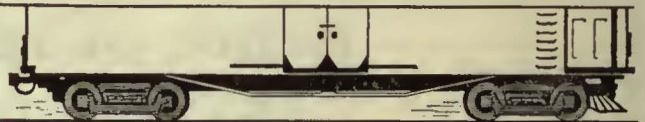
AGASOTE

Trade Mark

Roofing—Headlining—Wainscoting
The only homogeneous panel board

*standard
for electric railway cars
and motor buses*

The PANTASOTE COMPANY Inc.
At 46th, 250 Park Avenue Street
NEW YORK



Never any Drippings from a Phoenix Electric Refrigerator Car

Ice Refrigerator cars can not be run over elevated tracks in cities because of the drippings' from melting ice. Phoenix Electric Refrigerator Cars are free from this objection.

In this connection, they present three other big advantages over ice refrigerator cars.

The cars last much longer because the floors and walls are dry.

They are more efficient because dry floors and walls are better insulators against heat than water-soaked floors and walls.

Dry air makes for better refrigeration than moisture-laden air of the same temperature.

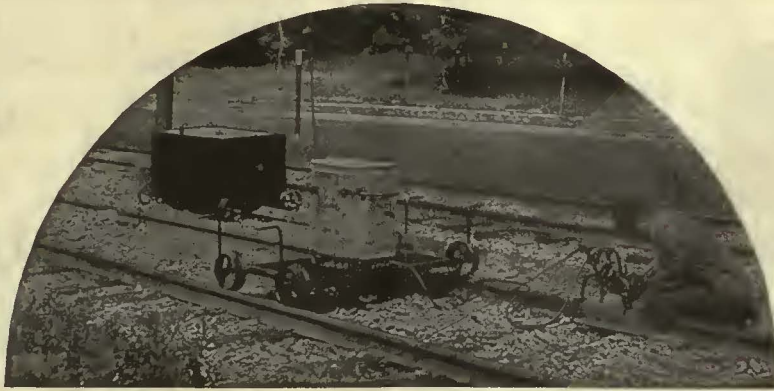
Write for complete descriptive literature.

The Phoenix Ice Machine Co.
Cleveland, Ohio



PHOENIX ICE MACHINE

**Type SR
Bonding
Outfit**



*Of course you're interested in bonding
but—in the shortest time possible*

The illustration above shows the Erico outfit that reduces bonding costs for it cuts down time losses in holding up traffic.

The light weight and convenient size of each element of the Type SR Bonding Outfit permits almost instant removal of the equipment.

Hence your interruptions of traffic are reduced to minimum and the time loss of your bonding crew is greatly reduced.

The brazing process of application is simple and sure. Each bond terminal is united to the rail in a welded contact of eight times the cross sectional area of the bond.

Due to the strength of the large area of welded contact, and the absence of injurious heat, Brazed Bonds give long service with practically no maintenance.

Send for booklet explaining complete details.

THE ELECTRIC RAILWAY IMPROVEMENT CO.
2070 East 61st Place, CLEVELAND, OHIO

What Nuttall BP Gears can do for you!



They will stand Four Times the Load

The BP Treatment increases the surface strength of a gear from 60,000 to 240,000 pounds per square inch. Consequently, Nuttall BP gears will carry a load that would break an untreated gear.

R.D. NUTTALL COMPANY
PITTSBURGH  PENNSYLVANIA



Nuttall Helical
Gear Set

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.



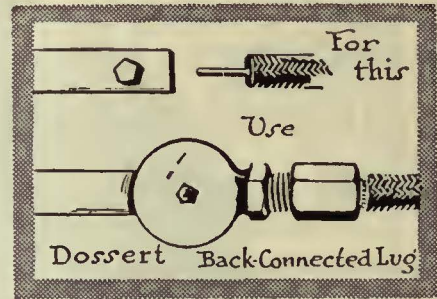
R 11 Double Register

Both our latest single and double registers are now equipped for electric as well as mechanical hand or foot operation.

Full Electric Operation of Fare Registers

A completely satisfactory fare registration system is one that has the confidence of the public, the conductor and the accounting department. The simplicity and accuracy of International Registers maintained for more than thirty years, is combined in the later types with the extra speed and convenience of electric operation.

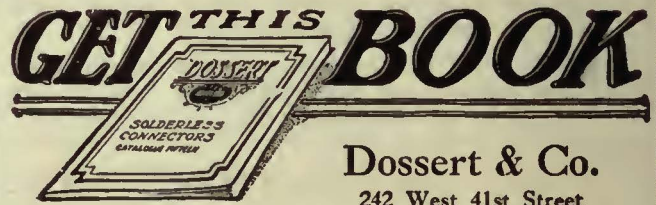
The International Register Co.
15 South Throop St., Chicago



B. C. Lug

The back connected lug is another Dossert—from the large line of standardized electrical connections. All Dosserts have the tapered sleeve principle.

All are shown in the 20th Year Book. Send for your copy.



FREE

Dossert & Co.
242 West 41st Street
New York, N. Y.

You're having brush trouble

CORRECT IT

USE LE CARBONE CARBON BRUSHES

They talk for themselves

COST MORE PER BRUSH
COST LESS PER CAR MILE

W. J. Jeandron

Hoboken Factory Terminal,
Building F, Fifteenth Street, Hoboken, N. J.

Pittsburgh Office: 634 Wabash Bldg.

Chicago Office: 1657 Monadnock Block

San Francisco Office: 525 Market Street

Canadian Distributors: Lyman Tube & Supply Co., Ltd.
Montreal and Toronto



Complete satisfaction

Operating perfectly and requiring minimum attention for maintenance and lubrication, Earll Catchers and Retrievers give genuinely satisfactory results. Their refinement of design, and mechanical superiority are summarized in the following five features, peculiar to Earll construction.

- No-wear Check Pawl
- Free-Winding Tension Spring
- Ratchet Wind
- Emergency Release
- Perfect Automatic Lubrication

Earll Catchers and Retrievers.

C. I. EARLL, York, Pa.

Canadian Agents:
Railway & Power Engineering Corp., Ltd., Toronto, Ont.
In All Other Foreign Countries:
International General Electric Co., Schenectady, N. Y.

The 1926 Edition McGraw Electric Railway Directory

The time your salesmen can
save would pay for it
many times

"Who are the men I should talk to in the
Blank Railway Company?"

You'll find the answer quickly in the
1926 Edition McGraw Electric Railway
Directory. Keep a copy handy—in your
desk, in your brief case. You'll need it.
Call on the right men—the men who
specify or buy. If your salesmen cover
wide territories, they can't be expected
to know all the changes in personnel of
the roads they call on.

Our records showed 65% in changes since
our 1925 Edition was published.

And your mailing list. Why not *know*
in advance that you are reaching the men
you *need* to reach. Build and check
your mailing lists from the McGraw
Electric Railway Directory.

Don't waste valuable time and effort in
a \$300,000,000 market by misdirecting
your sales program. Save both by re-
turning the attached coupon.

Here are the inside facts

- 1—Complete list of every recorded electric railway company in the United States, Canada, Mexico and the West Indies.
- 2—Names and addresses of officials, superintendents, department heads and purchasing agents, corrected to date of report.
- 3—Addresses of companies operating buses.
- 4—Addresses of repair shops.
- 5—Mileage of track and bus routes.
- 6—Number and kinds of cars used.
- 7—Rates of fare.
- 8—Amusement parks owned or reached.

Price \$7.50 a Copy

10% discount for five or more

DIRECTORY DEPARTMENT, ELECTRIC RAILWAY JOURNAL,
10th Ave. and 36th St., New York, N. Y.

Gentlemen:—Will you please send me:

.....copies of 1926 McGraw Electric Railway Directory, check
for \$.....enclosed.

.....More complete information concerning contents.

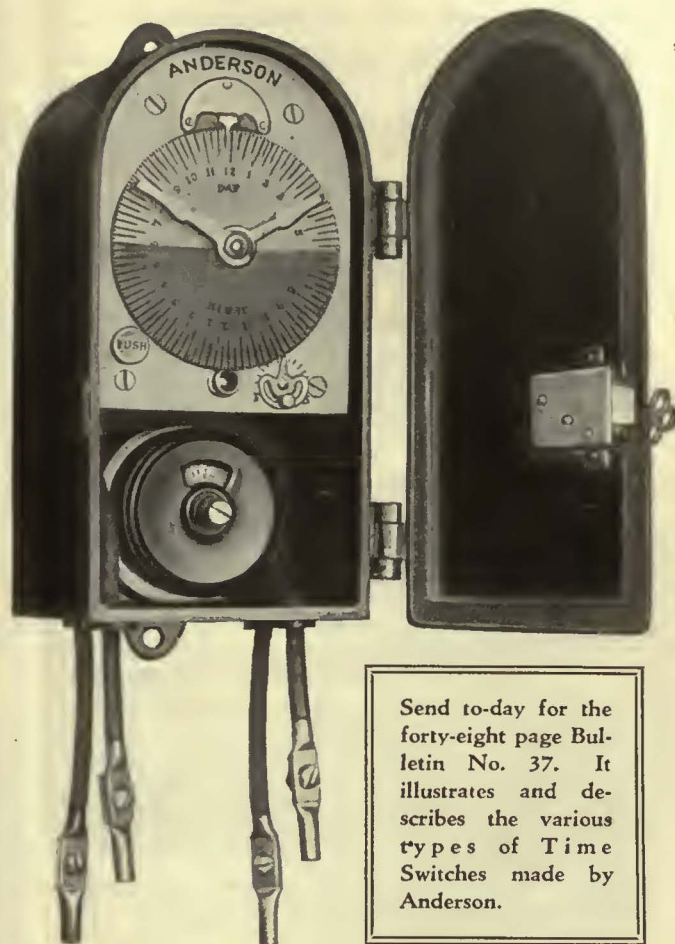
Name

Company

Street

City State.....

ERJ 8-7-26



Send to-day for the
forty-eight page Bul-
letin No. 37. It
illustrates and de-
scribes the various
types of Time
Switches made by
Anderson.

You can have the utmost confidence in this Time Switch

Because it is designed and con-
structed with over eighteen years of
experience behind it.

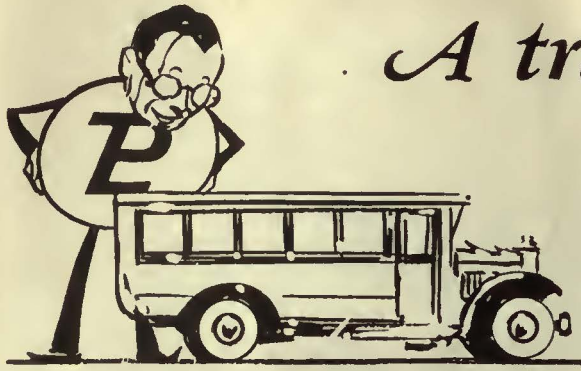
The clock, which is the heart of the
Time Switch, is built under the same
roof as the switch mechanism, insur-
ing a coordination that means de-
pendability wherever and for what-
ever purpose an Anderson Time
Switch may be used.

You can use this Automatic Time
Switch for electric signs, illuminated
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tions, in fact, anywhere, where an
electric circuit must be opened and
closed at predetermined times with
unfailing regularity.

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The life of the Motor Bus you operate is dependent almost entirely on the kind of materials used, and the class of workmanship performed on it. Wherever piece work is involved—rigid inspection of materials, as well as workmanship, is absolutely necessary. P. T. L. inspects motor busses at the point of manufacture from the laying out of the frame through the various stages of assembly to the finished article.

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Pittsburgh Testing Laboratory
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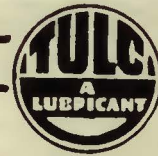


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for Accessibility and Reliability

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SAN FRANCISCO, Sheldon Building
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SEATTLE, L. C. Smith Building
HAVANA, CUBA, Calle de Agular 104
SAN JUAN, Porto Rico, Royal Bank Building

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Standard on 60 Railways for

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THE DIFFERENTIAL STEEL CAR CO., Findlay, O.

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Lowest Cost
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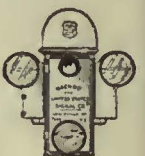
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FOR ELECTRIC RAILWAYS
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The Lang Body Company,
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14 BIRNEY SAFETY CARS

Brill Built

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Cars Complete—Low Price—Fine Condition
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or something you don't want that *other* readers of this paper can supply—
or use—advertise in the



Somebody is always looking for something to meet certain business needs. Some men in charge of plant operations may be in the market for good used equipment—others may have just what they want, to sell. Some may require a man of unusual quali-

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Representatives Wanted
Salesmen Wanted
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Sales Representatives in the Principal Cities

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with Names of Manufacturers and Distributors Advertising in this Issue

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Collier, Inc., Barron G.

Air Brakes
Westinghouse Air Brake Co.

Air Receivers & Aftercoolers
Ingersoll-Rand Co.

Anchors, Guy
Elec. Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Armature Shop Tools
Elec. Service Supplies Co.

Automatic Return Switch
Stands
Ramapo Ajax Corp.

Automatic Safety Switch
Stands
Ramapo Ajax Corp.

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

Axles, Carbon Vanadium
Johnson & Co., J. R.

Axles, Steel
Bethlehem Steel Co.
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Johnson & Co., J. R.
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Babbitt Metal
Johnson & Co., J. R.

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International Register Co.

Barges, Steel
American Bridge Co.

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National Carbon Co.
Nichols-Lintern Co.

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

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Stucki Co., A.

Bearings, Roller
Timken Roller Bearing Co.

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Consolidated Car Heating Co.

Bells and Gongs
Brill Co., The J. G.
Elec. Service Supplies Co.

Benders, Rail
Railway Track-work Co.

Bodies, Bns
Auto Body Co., The

Body Material, Hasckelite and Plymetl
Hasckelite Mfg. Corp.

Bollers
Babcock & Wilcox Co.

Boller Tubes
National Tube Co.

Bolts and Nuts, Track
Illinois Steel Co.

Band Testers
American Steel & Wire Co.
Electric Service Supplies Co.

Bonding Apparatus
Amer. Steel & Wire Co.
Electric Railway Improvement Co.
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Brill Co., The J. G.
National Ry. Appliance Co.
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American Brake Shoes & Foundry Co.
Brill Co., The J. G.
Wheel Truing Brake Shoe Co.

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Brill Co., The J. G.
General Electric Co.
National Brake Co.
Westinghouse Tr. Br. Co.

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American Bridge Co.

Brushes, Carbon
General Electric Co.
Jeandron, W. J.
Le Carbons Co.
National Carbon Co.
Westinghouse E. & M. Co.

Brushes, Graphite
National Carbon Co.

Brushes, Metal Graphite
National Carbon Co.

Brushes, Wire Pneumatic
Ingersoll-Rand Co.

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Bunkers, Coal
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Hale-Kilburn Co.

Buses, Motor
Auto Body Co.
Brill Co., The J. G.
White Co., The

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

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

Cambrie Yellow and Black Varnish
Mica Insulator Co.

Carbon Brushes (See Brushes, Carbon)
Carbon Paste, Welding
National Carbon Co.
Carbon Plates, Welding
National Carbon Co.
Carbon Rods, Welding
National Carbon Co.
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Elec. Service Supplies Co.

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Westinghouse E. & M. Co.

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Bethlehem Steel Co.

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

Cars, Gas, Rail
Brill Co., The J. G.

Cars, Passenger, Freight, Express, etc.
Amer. Car Co.
Brill Co., The J. G.
Kuhlman Car Co., G. C.
National Ry. Appliance Co.
Wason Mfg. Co.

Cars, Second Hand
Electric Equipment Co.

Cars, Self-Propelled
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General Electric Co.

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American Steel Foundries
Standard Steel Works
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Earl, C. I.
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Ohio Brass Co.
Wood Co., Chas. N.

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Archbold-Brady Co.

Celling Car
Hasckelite Mfg. Corp.
Pantasote Co., Inc.

Ceilings, Plywood, Panels
Hasckelite Mfg. Corp.

Cement
N. Amer. Cement Corp.
Cement Accelerator
N. Amer. Cement Corp.

Cement Products
Portland Cement Association

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Electric Service Supplies Co.

Circuit-Breakers
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General Electric Co.
Westinghouse E. & M. Co.

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Dossert & Co.
Elec. Ry. Equipment Co.
Elec. Ry. Improvement Co.
Elec. Service Supplies Co.
General Electric Co.
Hubbard & Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

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(See also Snow-Plows, Sweepers and Brooms)
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Ohio Brass Co.

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Coil Banding and Winding Machines
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American Steel & Wire Co.
Anaconda Copper Mining Co.

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American Brass Co., The
American Steel & Wire Co.
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Buda Co., The
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Crossing Foundations
International Steel Tie Co.

Crossings, Frog and Switch
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Crossings, Manganese
Bethlehem Steel Co.
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Crossing Signals. (See Signal Systems, Highway Crossing)

Crossings, Track (See Track, Special Work)

Crossings, Trolley
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Brill Co., The J. G.
Edwards Co., Inc., The G. M.
Morton Mfg. Co.
Pantasote Co., Inc.

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Elec. Equipment Co.

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Westinghouse E. & M. Co.

Field Coils (See Coils)

Flange-way Guards, Steel
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Railway Track-work Co.

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Grinders, Portable Electric
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Railway Track-work Co.

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Hammers, Pneumatic
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Nuttall Co., E. D.

Star Brass Works

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General Electric Co.
Ohio Brass Co.

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Pantasote Co., Inc.

(Continued on page 56)



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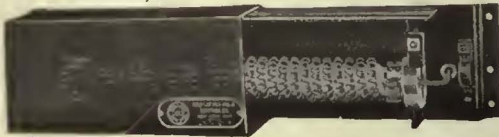
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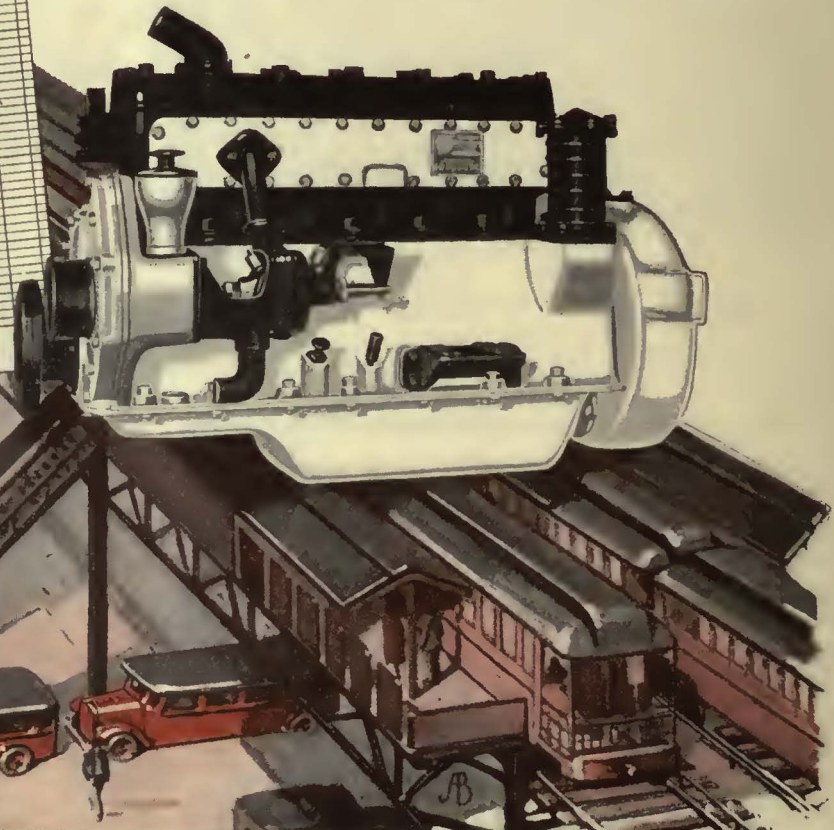
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Month of _____ Year _____

MOTOR BUS OPERATION

Number of Buses in service	
General Expenses	
Revenue Miles	
Max. Revenue Miles	
Revenue Miles	
Max. Hours - Allowed Year	
Max. Hours - Running Year	
Passenger Revenue	
Revenue Passenger	
Per Mile	
Per Hour	
Total Revenue Passenger	
Total Passenger	
OPERATING EXPENSES	
MAINTENANCE OF EQUIPMENT	
Painting and Varnishing	
Repairs to Bodies	
Repairs to Motors	
Repairs to Batteries	
Repairs to Electrical	
Repairs to Storage Batteries	
Total Account	
Depreciation (See Note)	
Total Repairs & Depreciation	
Total Repairs & Depreciation per Mile	
POWER	
Cost of Electricity	
Cost of Fuel	
Total Miles Operated per Mile	
TELEPHONE EXPENSE	
Repairs to Lines and Instruments	
Material - Operating	
Telephone	
Electric Supplies for Buses	
Other Expenses	
Orange, Redwood, Heating, Lighting, etc.	
Gasoline, Lubricants, Grease, etc.	
Other Transportation Expenses	
TOTAL OPERATING EXPENSES	
Cost	
Lower Price per Special Type	
Interest on Investment - Bond	
Interest on Investment - Capital	
Total Interest and Charge	
TOTAL COST OF SERVICE	



Continental Motors



Starting in 1922 the United Electric Rys., Providence, R. I., has continued to show lower operating costs by the use of modern cars.

New Cars—Why?

Certain Important Factors Influence the Decision to Introduce New and Modern Equipment

According to the report of the A. E. R. A.'s Committee on Essential Features of Modern Cars recently published there are apparently many good reasons which justify the purchase of new cars instead of revamping obsolete equipment.

As pointed out by the United Railways of Providence, they find that their new cars not only accelerate faster, consume less power and reduce track wear, but being modern in all respects reflect

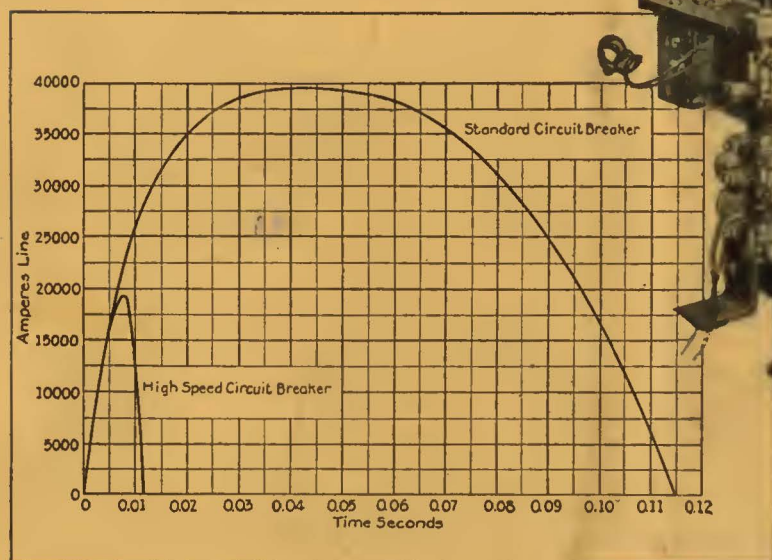
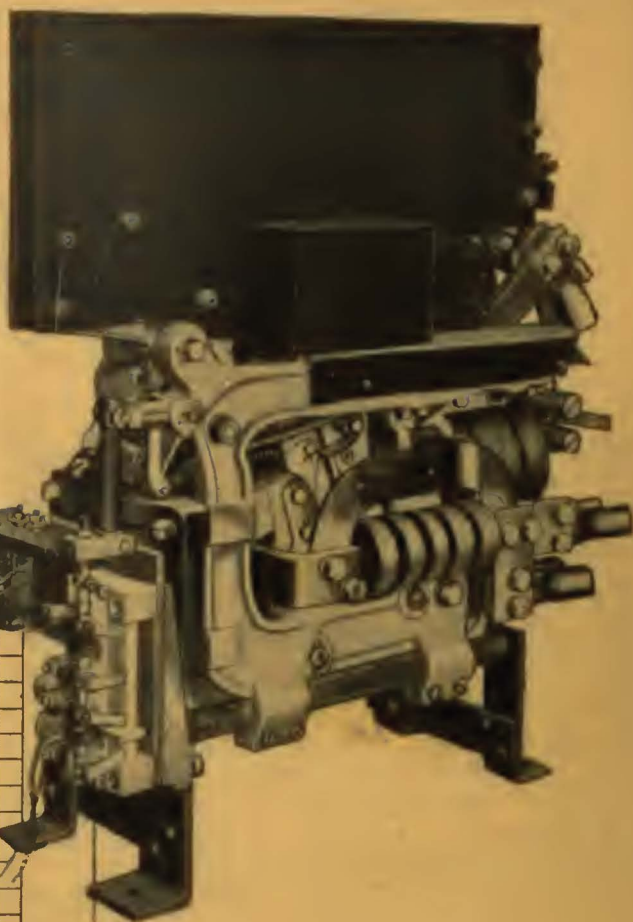
favorably upon the company and the community it serves. Therefore, new cars of modern light weight design not only cost less to operate but, being up-to-date, appeal to the traveling public and result in increased revenue.

Electric railways are able to take advantage of maximum operating economics by the use of new cars and are prepared also to transport their passengers with safety and efficiency.

Write for further particulars

THE J. G. BRILL COMPANY
 PHILADELPHIA, PA.
 AMERICAN CAR CO. — G. C. KUHLMAN CAR CO. — WASON MAN'G CO.
 ST. LOUIS, MO. — CLEVELAND, OHIO. — SPRINGFIELD, MASS.

The G-E High-Speed Circuit Breaker



—and the measure
of its greater protection



Even a hasty glance at these two curves impresses one with the extremely high speed and the effectiveness of this breaker for limiting short-circuit currents. G-E high-speed Breakers have been giving ideal protection in hundreds of installations since 1917.

This type of circuit breaker has been uniformly successful in protecting substation apparatus, substation feeders, and electric locomotives. The reduction in current and flashing that results from its use greatly decreases wear of commutator and brushes and practically eliminates damage from internal grounding. It also insures greater reliability and lower substation maintenance.

3-14
GENERAL ELECTRIC