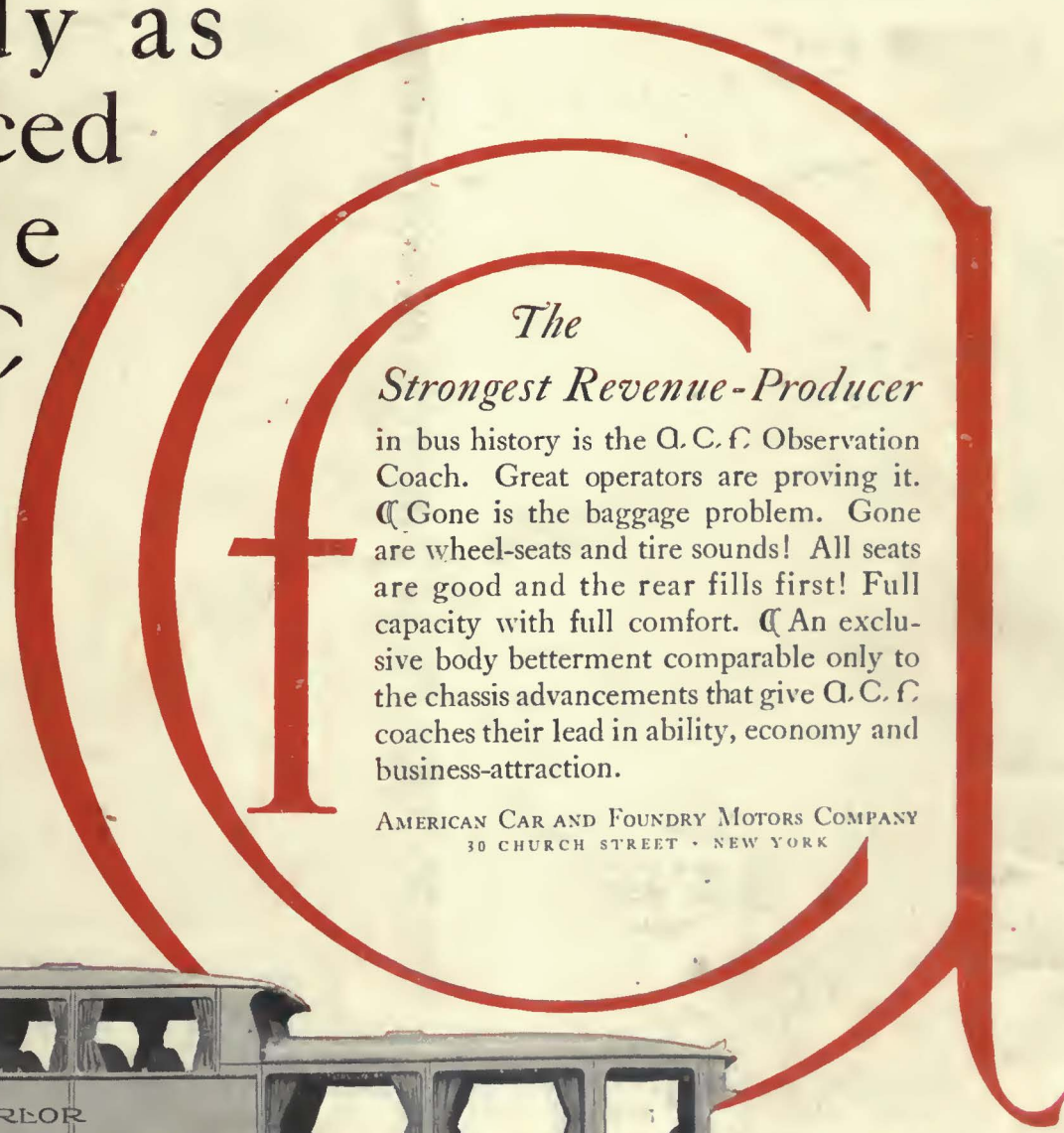


ELECTRIC RAILWAY JOURNAL

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HOUSTON, TEXAS.

A Body as
advanced
as the
A. C. F.
chassis

UNDERNEATH the Observation Section goes the baggage — fully protected. No wheel housings in the passenger compartment. Sounds from tires, wheels and road entirely cut off from the passengers. The quietest mass transportation ever known!

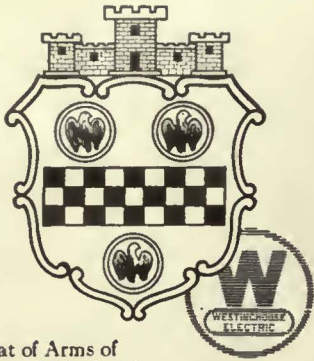


*The
Strongest Revenue-Producer*

in bus history is the A. C. F. Observation Coach. Great operators are proving it. Gone is the baggage problem. Gone are wheel-seats and tire sounds! All seats are good and the rear fills first! Full capacity with full comfort. An exclusive body betterment comparable only to the chassis advancements that give A. C. F. coaches their lead in ability, economy and business-attraction.

AMERICAN CAR AND FOUNDRY MOTORS COMPANY
30 CHURCH STREET • NEW YORK





Coat of Arms of
the City of Pittsburgh

Pittsburgh

The City of Power

BACK of Pittsburgh's industrial pre-eminence lies a wealth of romance, discovery and invention.

Where Pittsburgh now stands a great battle was fought in 1758 between the French and English, and the resulting victory of the English established the English language in the greater part of the continent for all time.

The English settlement that sprang upon the site of the French Fort Duquesne was called Pittsburgh in honor of the Prime Minister of England.

Its strategic location on the Ohio River at the head of that great network of inland waterways immediately assumed importance as a trading post.

But it was the discovery of iron ore near by, practically inexhaustible deposits of coal and natural gas, developed by the genius of such men as George Westinghouse, that destined Pittsburgh to be the greatest industrial marvel of the age.

Today Pittsburgh is called the Steel City of America. With a metropolitan population of nearly one million and a half, she makes one-fifth of the nation's pig iron and one-fourth of its steel.

Pittsburgh boasts the largest steel fabricating plant, largest wire plant, largest aluminum plant, the largest air brake plant and the first radio broadcasting station in the world.

Here also is located the great Westinghouse Electric Works. In this plant were developed many of the principles and much of the machinery that have made the huge industries and great cities possible.

And Pittsburgh progress has not been limited to the industrial field. The public service corporations, led by the Pittsburgh Railways Company, have at great expense and labor overcome the handicaps imposed on the city by the rough terrain and extended the trading area far into the country.

By tunnels, cuts, and bridges, they broke through the barrier of high hills of solid rock that had virtually held the city prisoner and built up the outlying districts into valuable suburban property.

One small section, known as the South Hills district with a population of only 7337 and an assessed real estate valuation of \$2,794,000 in 1900, increased to a population of 55,800 and an assessed valuation of \$64,725,000 in 1927 after the Washington Tunnel was bored by the Pittsburgh Railways Company to extend car service into the district.

This railway, which is doing much to advance Pittsburgh's interests by furnishing the best transportation of any city of its topography in the United States, is Westinghouse-equipped throughout.

Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania



1927

Westinghouse

X92792

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Vol. 70
No. 10

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Plenty of Food for Thought

PLENTY of food for thought will be found in the Annual Convention Number of the JOURNAL, which will be dated Sept. 17. "Meeting the demand for better transportation" is the theme. What could be timelier or of more interest to the industry at this critical stage of its history?

Not only is the general subject timely, but the treatment is on the broadest possible basis. Executives of outstanding ability and experience in the various classes of transportation present in addition to their own experience the results of similar operations on other properties. Each article is in a measure a survey of the industry's experience to date in meeting the demand for better transportation as it affects various classes of service; small city systems, medium size properties, heavy surface lines, rapid transit, commutation service of railroads, bus operation, taxicabs, etc.

This year's convention issue is published a week earlier than usual, to give everyone in the industry an opportunity of digesting this comprehensive survey of experience and thought before starting for Cleveland.

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SAVING THE RAIL SAVES THE RAILWAY

*333 amp.
at 500 v.
209 amp.
at 300 v.
150 lbs.*



“AJAX”

ELECTRIC ARC WELDER

Do you realize that the “Ajax” is in a class by itself judged by combination of high capacity and low weight? Judged by any other standards, “Ajax” also maintains its lead. Its simple wiring scheme with all circuits in sight, the accessibility of all parts, the ample ventilation, the trolley pole making contact on the bright underside of the wire—these are some of the other features which make “Ajax” first choice on so many roads. Finally—price—lower than you’d expect if you didn’t know.

Why not get a quotation?

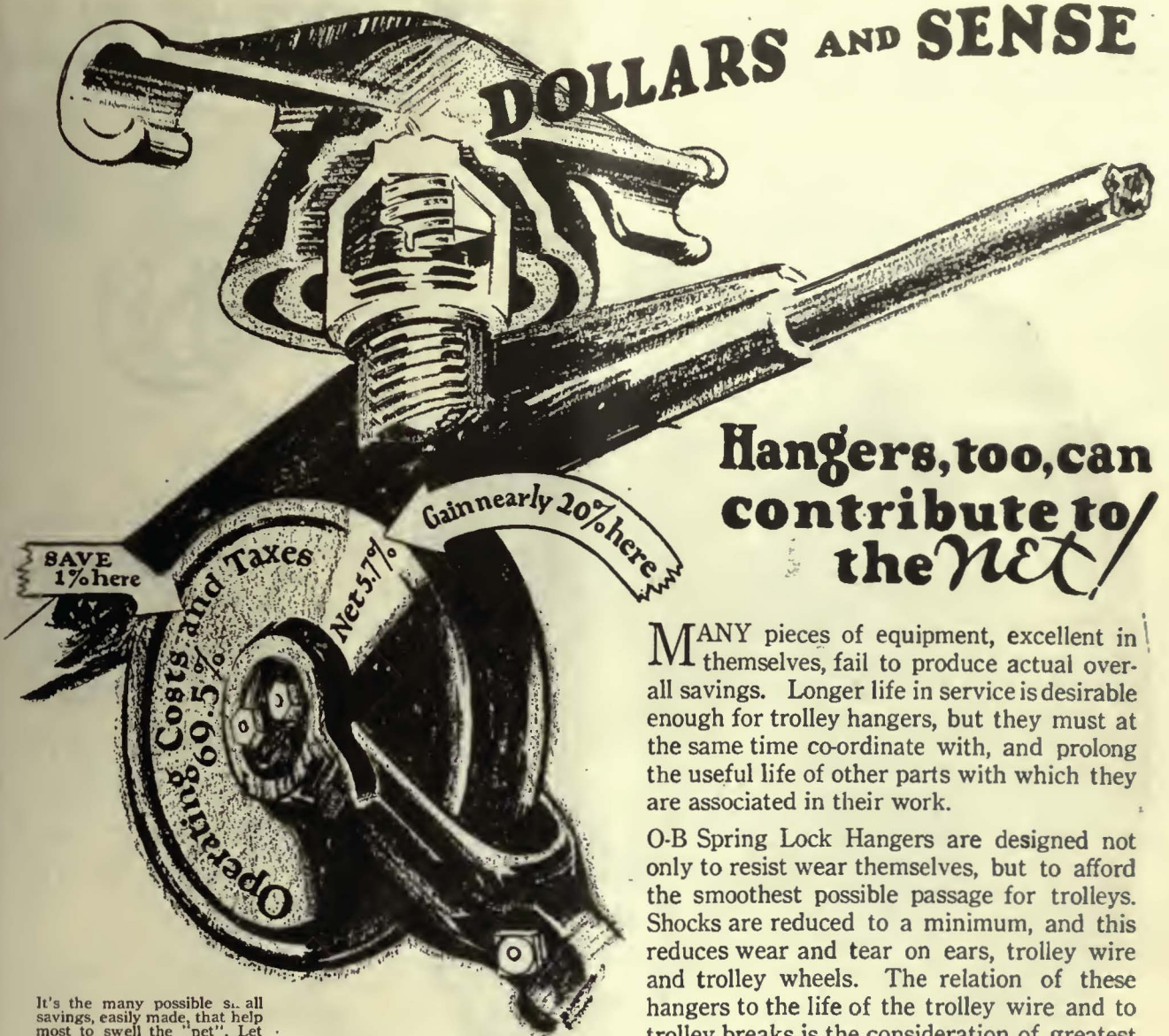
Railway Trackwork Co.

3132-48 East Thompson Street, Philadelphia

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Chester F. Gailor, 30 Church St., New York.
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SAVING THE RAIL SAVES THE RAILWAY



Hangers, too, can contribute to the net!

MANY pieces of equipment, excellent in themselves, fail to produce actual overall savings. Longer life in service is desirable enough for trolley hangers, but they must at the same time co-ordinate with, and prolong the useful life of other parts with which they are associated in their work.

O-B Spring Lock Hangers are designed not only to resist wear themselves, but to afford the smoothest possible passage for trolleys. Shocks are reduced to a minimum, and this reduces wear and tear on ears, trolley wire and trolley wheels. The relation of these hangers to the life of the trolley wire and to trolley breaks is the consideration of greatest moment. O-B Hangers will prove it on your lines.

It's the many possible savings, easily made, that help most to swell the "net". Let O-B Hangers contribute their share.

Ohio Brass Company, Mansfield, Ohio
 Dominion Insulator & Mfg. Co., Limited
 Niagara Falls, Canada
 4828



O-B Spring Lock Hanger—Span Type
 Here is a device which takes the last "hard spot" out of the overhead line and affords a quietness and smoothness of operation heretofore unobtainable. An efficient coil spring between the stud and the hanger body absorbs the impact from pounding trolley wheels. Cat. No. 14532.



O-B Spring Lock Hanger—Barn Type
 The same coil spring construction is used as in the span type hanger, shown at the left. This model is adapted to car houses, underpasses and trolley troughs, and eliminates the disagreeable pounding noise usually heard in such places. Cat. No. 14533.



O-B Lock Hanger—Span Type
 Correct alignment and an absolutely tight joint are achieved. The customary looseness where ears are backed off to secure alignment is avoided by means of the steel spring washer inside this O-B hanger, which eliminates all play. Cat. No. 11062.

Ohio Brass Co.



SALES OFFICES: NEW YORK CHICAGO

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PORCELAIN INSULATORS
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 CAR EQUIPMENT
 MINING MATERIALS
 VALVES

REAL WHEEL STEEL



A WHEEL can be no better than the material of which it is made.

Davis "One-Wear" Steel Wheels are made of Real Wheel Steel.

It contains elements that when heat-treated produce physical characteristics that make the "One-Wear" idea practical.

IT IS A REAL "ONE-WEAR" WHEEL METAL

AMERICAN STEEL FOUNDRIES

NEW YORK

CHICAGO

ST. LOUIS

facts

On more than 200 American Electric Railways, twin Ties have cost less to install, less to maintain and have given better service, than any other kind of ties used in paved track construction.

STEEL NEVER FAILS

Twin Ties are built of steel because of its perfect adaptability to paved track tie construction. Twin Ties have never failed to do their part, to carry their load, to give the years of service expected of them. The best is always the cheapest.

May we quote you on your paved track work?

The International Steel Tie Co.
CLEVELAND, OHIO

Look it up in your "Paved Track Note Book"



Steel Twin Tie Track

TWIN TIES ARE ALL STEEL

Safeguard and Accelerate Traffic

Automatic Signals by providing proper spacing of cars or trains, reduce trip time and enable more cars to be operated with consequent safety.

Interlocking installations at terminals and at grade crossings eliminate unnecessary stops and assure route continuity by means of signal indications.

Highway crossing protective devices of the flashing light, automatic flagman, or audible type, or combination of same, are a dependable insurance which soon pays off the investment.

Power operated remotely controlled switches are being used economically to accelerate Electric Railway traffic.

These Systems are products of the



Union Switch & Signal Co.

SWISSVALE, PA.





Make it your buying guide— **ESSCO CATALOG No. 7**

Some items found
in ESSCO CATALOG No. 7

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| Golden Glow Headlights | Trailer Connectors |
| Faraday Signal Systems | Automatic Door Signals |
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You will find in ESSCO Catalog No. 7 hundreds of devices, parts and supplies — listed, described and illustrated.

Whether it is the tiniest screw in a Faraday Buzzer, the lens or reflector for a Golden Glow Headlight, or any other part of Keystone Car Equipment you can identify and order it by the catalog number.

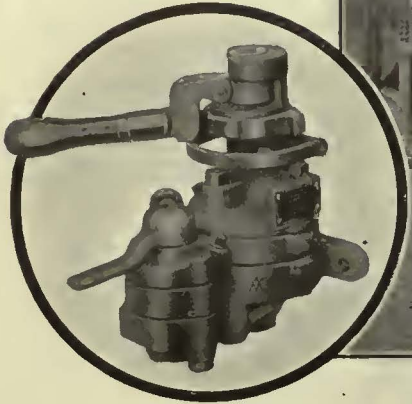
Keep ESSCO Catalog No. 7 always on hand for ready reference.

Send today for your copy!

ELECTRIC SERVICE SUPPLIES COMPANY
PHILADELPHIA, 17th & Cambria Sts.; NEW YORK, 50 Church St.; CHICAGO, Ill., Merchants Bank Bldg.; Pittsburgh, Bessemer Bldg.; Boston, 88 Broad St.; Detroit, General Motors Bldg.; Scranton, 316 N. Washington Ave.; Canadian Agents, Lyman Tube & Supply Company, Ltd., Montreal, Toronto, Vancouver.

ELECTRIC SERVICE SUPPLIES Co.

MANUFACTURER OF RAILWAY, POWER AND INDUSTRIAL ELECTRICAL MATERIAL



Making each passenger his own brakeman!

Each passenger boarding a car adds more weight to be controlled by the brakes.

If the ordinary air brake equipment is used, this additional weight will result in a longer stopping distance than when the car was empty—particularly if the car is of the modern light weight type. The longer stop reduces the schedule speed and slows up transportation service for the passenger.

If Westinghouse Variable Load Brakes are used, however, the weight added by each passenger entering the car does not

remain uncontrolled, but is used to automatically adjust the brake mechanism so that a corresponding increase in retarding force is made to assure the same stopping distance as before his extra weight was added. Each passenger thus unknowingly helps to safeguard and expedite his journey.

This modern brake for modern cars makes for safer and faster transportation, because uniformly short stopping distances are assured by virtue of automatic adjustment of brake cylinder pressure as the passenger load changes.

Equip your modern cars with modern brakes!

WESTINGHOUSE TRACTION BRAKE CO.
General Office and Works, WILMERDING, PA.

WESTINGHOUSE TRACTION BRAKES

33¼ per cent increase in revenue

because —

they kept their

Coaches busy!



Washington Railway and Electric Company

What a 171% Mileage increase in Charter Business did for the Washington Railway and Electric Co.

With a fleet of 38 Yellow Coaches, the Washington Railway and Electric Company enormously developed their special charter business, turned idle equipment during non-rush hours into producers of profitable mileage, decreased operating expense and watched their revenue increase $33\frac{1}{4}$ per cent during the first six months of this year as compared with the first six months of 1926.

There is no magic about this record, no clever juggling of figures to make black look like white. Direct from the Comptroller's Office comes the data assembled on the op-

posite page. The accomplishment can be laid to the door of keeping motor coach equipment on the road, where it can earn *plus* the use of Yellow Coaches on routes and in service where the revenue earning ability of Yellow Coach equipment may have the fullest opportunity to demonstrate its value.

Co-ordinating motor coach service with their street cars, on regular routes, the company found a profitable way to take up the non-productive slack caused by idle motor coach equipment during the non-rush periods.

This responsibility was thrown upon Yellow Coaches, and a section of the Yellow Coach fleet was detailed to operate within a radius of 150 miles out of Washington.

During the first six months of this year, 56,740 miles were covered by this special chartered service; a percentage increase in mileage of 171% on this class of business over the corresponding period in 1926.

And Yellow Coach mileage over the entire company operation has increased approximately 46 per cent; 918,017 Yellow Coach miles in 1926 and 1,337,000 estimated miles in 1927.

Coincident with this increased mileage has been a decrease in operating costs—5.07 per cent decrease for Yellow Type Z 6-cylinder, 29-passenger, City Service Coach and 13.22 per cent decrease for Yellow Type X 6-cylinder, 21-passenger, City Service Coach in June, 1927 over June 1926.

Figures talk. Study those on the opposite page.



O perating cost of Yellow Coaches per mile

Z type-23.76 cents

X type-17.24 cents

Operating, Mileage and Earned Revenue Figures

	Type "Z"	Type "X"	Total
Total mileage operated in 1926	703,993	214,024	918,017
Mileage operated during first 6 months of 1927	510,380	158,606	668,986
Estimated mileage to be operated in 1927	1,020,000	317,000	1,337,972
Percent of mileage increase (1927 estimated) over 1926	45%	48%	
Number of miles added to 6/30/27 over last year as regular routes	6 miles		
Total one-way mileage of these routes combined	41.24		
Number of regular routes covered by Yellow Coaches	6		
**Mileage covered for first 6 months of 1927 on special chartered buses	56,740		
Percent increase in mileage on this class of business over corresponding period in 1926	171%		
Per cent decrease in operating costs (per mile)	5.07%	13.22%	
*Per cent of revenue increase — 6 months ended June 30, 1927, over same period for 1926	33.25%	35.25%	

* Includes all makes of buses owned by company; Yellow Coaches predominating.

** Yellow Coaches in special chartered service.

Operating Costs per Mile

	Type "Z" 6-cylinder 29-passenger City Service Coach Cents Per Mile	Type "X" 6-cylinder 21-passenger City Service Coach Cents Per Mile
Operators' wages	6.28	6.28
Starters, inspectors and instructors' wages	.19	.19
Gasoline	3.24	1.84
Lubricants	.60	.36
Tires and tubes	1.49	.92
Body repairs	.45	.16
Chassis repairs	1.76	1.46
Painting	.10	.12
Battery maintenance	.08	.01
Shop inspection (labor)	.18	.16
Cleaning buses	.41	.14
Garage labor	.72	.72
Garage supplies and expenses	.25	.25
Depreciation	4.87	1.53
Insurance	.06	.02
Miscellaneous and general	1.87	1.87
Taxes	1.21	1.21
Total	23.76	17.24





Steady growth —
built the
YELLOW COACH FLEET !

Thirteen times in a little over two years have orders been placed by the Washington Railway and Electric Company for Yellow Coaches. A few Yellows ordered at a time, but these reorders were constant and spread out over many placements.

Building a fleet in this manner is building on a basis of confidence. Performance *must be right* to justify so many reorders. Economy of operation *must be marked*. As the company states, "Never in any one month has body and chassis maintenance been over 2½ cents per mile on Yellow Z's or over 2 cents per mile on Yellow X's."

Yellow Coach plus General Motors earns recognition by the vast transportation and manufacturing experience vested in its product.

Users of Yellow Coaches get more for their money than mere units of equipment. Only exceptional engineering knowledge, familiarity with all phases of transportation problems, exhaustive research and the most modern manufacturing methods can determine what to build, how to build and how to assure low-cost, profitable miles.

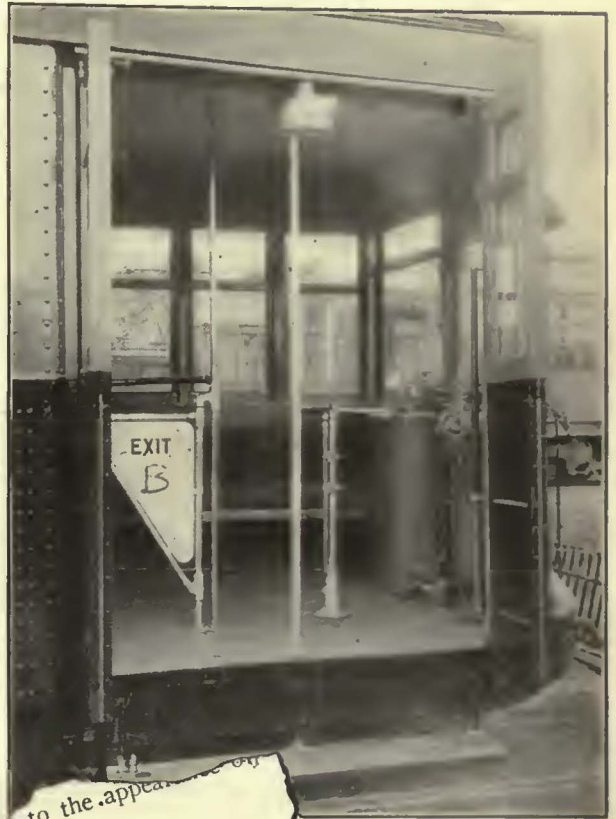
How the
Yellow Coach Fleet
Has Grown

YELLOW Z TYPE	
Date	Quantity
May 5, 1925	2
June 3, 1925	4
Nov. 12, 1925	2
Dec. 5, 1925	2
Jan. 12, 1926	4
Mar. 2, 1926	4
Nov. 16, 1926	4
Dec. 31, 1926	4
May 3, 1927	6
Total	32
YELLOW X TYPE	
Nov. 4, 1925	2
Feb. 9, 1926	1
Feb. 28, 1927	3
Total	6

YELLOW COACHES

YELLOW TRUCK & COACH MANUFACTURING CO.
 SUBSIDIARY GENERAL MOTORS CORPORATION
 5801 WEST DICKENS AVENUE, CHICAGO, ILL.

From Electric Railway Journal of July 30th In Reference to Remodelled Cars in Kansas City



metal sun shield and to the appearance of the car.

The total width of entrance and exit doors has been increased. Folding front doors are used and both doors operate at the same time. The pneumatic door engines are controlled from the engineer's valve, or from a street fare taker's valve accessible from the outside. Treadle control is installed for the rear exit door. These changes provide increased schedule speed as there is less interference between streams of boarding and alighting passengers, so shorter length stops result.

The improved controller equipment includes line

NATIONAL PNEUMATIC COMPANY

Executive office, Graybar Building, New York

General Works, Rahway, New Jersey

MANUFACTURED IN TORONTO, CANADA, BY
Railway & Power Engineering Corp., Ltd.

CHICAGO
518 McCormick Building

PHILADELPHIA
1010 Colonial Trust Building



CINCINNA

for



meeting

CINCINNATI

— still a step

CINCINNATI BUILDS 1928

The demand for better transportation

CINCINNATI builds to meet the needs of what will be, perhaps, the most significant year in transportation history.

CINCINNATI builds lightweight cars capable of showing a steady profit under modern operating conditions.

CINCINNATI builds cars that, through the past year, have demonstrated beyond question that "The Four Features of BALANCED DESIGN are the Cardinal Points of today's Demand."



**BALANCED
LIGHTWEIGHT**

CARS

ahead of the modern trend!

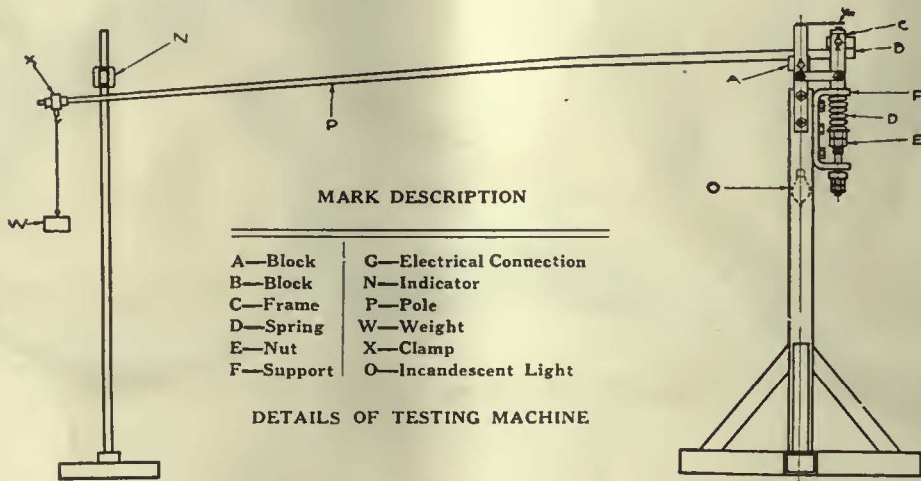
The Test That Tells

for your

TROLLEY POLES

A test, approximating service conditions, is applied to every standard "NATIONAL-SHELBY" Trolley Pole before it leaves the mill. This test is made on an improved testing machine in which the trolley pole is treated as a cantilever. This machine infallibly indicates the presence of a permanent "set" in the pole, or any imperfections which would impair its usefulness.

The base of the pole under test is set horizontally in the grips of the machine, after which a deflection gage is set, corresponding to the height, from the floor line, of the free end of the pole under no load.



The proper weight for the pole being tested is then hung on the free end of the pole, and an adjustable electrical contact is set so that the tension on a spring in the testing machine, when the pole is so loaded, is sufficient to close the current of an incandescent lamp. After this adjustment is made, the weight is removed and the return of the trolley pole is checked with the deflection gage.

After the first pole of a particular lot has been so tested and the proper adjustment determined for closing the electric current, the remaining poles of the lot are tested by placing them in the machine one at a time, the operator deflecting each pole sufficiently to cause the lamp to light; after which the pole is tested for permanent set or deflection.

Any pole that does not return to its original position after deflection is rejected.

This test is your assurance that

"NATIONAL" SHELBY

Trolley Poles will meet your severest conditions in a dependable manner.

Ask for Booklet.

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

Last week

These cities met a paralyzing apathy with new quality cars.

-and won public confidence

When electric railways have had the courage to face the transportation and apply up-to-the-minute improvements in service and equipment, job appreciation and patronage have been quick to respond. Trial passengers quickly have become regular patrons.

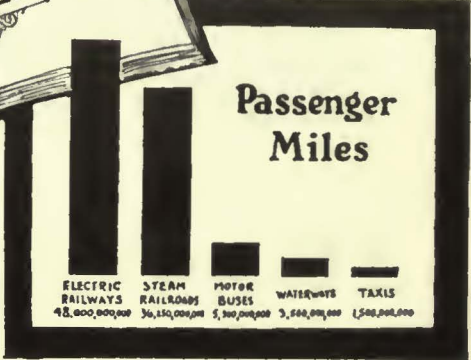
New and improved cars are inspiring public confidence in the progressiveness of the street trolley, with a resulting increase in business.

Better service and greater comfort. Lower operating costs are attained through decreased maintenance of equipment and track. Lower power costs are made possible by reduced weight in modern cars. Improved employee morale follows from the natural pride of being associated with a progressive enterprise. In electric railway operation, when you serve others you cannot help but serve yourself.

Make new light-weight St. Louis Cars part of your program to improve your service to the community—for nothing stimulates interest and friendship more than a visual evidence of progress.

New St. Louis Cars have met the public hail-as they say: "Why not in yours?"

St. Louis Car Co.
Quality Cars



This week—last week and last year

more passengers were carried by electric railways than by the combined totals of all other agencies of public transportation.

It's your job and ours to maintain this position. We have a responsibility no less than yours. Ours lies in bending every resource and effort toward building cars which appeal to a public educated to the comforts and luxuries of modern transportation. Your responsibility is the winning of good-will and building patronage through the operation of such transportation units for the greater convenience of patrons.

The Quality Shops are pledged to the progressive improvement of electric railway equipments and are co-operating with many electric railway operators. *Our facilities are at your service.*

NEXT WEEK

St. Louis discusses another phase of his dual responsibility to the public.

St. Louis Car Co.

St. Louis Car Co.





They Are Playing Their Part

By helping to increase comfort, safety and speed in operation "Standard" Steel Wheels, Armature Shafts, Springs and Axles are contributing toward the ever increasing confidence of those who ride in street cars.



STANDARD STEEL WORKS COMPANY

PHILADELPHIA, PA.

BRANCH OFFICES

HOUSTON, TEXAS

PORTLAND, ORE.

RICHMOND, VA.

SAN FRANCISCO

ST. PAUL, MINN.

PITTSBURGH, PA.

CHICAGO
ST. LOUIS
NEW YORK

WORKS: BURNHAM, PA.



Ten of these cars recently furnished Chicago & West Towns Railway Co.

MODERN CARS Of All Types

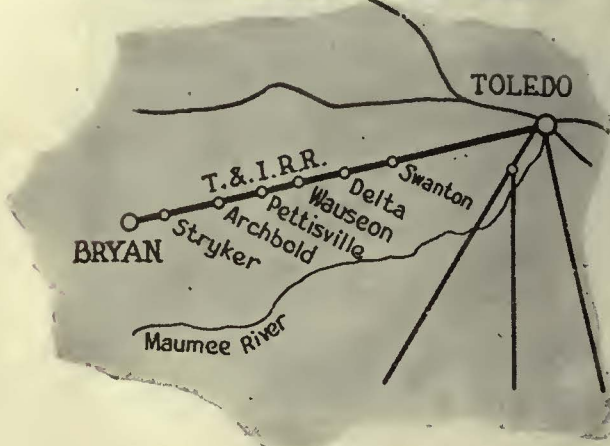
for City and Interurban Service

CARS recently built by this company for several properties have brought forth much favorable comment from the public in the various localities. The riding comfort has been especially noted. This is a feature of the modern car that goes far to increase good will and build patronage. Cummings No. 62 Truck, shown on the above car, has contributed largely to the riding comfort of our cars.

CUMMINGS CAR AND COACH CO.

Successors to McGuire-Cummings Mfg. Co.

111 W. Monroe St., Chicago, Ill.



How long can you afford to put off buying equipment that is yielding more than 25 per cent annually? Modern cars are consistently earning this, and more, for progressive properties.

An investment that returned 40 per cent

The Toledo and Indiana Railway in November, 1924, replaced nine old cars weighing 32 tons each with seven modern light-weight one-man cars. In two years these cars have covered approximately 1,050,000 miles.

The new cars reduced maintenance costs 2.01 cents per car-mile, power costs 4.2 cents per car-mile, and platform expense 1.7 cents per car-mile even though there was an 8 cents per hour wage increase on account of one-man operation.

A review of actual operating costs reveals that an investment of \$105,000 is saving annually:

Maintenance of equipment	\$10,060
Power	23,824
Operators' wages	8,784
Total Savings	\$42,668



Reliability, so vital in railway operation, is not sacrificed in the equipment which General Electric produces to effect reductions in car weight. The GE-265 motors, K-35 control, and CP compressors on these new cars are daily proving this statement, as the T. & I. will testify.

GENERAL ELECTRIC

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

Electric Railway Journal

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

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New York, Saturday, September 3, 1927

Number 10

Convention Program Assures Interest at Cleveland

WERE there any doubt in the mind of anyone as to the value of the 1927 Cleveland convention, it would be dispelled by a perusal of the program, published in full elsewhere in this issue. The list of speakers and the arrangement show much care on the part of Chairman Harry L. Brown and his associates on the committee on subjects and meetings.

The morning sessions will be only two hours long instead of three, as in former years. Those on Monday and Tuesday will be devoted entirely to the presentation of addresses by men outside the industry. Many men of prominence in American business, who can bring a new trend of thought to the leaders of the industry, are included among the speakers. Thursday morning's session will be a symposium on the progress of the industry, consisting of five-minute talks by operating executives on the feature accomplishments of the year.

The salient change will be the inauguration of a series of luncheon conferences on fourteen major industry subjects. These necessarily will be limited to small groups, not over 50 each. There will be an opportunity for an informal cross-table exchange of questions, opinions and experience of men thinking along the same line. There will be no set speeches or papers. A sponsor has been selected for each luncheon who will get discussion started and perhaps guide it if the members get too far off the subject. The plan should tend to satisfy the criticism of the younger executives who feel that they never have an opportunity to exchange views with the older men who are leaders in the industry.

The Affiliated Associations Also Have Modernized Their Programs

GLANCING through the programs of the affiliated associations for the Cleveland convention, it appears that they, too, have undergone a metamorphosis similar to that to which the American Association has been subjected. The long list of committee reports which formerly made up the bulk of the three afternoon sessions has been replaced by addresses by men who are authorities on their subjects. As the committees have their reports prepared and printed in advance, formal acceptance is all that is necessary unless the delegates take issue with one more of the recommendations. As a rule comments are forwarded to the chairman in writing, so that even in this event there is not always need for discussion on the floor.

The Engineering Association, of course, has many technical committees which make standards for the industry that must be acceptable to a large number of operating companies if they are to become effective. Even here an innovation has been found possible which will rectify one of the great difficulties of the former

conventions, that of too great a waste of time of all the delegates discussing details in which they have little or no interest, or worse still, listening to such a discussion while waiting for their own specialties. The Tuesday session will be divided into four groups, the subjects being primarily way and structures, rolling stock, purchases and stores, and power. Delegates can then attend the sessions in which they have greatest interest and will be in a position to discuss intelligently those features with which they are vitally interested.

What Are the Manufacturers Going to Do About It?

PRELIMINARY figures submitted to the executive committee at its recent meeting in Cleveland indicate some question regarding the proportions and character of the car exhibit planned for the coming convention. President Sawyer pointed out in no uncertain terms the responsibility which every manufacturer and operator has for giving particular thought to the importance of an impressive and representative car exhibit at this year's convention.

The big problem before the industry today is that of providing a type of car which will attract riders. Appearance, comfort, quietness, speed and safety are the big selling requirements. There is nothing inherently to the advantage of the rubber tired vehicle in these respects, with the possible exception of flexibility. To offset this, the car has many advantages and presents a problem in design much simpler than does the automotive vehicle carrying its own power plant. The mistaken notion that there exists a mysterious "rubber urge" has been almost completely dissipated. But there is in transportation a definite demand for "style," to use that word for want of a better term—and the rider doesn't care particularly whether it comes on rail or rubber.

Imagine really modern cars on the streets today, with automobiles of the vintage of even only ten years ago, and there is presented the reverse of the situation that now exists. There wouldn't be much difficulty about selling street car rides under those conditions. But the automobile manufacturer has been too alert for that. When he ran out of other improvements for his vehicle, he developed balloon tires and four wheel brakes.

Surely, the electric railway market today presents one of the most unusual merchandising situations in the history of American industry. The customers demand that the manufacturers show their wares. Railway executives insist that the builder who has cars to sell bring along his goods for them to look at. President Sawyer and the executive committee made it perfectly clear that the industry needs an impressive car exhibit. Operators are keenly interested to know what can be done to win back former patrons who are paying from 15 to 30 cents per mile for transportation which they consider more attractive.

Space for approximately 20 cars has already been reserved and there is still reasonable assurance that the exhibit will at least equal if not exceed that of last year in the number of cars shown and in the extent of development represented. But the time is getting short. The convention went to Cleveland in order to make a large car exhibit possible. President Sawyer has challenged the spirit of the manufacturers as reflected in the space applications for car exhibits. What are they going to do about it?

Will Chicago Persist in Delay?

SERVICE by bus established by the Chicago Surface Lines in Diversey Parkway forms the subject used by the *Chicago News* to point a moral and adorn a tale. The moral is that Chicago needs "co-ordination on a city-wide scale." That paper says that for the same reason, bus service in Diversey Parkway, operated by the electric railway and made a part of its transportation system, is better and cheaper than would be an independent bus service on that thoroughfare, a close, co-ordinated, non-competitive system, providing both neighborhood service and rapid transit through buses, street cars, elevated and subway trains, would be an immense improvement over present conditions. That, of course, represents in essence the idea behind the program for co-ordination advanced for approval at the last session of the Legislature, but lost at that time on account of bickering over details. That mistake Chicago will have a chance to correct at the promised special session of the Legislature.

The *News* urges the people now to support the efforts of the local transportation committee of the City Council to bring about by negotiations a city-wide unified service to suit the needs of all the citizens. Of course, no announcement to that effect has been made, but in its enthusiasm for the idea the *News* says it may be assumed that, legal doubts having been cleared away by litigation, the auxiliary service of buses will be extended by the railway to various other sections now lacking proper transportation. That, of course, is mere prophecy. There is, however, nothing fanciful about the immense advantages that would be derived by the people of Chicago from a unified subway, elevated, street car and bus service, furnished at cost. Under the existing competitive service of surface cars, elevated trains and buses patrons pay the cost in inconvenience and delay, if not in double or triple fares. The wonder is that the pettishness of politicians should be permitted to interfere with the acceptance of facts self-evident.

Speed—A Vital Factor in Transportation

SPEED, and yet more speed, is a demand that ever has dominated transportation, public or private. For ages inventors have dreamed of means to annihilate space. Many of their schemes have been attended with some great measure of success, as witness the transportation systems of today. Horse cars were introduced with the idea of a more rapid means of travel, and they were electrified for the same reason. The advent of the bus had much the same idea in mind, to provide a vehicle faster than the best street railway cars. As yet it has not shown much superiority, and cars and buses give service on city streets that differ little if at all with respect to speed.

Of late years so many restrictions have been placed on the movement of vehicles in city streets that both cars and buses have been forced to reduce schedule speeds rather than to increase them. After fruitless attempts to modify onerous regulations, managers have been prone to take the position that Mark Twain did with respect to the weather, talking a great deal and doing very little.

It is refreshing to have an entire meeting of a utility association devoted to the subject of "Increased Speed with Safety," as the Transportation Section of the Wisconsin Utilities Association did last week.

It appeared to be the general opinion that transportation men have not done anything like all they can to obtain higher speeds. That there is an opportunity to get materially reduced running time for cars and buses without an increase in danger and frequently without any increase in the maximum speed of the vehicle, was shown by several of the speakers. The paper by E. J. McIlraith, staff engineer Chicago Surface Lines, published last week, gives many reasons advanced for delays on the average car trip, all of which tend to reduce the average speed. Some of the causes listed are inherent to public transportation, so that at best their influence can only be minimized. Others, while they may be observed on many systems, are not at all necessary, and a determined effort may eliminate them entirely. J. H. Lucas, in the article published this week, stressed the importance of much higher acceleration and braking rates than those in common use today. These will permit the street car to keep its place alongside the modern automobile whereas now even the truck can frequently pass the car.

In any event a careful analysis of conditions on any property will disclose a number of means by which delays can be minimized and the schedule speed correspondingly improved.

The Press as a Public Relations Agent

SPEAKING before the newspaper group of the International Advertising convention at Denver recently, J. C. McQuiston of the Westinghouse organization laid down eight reasons why his company favored the daily press as a medium for advertising and good will. Briefly, these were: Intimacy, flexibility, dealer tie-in, reader interest, immediate sales, co-operative good will message, sales support and checking results.

While all of these points may be and are applicable to the public utility advertising and public relations, the fourth point merits special discussion. In explanation Mr. McQuiston remarked:

Fourth, reader interest. The newspaper habit has caught every worth-while American and he buys and reads his daily paper. Any message, therefore, in the newspaper comes to him fresh and welcome.

Reader interest! That is what every publicity writer desires above everything else. If it is secured, then there are returns on investment greater than can be shown by cold figures. Especially is this true when one seeks to exchange honest intentions for the good will of a community; when one barter a "mental commodity" for a price that is equally as intangible. This leads us to the question of which is best, mass approach or private approach; in other words, in the public utility field, the pamphlet, dodger and poster as compared with display space in the daily press. With the former method the company's message is generally read when the reader is riding alone, when his mind in many cases is dis-



This recent garage at Berlin will hold 200 buses. Washing and inspection are carried on in the bay shown at the right

Berlin Erects A 200-Bus Garage

One bay is devoted to the daily cleaning, washing and inspection of every bus operating from the garage. The filling station is fitted with overhead charging pipes and can fill two buses a minute

IN BERLIN co-ordination of the bus, street railway and rapid transit service of the city has progressed much farther than in either London or Paris. In the German capital the city exercises control through stock ownership of the three companies operating the several services. Of the three means of transport the street railway, at the same flat fare charged by all, is the most profitable. The bus service is about carrying itself, and the city uses the surplus which it earns from its street railways to build extensions of its rapid transit lines.

In May, 1927, 490 buses were being operated by the bus department of this combined system, the Berlin General Omnibus Company, and 100 more were under order. Most of the buses are mounted on either N.A.G. or Bussing chassis with bodies built in the shops of a manufacturing company associated with the bus company, conducted under the name of Wagen Bauwerke, G.m.b.H.

The newest garage of the Berlin General Omnibus Company is on Helmholtzstrasse and is shown in the accompanying illustrations. It was begun in the spring of 1925 and finished in October, 1926, at a cost of about 1,500,000 marks (\$360,000). It is probably the most complete in equipment of any in Europe, possibly else-

where as well. It has accommodations for 160 buses, with the possibility of increasing this number to 200 without great difficulty.

Structurally, the garage is of steel girder construction with a great deal of glass in the roof and a span for the main part of the building of 53.5 m. The depth is 90 m., making this open area without columns about 175 ft. wide by 295 ft. long. Adjoining this space, used for the daily storage of buses, is an open bay extending the length of the garage, 18.6 m. (61 ft. wide), known as the wash and inspection bay. Adjoining the latter is a two-story building, also extending the length of the building and 10 m. (33 ft.) wide for carrying on light repairs, charging batteries, general storage, etc., with part of this extension opening on the main floor. The gasoline charging station and superintendent's office are in a separate building a short distance away.

EVERY DAY WASHING AND INSPECTION OF CARS

The bay called the washing and inspection room is a busy place between 10 p.m. and 6 a.m. All buses entering the garage in the evening before 10 o'clock are run to the western side of the garage unwashed. Beginning

at 10 o'clock these buses, with those arriving later, follow a regular course. In the first place, the interior is cleaned by being swept or mopped out and the upholstery of the seats is "vacuumed." In the second position the buses pass through the washing stand. In this washing machine the spraying pipes for the sides of the bus are in three horizontal rows and are mounted on small wheels so that the position of the stands is adjustable to a certain extent. The stands are supplied by water from above by flexible hose. There is also a spray from above and from the ends. After being thoroughly washed by these sprays, the bus proceeds to the third position, where any lumps of sticky dirt which have remained on the body, chassis or wheels during the spraying process are washed off with water from a hose directed by hand. To economize on water the nozzles on this hand hose have special valves which cut off the water two seconds after the nozzle has been released by the hand of the employee engaged in washing. In the fourth position the bus is dried and polished.



All gasoline taken at filling station is carefully measured by these instruments



Buses are charged at this filling station from overhead pipes



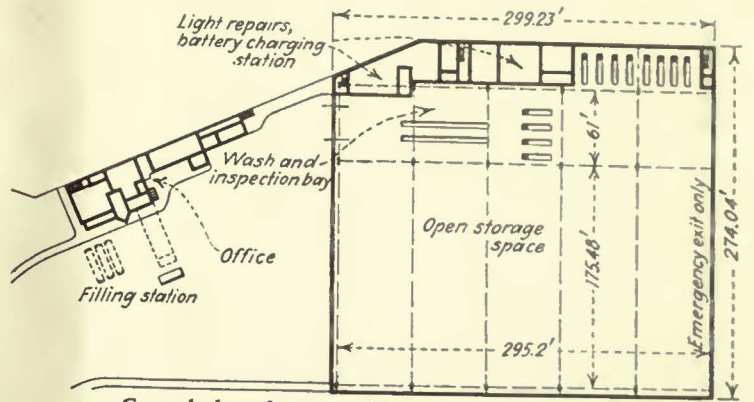
At left, the washing and inspection as seen from the repair pits. At right, column for roof with hot air heater and telephone booth and base protected by wooden curb against sideswiping of bus

In winter the water used for washing is kept at a constant comfortable temperature by an automatic heat regulator. The washing process takes three minutes in all.

Drains under the washing stand are arranged to trap the dirt before the water flows off into the sewer.

From the washing stand the bus goes to the inspection pits, where it remains about twelve minutes. During this time the buses are greased from below while the batteries are being changed, the spark plugs examined and the oil reservoir for the motor is being filled from above from a portable oil tank, which measures the oil put in each bus. This inspection and change of batteries are done to each bus daily. The inspection pits are lighted and heated as well as fitted with electric power sockets and compressed air connections. They are connected with each other and with the repair pits by an underground passage so that any material needed can easily be brought to the pit workers.

One of the illustrations on page 388 shows a near-by view of these inspection pits. On



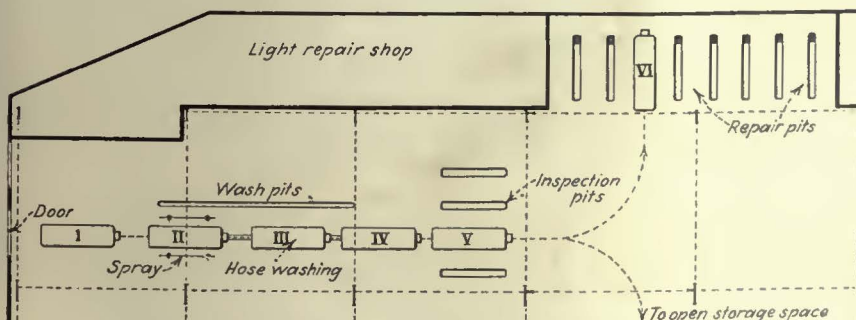
General plan of garage with adjoining filling station



The daily cleaning and inspection includes (1) vacuuming the inside, (2) spray washing, (3) hose washing, (4) inspection



The spraying racks are mounted on wheels so they are adjustable in position. They are connected to the water supply above by flexible hose



Every bus follows a regular daily course of washing and inspection

the right of the pillar in the foreground is a blower forming part of the general steam and hot air heating system of the garage. On the left of the pillar is a telephone booth. The view also shows the oak protecting curb which has been built around the bases of the pillars to prevent any sidwiping or endwiping of them by a bus.

The examination of every bus at the inspection pit determines whether it shall go to the operating or south side of the garage, ready for service, or to the repair pits on the north side.

Fire protection for the garage is supplied by a sprinkler system as well as by the provision of a number of chemical extinguishers and sand pails.

The filling station is in a separate building some distance away from the garage, for fire protection purposes, and is of an uncommon type in

that the filling pipes are supported on an overhead structure or bridge. Before adopting this design the management considered the two more common methods of post connection and side wall connection for filling stations, but adopted the overhead plan as more compact and rapid, since it permits two buses to be charged with 100 liters (26½ gal.) of gasoline each in a minute. The plan adopted is held equally safe from a fire standpoint.

The main supply of gas is stored in three underground tanks adjoining the outer support or pillar of the bridge. Each of these tanks has a capacity of 60,000 liters (16,000 gal.). Gasoline is brought to these tanks in the company's own 50,000-liter tank wagons, which are weighed on scales adjoining the bridge support before and after they discharge their contents into the underground reservoir. They can do this while standing on the scales.

From these underground tanks the gasoline is forced by electrically driven centrifugal pumps through a self-cleaning filter. The piping system is so arranged that gasoline can be drawn from any one of the three under-



The company has five of these tank wagons for taking gasoline from the railroad tanks to the garage charging stations

ground tanks and can be pumped from any one of these tanks to any other. After leaving the filter the gasoline passes through a set of meters to the three sets of charging pipes. Each of these consists of two pipes, one of 40 mm. (1½ in.) diameter and one of half that diameter. The larger one is used until the tank on the bus is nearly full, then it is shut off and the pipe of smaller diameter is employed. There is a separate meter on each pipe to give more accurate measurement of the amount taken. With a flow capacity in each set of pipes of 135 liters (35½ gal.) a minute, a capacity of each bus tank of 100 liters (26½ gal.) and three sets of charging pipes it will be seen that buses can be charged easily at the rate of 30 seconds each. When the filling of a bus is completed the charging hose is hauled out of the way. In addition, there is a small tap on the supporting pillar of the bridge for use in drawing gasoline for miscellaneous or emergency purposes.

Thermometers are arranged both in the measuring room and on the bridge, so that if the gasoline reaches a temperature thought dangerous all pumping is automatically stopped and a warning given. At all places where there is a possibility of drip there are gutters to catch the gasoline and carry it to an underground chamber, where it is pumped by hand through a filter and saved.

The standard bus of the Berlin General Omnibus Company has two decks, usually with the upper deck inclosed, four wheels and solid tires. Operating expenses about the first of this year were 33.5 cents per bus-mile. One six-wheel bus has recently been built for trial. The company has five garages.

Kansas City's Track Rehabilitation Program

REHABILITATION of the Kansas City Public Service Company requires about 25 miles of track replacement and several new bridges. This work will necessitate the use of thousands of tons of rock, which the company has decided to mine itself. A shaft was sunk and new equipment has been installed which will produce 500 cu.yd. of rock daily. For transporting and handling materials, two Differential motor cars, five trailers and one derrick have been added.

With 120,600 ft. of single track to be completed within a year, the problem of excavating 374,999 cu.yd. of material was solved through the purchase of an Insley excavator. This machine will do the work of from 25 to 30 men and will effect considerable economy.

Another addition to the equipment is a 21E Rex paver, capable of laying 700 to 800 ft. of single track a day. This machine is equipped with automatic water control, batch meter and timing device.

To work in conjunction with the paver, two Haiss power loaders have been purchased. These machines are used for loading sand and rock. With this equipment six to eight men can handle all materials to the paver. The loaders are equipped with strike-off batch hoppers that insure a more consistent mixture and, hence, a better grade of concrete.

To break out old concrete ahead of the power excavator two large portable air compressors, capable of handling six paving breakers each, have been added to the new equipment. There are 315 miles of track in Kansas City and about one-twelfth of it will be torn up and replaced by modern tracks and new paving. The construction department has been reorganized to carry on this work, at a cost of approximately \$1,000,000. Much has been done to minimize the cost of track rehabilitation by the purchase of new modern machinery and equipment.

This trackwork is progressing at the rate of about 1 mile per week. All material purchased outside of Kansas City, such as rails, steel ties and accessories, are stocked ahead of requirements. However, the larger bulk of the material consists of sand, stone and cement.

The company's cement cars go to a mill at Bonner Springs, Kan., and haul the cement direct to the job on which it is to be used. The sand supply is handled in the same way.

The type of track construction selected is considered the most modern yet designed, consisting of International steel ties and 90-lb. rails imbedded in a solid slab of concrete 13½ in. thick. Only two kinds of material are used, steel and concrete. No ballast, wood ties, asphalt, granite or brick paving are used, as in other types of track construction. The type of track now being torn up consisted of wood ties on ballast, or in concrete, 7-in. rail, tie plates, screw spikes and granite paving. The cost of this type per lineal foot of track was about \$13, as compared with a cost of approximately \$8 a lineal foot of the new track. The difference in cost is due to various factors: First, the present type of construction calls for less excavation and still gives ample depth for the track structure; second, the section of rail adopted, although about the same weight as the old rail, costs much less per ton, being standard section; third, granite paving is very expensive and is not necessary for the present-day rubber-tired vehicles.

Designing Vehicles to Sell Rides

By J. H. Lucas

General Superintendent of Rolling Stock
The Milwaukee Electric Railway & Light Company

The following article is taken from an address before the Transportation Section of the Wisconsin Utilities Association at its summer meeting, held at Milwaukee on Aug. 18-19. All of the pictures were furnished by the author in illustration of the points he makes in the course of the address.

WITH Joliet, Ill., and Springfield, Mass., bringing out cars-like buses and the automobile manufacturers producing buses resembling street cars, we can well afford to devote some time to the consideration of current trends and objectives. It is an encouraging sign for all of us to note the activity throughout the country in providing new equipment, new cars and new buses. And operators all make old equipment more comfortable and attractive. The private auto and the bus have brought new ideas into the transportation field and our car and bus equipment must keep pace or preferably do better.

The motor bus builders are good advertisers. Glance at one manufacturer's prospectus and see if it offers anything of value. "The ruggedly built body of the P.D.Q. bus will give years of service. The side panels are padded to prevent road noises and windows which slide in grooves of felt are non-rattling. This car is designed to provide superlative comfort. Deep lounging seats, wide aisles, unobstructed vision, adequate ventilation and quiet operation insure utmost comfort." "Abundant power and speed." "Special heavy duty rear axle and with special springs and balloon tires. This parlor car rides with rail-like smoothness." Note that!

They go on to say that "equipment is complete and includes front and rear bumpers, etc.—and on the dash, grouped under glass, artistically arranged and indirectly lighted, are the instruments—speedometer, ammeter, oil gage, gas gage, thermometer, eight-day clock, etc." "The long low lines of the body blend gracefully into the cowl and hood, and at the rear an ornamental grille work and awning accentuate the luxurious impression."

There's a whole barrellfull of ideas. As a matter of fact, the co-ordination of car and bus design has already made great progress. We have adopted bus ideas to rail car use, and while we can take more, the reverse is also true, i.e., bus designers have used and can use more rail experience and principles to advantage. Speed, comfort and attractiveness are stressed as of major importance in modern transportation vehicles.

In this day speed is primarily important, and we are finding that our electric railway has some advantages. For example, consider our own interurban lines running out of Milwaukee. When paralleling concrete roads



Development of Interurban Car Seats
and Interior Finish

At top, high back seats, 1922; center, sedan-type seats, improved lighting and finish, 1924; below, individual de luxe seats, 1926.

were laid a few years ago, the competitive buses were able to take their small load through traffic and into the country more quickly than the rail cars. By a change in route we were able to get onto our own right-of-way in ten minutes, eliminating a long drag through city streets. With motors geared up to 65 to 70 m.p.h., private autos and buses cannot equal our time and we are getting a healthy increase in the interurban business. This particular instance depended for success on other matters beside improved car design, and is a good example of the absolute necessity of doing everything to increase speed.

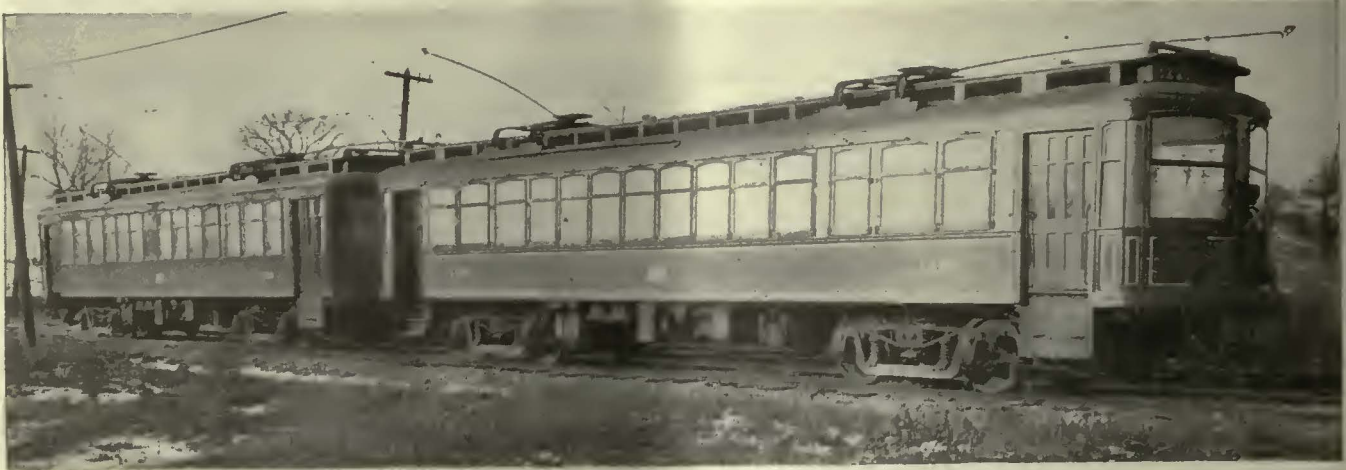
In city service, likewise, speed must be the first consideration of car and bus design. High acceleration rates are essential, and where $1\frac{1}{2}$ to $1\frac{3}{4}$ m.p.h. per second used

to be considered good, 3 m.p.h. per second is now thought desirable. This necessitates larger motor capacity or higher-speed motors with steeper gear ratios. The possibility of using 6 or 7 to 1 worm gears is one of the things that make the automotive type axle a possibility for car use.

The bus, too, must pro-



As a further aid to speed, we must consider the use of anti-friction bearings. Many of us tested anti-friction bearings under cars years ago, and past experience somewhat prejudiced our opinion. Roller bearings today are so much improved that they again merit consideration for the possibility of better acceleration, if for no other reason.



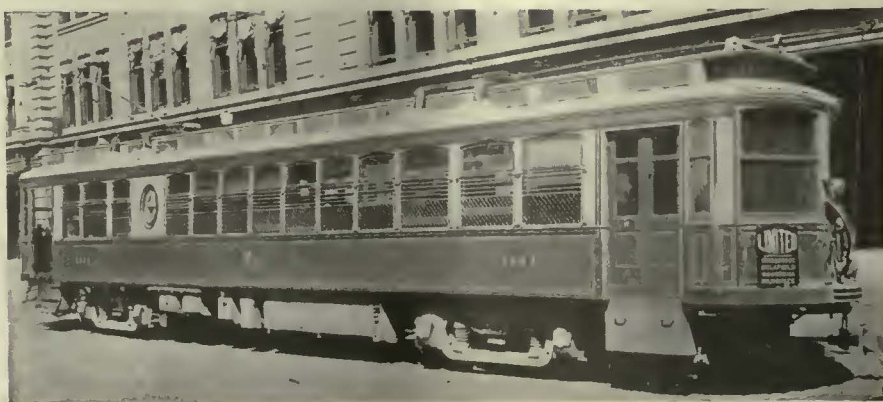
vide more power for pep and speed. The original four-cylinder engines furnished with the first buses were too small today. In fact, it is pretty generally realized that the six-cylinder bus costs no more to operate and gives better speed and comfort. Gas consumption with the six is practically the same as with the four in equal service, as gears are



Possibility of improvement in braking also must be given thought. With higher speeds for all vehicles we must specify the best possible brakes for safety. Various types of power brakes are being tried out on buses. Whether the automotive type of braking apparatus that is being tested under street cars is going to be an improvement over our old standard of cast-iron

Improving Body Lines of Interurban Cars

A single car of the old type is shown at the right. Immediately above is a similar car after rebuilding.



The views at the top show two-car trains of the old and new types, indicating how improved lines have been obtained.

shifted less frequently. Less gear shifting speeds schedules considerably in city operation, and the greater proportion of time operating in high gear provides more comfort for passengers. The latest product of the bus builders' art employs two motors per car to provide ample power for speed, thus copying electric car practice and further emphasizing the co-ordination in design.

shoes bearing directly on the wheels remains to be seen. It is significant to note that metal to metal brakes are being used to some extent on the buses.

When we consider comfort, we find that the bus and automobile have assisted in one of the outstanding improvements of recent cars, the change in seats. For years our best offering in a car seat used fairly stiff

springs and a reversible back, which was straight across and not at all form-fitting. The sedan bus brought the automobile seat and the so-called parlor bus the soft upholstered individual chair, which have proved a most popular addition to our interurban equipment. Nine out



Above—Streamline effect obtained through two-color paint scheme. At left—Old-style single color system of painting on the same series of cars

of ten passengers, asked concerning their impression of our interurban improvements, mention "those seats," so it is easy to know where to stand on the seating question.

It is out of the question and unnecessary to consider the use of this type of seats in city cars and buses, but for this short ride service the use of fabric or other upholstery than the old standard rattan has made some favorable impression. This may be a passing fad and really has more to do with appearance than comfort.

Other features contributing to comfort are light, heat and ventilation, the elimination of noise and improved riding qualities. The bus does not offer as much with respect to the first three as the rail car does and the relative advantage of noise and ease of carriage is open to question. Lighting is one of the cheapest items. We can well afford to have cars and buses well lighted, so that passengers can read in comfort and cars will appear attractive. Bus fixtures particularly need improvement. All parts of electrical apparatus on a bus are too small and flimsy and bus makers can co-ordinate to considerable advantage by using standard car wiring connections, etc., which admittedly would be oversize, but which would nevertheless give less trouble and failures in service.

Bus heating systems also must be improved if we are to maintain equal warmth for comfort in a bus as we have in cars. Steam and hot water heat for buses are experimental. We have in Milwaukee the first double-deck bus in the world to have heat in the upper story. This is steam heat. One advantage of steam is that you can use $\frac{1}{4}$ -in. copper tubing for body radiator connections and eliminate the large sized exhaust pipes from the floor and inside of the bus. Steam also minimizes the fire hazard.

Ventilation of buses can be improved by following interurban car practice and providing for positive inlet of fresh air. A great deal of complaint of car sickness and nausea can be avoided by proper ventilation in both car and bus.

Quietness and ease of riding are two qualities contributing to comfort that to a certain extent go hand in hand. For a time it was suggested that the automotive



An inclosed cabinet conceals controller and piping, making for a clean platform

vehicle had an inherent advantage because it rode on rubber tires, and we heard a lot of talk concerning the "rubber urge." Now, as in the advertisement quoted earlier, the bus is stressing operation "with rail-like smoothness." Noise is a sign of wasted energy and poor design. Rubber is an excellent absorber of sound, and if we cannot use it in our wheels we at least should employ it to deaden metal-to-metal contacts where annoying noise is produced. Rubber-cushioned wheels have not been successful because the space in which rubber can be inserted in a car wheel is too limited. If we ever come to a cushion wheel for rail cars it will be something other than rubber, possibly the old pressed-paper center wheel such as was used under Pullman cars years ago.

The bus, however, features rubber spring shackles and engine mountings. This points out some advantageous applications on cars. Rubber pads under center bearings have been used and the report on noise research presented before this convention last year indicated that this installation has accomplished something. Rubber washers at drawbar anchorages and rubber hose around



A modern bus that has been designed with street car appearance

brake rod supports quiet little knocks that are noticed and complained of by the passenger. Other sound-absorbing materials are available for eliminating noise, squeaks and rattles from bus and car and all such deserve consideration.

Reduction of noise is presumed to be an important feature of the automotive type axle with its worm gear as used under the Joliet and Springfield cars. We may not fancy this particular type of axle with its differential, but we cannot ignore the possibilities of the worm gear on this one count alone. We can get other types of worm gears to go on our standard axle, and from such experience as we have had in our buses, i.e., quiet operation and low maintenance, I would be inclined to try some if the cost were anywhere within reason.

Good roadway and track maintenance affects riding results and noise to a degree that is of equal importance to all that we can do in vehicle design. Up-to-date car trucks with ample wheelbase and proper spring proportions will please our passengers more than the older models can with the same track conditions, but any car rides poorly on rough track just as any bus or automobile does on a rough road. With increased speed, both tracks and trucks must be given more attention.

In a resolution adopted at the December meeting, the equipment committee of the A.E.R.E.A. recognized the need of more attractive rolling stock. This problem concerns not only the design and evolution of new rolling stock, but also includes the changing of existing cars and buses to modernize them and to increase the passenger sales value of the equipment. Competition cannot be met with cars that are the same today as twenty years ago. While all of the old cars cannot be scrapped, they can at least have a change in color of paint and it is surprising how much attention and favorable comment such a relatively small expenditure will bring.

The automotive people have learned to accentuate "streamline effects" with paint. We can undoubtedly use this thought in repainting cars as well as in new construction. Contrasting colors on upper and lower body panels with the judicious use of striping unquestionably adds to the appearance of any car and is much more pleasing than one solid color. I would not suggest consulting an artist when you pick a color scheme for rolling stock. Bright, attractive combinations of the reds, yellows and greens with cream or ivory are very

effective on a public conveyance, although they may jar the sensibilities of one who has been educated to values of the more refined tints and subdued shades. The bus builders have led in the adoption of lacquer finishes, and there is no doubt that this material has splendid wearing qualities on metal surfaces. Lacquer for wood may be developed, but there seem to be more possibilities in the adoption of metal covering for all exterior parts so that we can use the present materials. Metal doors and sash are being produced with this in view.

In the Springfield cars the body builders imitated bus design in the windshield effect of the motorman's window. Whether we need to go this far in co-ordinating design is again a question. Personally, I do not think that the automobile or bus with its engine hood sticking out in front is much better looking than our standard car. The "Twin Coach" adopts street car appearance and conceals its motors under the body to produce a fairly good looking job.

On the inside of the car, however, we can take a tip from the bus and arrange our control equipment more neatly. On older cars we have a mess of pipes, valves, a homely controller, door-operating shaft, fare box stands, etc., that collect dust and dirt, old newspapers and transfer punchings; overhead a miscellaneous array of switches and wires. On new equipment, it costs little more to specify simple cabinet inclosures for this equipment, which contribute substantially to good appearance and are easy to keep clean. If old cars are being converted for one-man operation, a little thought and money spent on this feature will be well worth while.

Soldiers Transported on Buses of Boston "El"

BUSES of the Boston Elevated Railway carried nearly 1,500 men to Camp Devens for their summer encampment on July 9. Fifty-nine buses, each containing approximately 25 men, with their equipment, were mobilized in four groups for this purpose.

Two state constabulary officers on motorcycles went with each group, one leading and setting the pace at about 20 miles per hour, the other guarding the rear from interference. The "L" furnished nearly one-half of all the buses engaged in this troop movement, the total involved being about 125.

Readers' Forum

Methods of Improving Quality of Rails

WILKINSBURG, PA., Aug. 23, 1927.

To the Editor:

Efforts to secure a quality of rail that will have longer life have been made principally in two directions. One has been the use of increasingly harder steels; i.e., of higher carbon content, ranging up to about 1 per cent. The result, however, has been disappointing. While a steel of such high carbon content is much harder than mild or semi-mild steel, it is also much more brittle and considerably greater care as to quality becomes necessary. The use of alloy steels has not as yet met with any degree of success. If they are used simply in the "as rolled" condition nickel or nickel-chromium steels offer little advantage over straight carbon steels. Manganese steel shows exceptional resistance to wear and proves successful in rail junctions and crossings, but it is too costly for use as ordinary rails.

The second line of effort for the improvement of rails has been an attempt to secure perfectly sound and homogeneous steel free from blowholes, non-metallic material and segregation. For trial purposes special rails have been ordered to stringent specifications in regard to homogeneity. The production of steel to meet such requirements, however, entails so wide a departure from ordinary rail production practice that the cost becomes excessive. The desirability of "sound steel" for rails from the point of view of safety cannot be denied, and it is a problem to be faced by the steel maker how to produce a better quality of steel, more suited to modern requirements of speeds and loads, without an excessive increase in cost.

Meanwhile, a third method of improving rail quality is receiving increasing attention, viz., the application of heat treatment. This is by no means a novel idea, as it was suggested and tried many years ago. The great advantage to be gained by the use of heat treatment is that it is possible to combine considerable surface hardness with great toughness and considerable ductility in the body of the rail and to use a steel of medium carbon content. There is, however, a serious consideration which may, perhaps, account for the limited employment of the heat-treated rail. No amount of heat treatment can get rid of the defects and dangers associated with unsoft steel; in fact, it is more than doubtful whether it is wise to apply such treatment to steel which is segregated, contaminated with non-metallic inclusions or interspersed with blowholes. Indeed, since internal defects are likely to cause cracking during quenching operation, the heat treatment of steel of relatively low grade may do more harm than good.

The application of heat treatment to rail steel has again been taken up in France at the Neuve-Maisons works of the Compagnie des Forges de Chatillon. Like previous heat-treatment processes applied to rails, the aim is to harden and temper the steel of the head only, by a partial quenching, which leaves the heat from the rest of the rail, flowing into the head after quenching, to effect the right degree of tempering. The novel feature of the method employed at the French works is the way the quenching of the head is carried out. For this purpose the hot rail is pushed into a long frame, in which it is held head down over the long quenching bath. The quenching process consists in making the quenching

water come into contact with the rail head for a brief period several times in succession. In order to regulate the severity of the quenching effect a limited amount of water is used, so that the quenching water rapidly comes to the boil. Boiling water has very little quenching effect, and by this means an almost automatic compensation is brought about for differences in the temperatures of successive rails as they are brought to treatment. The hotter rail raises the quenching water to the boiling point more rapidly and thus compensates for what would otherwise be a more severe quenching effect.

There can be no doubt that carefully controlled heat treatment of this kind must produce markedly beneficial results on rails made of medium hard steel of good quality. Hardness and abrasion tests carried out at the French works speak strongly in favor of the heat-treated material, as is to be expected. Whether or not the treatment will justify itself in practice remains to be seen. As suggested above, it must depend to a very large extent upon the general quality of the steel to which the process is applied. Although good steel can be markedly improved by the right heat treatment, the best of heat treatment cannot cure an unsound steel.

JAMES SILBERSTEIN,
Metallurgical Engineer.

Push the Button and Learn the Shortest Route



Intending passengers on London tramways can learn by pushing a button the route to take to any desired point

DEVICES known as "pathfinders" have been installed by the London County Council Tramways at two or three important traffic points on its system. The device consists of a large map of the L. C. C. tramway lines, supported vertically in a frame with a row of some 40 push buttons on each side. Opposite each push button is the name of an important traffic point on the system, with the number of the car route which a passenger must take from the location of the "pathfinder" to reach that point.

If any intending passenger wishes to know the direction and streets covered by that route, he has only to push the button opposite his desired destination. This lights a row of miniature electric lights behind the map, showing the route to be followed.

The accompanying illustration shows one of these "pathfinders" of the L. C. C. tramways at its Westminster Bridge waiting station. An intending passenger is shown in the act of pushing a button.

Maintenance Methods *and* Devices

Canvas Hose Run Through Vat and Wringer

INSULATING compound is applied to the canvas hose used in covering conductor cables on cars of the Dallas Railway & Terminal Company, Dallas, Tex., by a home-made vat, clothes wringer and winding reel. This small but important piece of apparatus is mounted on one of the roof-supporting posts of the

pulley operated from the crankshaft of the wringer. In operation, the hose is laid out on the floor in line with the apparatus. It is fed through the lower sheave and up through the wringer rollers. The vat is filled with the insulating compound and the end of the hose is then carried up and attached to the winding reel. It is only necessary then for the operator to turn the crank of the wringer and the entire length of hose is treated without further attention.



Apparatus used in the shop of the Dallas Railway & Terminal Company for treating canvas hose used in protecting cables mounted in cars. It consists of an abbreviated clothes wringer, reel and vat. Ten minutes are required to treat a 100-ft. length

shop. Its use enables the coating of 100-ft. lengths of the 2-in. diameter canvas hose in a little less than ten minutes. It replaces the former process of painting with the canvas stretched out on the floor. The vat is "V"-shaped, of sufficient width to accommodate the hose. A sheave at the bottom of the tank guides the hose through the insulating compound, while an abbreviated clothes wringer at the top serves not only to pull the hose through the tank but also to squeeze out excess compound and thoroughly to impregnate the fabric. A reel mounted above the vat is driven positively by a spring belt and

Spray and Dip Painting in London

SPRAY and dip painting are used extensively by the electric railway and bus companies in London, England. In the shops of the London County Council Tramways several rooms, one of which is illustrated, have been partitioned off for spray painting with good facilities for exhausting the waste paint vapors. Temporary partitions are used at present, but later it is expected that permanent rooms for spray painting will be provided.

The room is lighted by two rows of lamps on each side. Each wall has sockets for holding the brackets of the painters' scaffolding. In the view published a row of such brackets are shown above the first cross girder, so that the scaffolding



Spray painting of cars on the London County Council system is done in individual chambers provided with steam heating and exhaust systems

can be used for painting the upper deck of the car. Steam heat is used to assist the drying process and the room is well ventilated from above as well as by exhaust pipes which extend down the walls on each side. Cars are both painted and varnished by the spray process in this room, which is long enough to hold several cars. It is the company's practice once a year to give each car a coat of color and one of varnish. The old paint is rubbed down but not burned off.

The system has several small chambers, 4 ft. high and 4 ft. to 6 ft. wide for spray painting small parts. They look somewhat like dry goods boxes with the front end open. The rear of each of these boxes is fitted



Car parts in London suitable for one color jobs are dipped into paint tanks. Varnish is also applied in the same way

with an exhaust pipe for removing the fumes sprayed.

All car parts which can be finished in one color are dip painted rather than sprayed. This applied to parts like life guards, floor mats, long lining boards and gear cases, which, on the London County Council Tramways, are of wood. Some of the dip tanks used for this purpose are 20 ft. or more in length to accommodate the longer pieces. Those parts which need a coat of varnish later are dipped in similar varnish tanks after their paint has dried. A view of one of the dipping rooms is given in the second illustration.

Many a car's downfall is the result of a poor overhaul.

Convenient Method of Carrying Welding Equipment

By M. SPITZ
Gary & Southern Traction Company,
Crown Point, Ind.

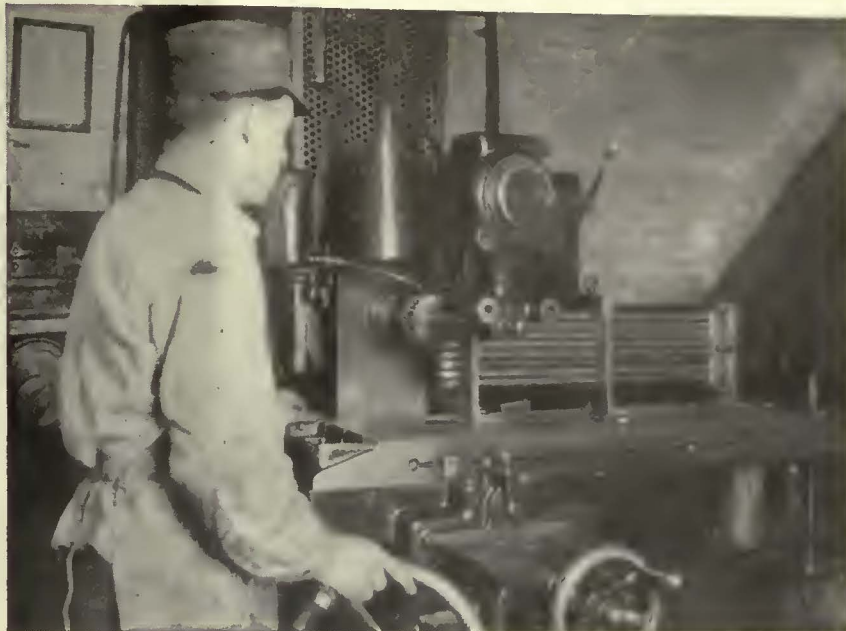
EQUIPMENT for bond welding is carried on a motor car by the Gary & Southern Traction Company, Crown Point, Ind. The welder is connected to the trolley base of the



Method of carrying and connecting welding equipment on a car of the Gary & Southern Traction Company

car, so a separate pole is not needed to connect the welder to the trolley wire. This speeds up the work so that in eight hours 224 bonds were welded to the rail. A total of 2,200 Una bonds have been welded in this manner in a short interval.

Fixture for Milling Square Ends on Rods



Convenient fixture for milling the square ends on elevated gate bars

GATE bars for the elevated cars of the Brooklyn - Manhattan Transit Corporation, Brooklyn, N. Y., are square at both ends. The faces of the square portion must be in the same plane for the two ends of the bar. In order to provide for accurate work in making these bars and also to provide for milling a quantity of them at one time a fixture shown in the accompanying illustration is used.

The fixture consists of three uprights which are fastened to the table of the milling machine and which provide for clamping eight bars. When the squares at one end are milled, these fit into a plate with square holes at the opposite end of the fixture so as to hold the surfaces in alignment while the other ends of the bars are milled. Accurate alignment of the faces results.

Monthly Contest Still Open

EYES of all contestants in ELECTRIC RAILWAY JOURNAL's Maintenance Competition are now turned toward the Convention Issue, which will be published on Sept. 17 and will contain an announcement of the winners of the Capital Prizes and the August monthly winner. The winning articles will be published also. The material received has been of such a valuable nature that it has been decided to add a fourth capital prize to the other three for the maintenance article that receives honorable mention by the judges. The list of capital prizes now is: first, \$200; second, \$100, third, \$50, and honorable mention, \$25.

CONTEST STILL RUNNING

Competition for the monthly prizes of \$25 each still continues and many additional articles are being received. Each of the articles received up to April 30, 1928, will have a chance of winning one of the monthly prizes

and, in addition, \$5 will be paid for each item published whether it receives a prize or not.

CONTEST CONDITIONS

1. Any employee of an electric railway or bus subsidiary may compete.
2. The author does not need to be the originator of the idea.
3. Articles may be submitted by several persons or by a department.
4. Any maintenance practice or device for electric railway or bus repairs may be the subject.
5. Articles should be 100 to 200 words long with one illustration, and in no event longer than 400 words with two illustrations.
6. Manuscripts should be mailed to the editor of ELECTRIC RAILWAY JOURNAL, Tenth Avenue at 36th Street, New York, N.Y. To be eligible for the monthly prizes manuscripts will be received until April 30, 1928.
7. Illustration material may be in the form of drawings, sketches, blueprints or photographs. All sheets should be marked "Maintenance Competition."
8. Details of the conditions not given will be found in ELECTRIC RAILWAY JOURNAL for April 16, pages 700-701.

New Equipment Available

Light-Duty Elevating Platform Truck

HANDLING of skid loads or delivering and receiving goods to motor trucks or electric cars is the purpose of a new light-duty electric tiering truck added to the line being marketed by the Elwell-Parker Electric Company, Cleveland, Ohio. It will elevate a load from the floor to a maximum height of 8 ft.

The truck is of all-steel construction and is built on the interchangeable parts basis. The power plant is



New type elevating platform electric truck

of unit type, which includes an Elwell-Parker motor, steel brake drum, steel multi-thread Brown & Sharpe worm, chrome-vanadium drive shafts and universal joints to permit steering and the delivery of power to the steel clutch plates bolted to the outside of the drive wheels. Solid rubber tires are provided.

The operator's pedals, one for brake and the other for controller reverse drum, trip to off position when the pedal is raised and are provided with a heel rest with a non-slip surface. The pedals are spring folded when the operator leaves the truck. The braking and power are actuated separately to provide for incline operation.

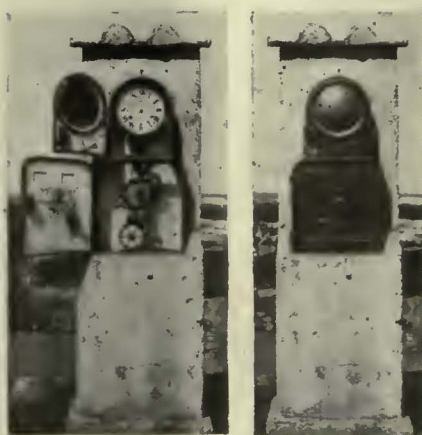
The platform is a solid plate of steel with edges bent to form a deep skirt and with heavy angles welded down the middle for attachment to steel support arms. Each arm carries two long rollers which bear on heavy section channel uprights fitted with a track.

The main frame is built of angles, channels and heavy gusset plates. The battery compartment, with removable sides, will accommodate practically any size battery the service may require, and still the truck is narrow enough and short enough to turn in narrow aisles. The steering mechanism is of the ball-and-socket type. This machine is a high-speed tool and is built with various height lifts and several sizes of platforms.

Rome Headway Recorder

TWELVE headway recorders of the type shown in the accompanying illustrations are in use on the Rome Municipal Tramways. They were designed by Romolo Remotti, superintendent of transportation of the system. One of these recorders was put in service about two years ago and proved so satisfactory that eleven others have been installed during the past twelve months. They are operated by the motorman or conductor.

When a car reaches a recorder, the operator stops, inserts a key, turns it first in one keyhole and then in another, then returns to the car. This takes less than twenty seconds and leaves a record of the time and of the key number. So as not to delay the service, the recorders are placed at points where a stop of at least twenty seconds would be made in any event, as at a terminus or at a near-by street intersection. They are not used in the center of the city, but it is believed as good results are secured as if recorders were also in the busy sections. Even when at or near a terminal, registrations are made on both the inbound and outbound trips.



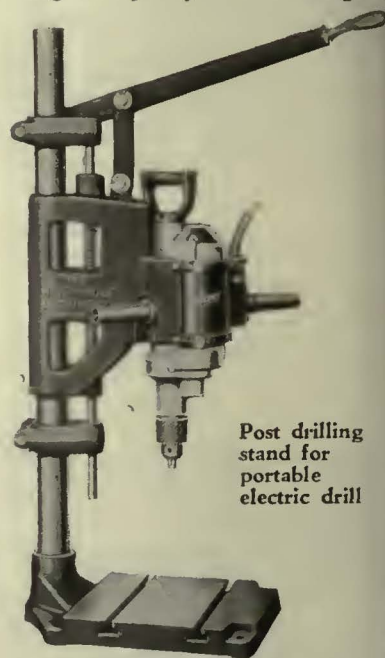
This headway recorder is used in Rome; at left, open; at right, closed

The purpose of the two keyholes mentioned is to prevent dust and other foreign bodies from getting into the working part of the recorder.

When the registrations from this recorder are tabulated or plotted they clearly indicate any irregularities in the running time.

Stands for Electric Drills

FOR post, wall or bench mounting a line of new stands for Hisey electric drills has been designed by the Hisey-Wolf Machine Company, Cincinnati, Ohio. These stands are made for sizes of electric drills from $\frac{1}{4}$ in. to $\frac{7}{8}$ in. capacity and are designed



Post drilling stand for portable electric drill

so that the portable drills can be attached without removing parts of the machine. The supporting bracket and electric drill housing are machined accurately on each end to insure perfect alignment of the drill in the stand.

Improved Aluminum Arrester

VOLTAGE per cell has been reduced, thus affording longer life, in an improved lightning arrester introduced by the General Electric Company for direct-current railway service. The new type of cells, with balancing resistances direct connected, can be substituted easily in the boxes in place of units now in service. Although these improved arresters have just been put on the market, they have been tested thoroughly on railway properties operating in localities where lightning conditions are unusually severe.

American Association News

Convention Program Shows Many Changes from Last Year

Round table luncheon conferences for executives, group meetings for the engineers, and additional time for inspection of exhibits, among the features

MANY changes have been made in the arrangements for the 46th annual convention of the American Electric Railway Association, to be held in Cleveland, Ohio, from Oct. 1 to Oct. 7. The program, just released by the association, shows that much thought has been put on the problem of getting the greatest value out of the time at the disposal of the delegates.

The exhibits will open at noon of Saturday, Oct. 1. As in previous years meetings of the American Association will be held in the mornings and those of the affiliated associations in the afternoons on Monday, Tuesday and Thursday, Oct. 3, 4 and 6. Wednesday will be set aside for inspection of the exhibits, as has been the practice for the past two years. A new feature this year will be the conference luncheons on specific topics, which have been referred to in previous issues of this paper.

Meetings of the American Association and those of the Transportation & Traffic Association will be held in the Auditorium Annex. This is the same

room in which these associations held their meetings last year. The Tuesday evening meeting under the auspices of the Advisory Council will be held in the main ball room on the Arena floor of the Auditorium. Meetings of the Engineering Association, the Accountants' Association and the Claims Association will be held in newly arranged rooms in the lower floor of the Auditorium building. The Tuesday sessions of the Engineering Association will be held in four groups, the principal subjects being Way and Structures, Rolling Stock, Purchases and Stores, and Power. There will be a joint meeting of the Claims Association and the Transportation & Traffic Association on Tuesday afternoon. The round table luncheon conferences will be held in private dining rooms of the local hotels, those on Tuesday being at the Hotel Hollenden and those on Wednesday at the Hotel Cleveland. The larger conference scheduled for Thursday will be held at the Hotel Statler.

The complete program, revised to Sept. 2, follows:

AMERICAN ASSOCIATION

Monday Morning, Oct. 3

WELCOME—W. R. Hopkins, City Manager, City of Cleveland.

PRESIDENT'S ADDRESS.

COMMITTEE REPORTS.

ADDRESS—Dr. A. H. Wishart, pastor First Baptist Church, Grand Rapids, Mich.; a talk on what the public expects and how the railways can please.

ADDRESS—Dr. Miller McClintock, head of The Albert Russell Erkin Bureau for Street Traffic Research, Harvard University; a talk on street traffic control and electric railway operation.

Tuesday Morning, Oct. 4

REPORT OF COMMITTEE ON NOMINATIONS—J. N. Shannahan, chairman.

ELECTION OF OFFICERS.

ADDRESS—M. H. Aylesworth, president National Broadcasting Company, New York; a talk on leadership in the utility field.

ADDRESS—George E. Frazer, Frazer & Torbet, certified public accountants, Chicago; a talk on financial structure.

ADDRESS—Merle Thorpe, editor *The Nation's Business*, Washington, D. C.; a discussion of the manifold contacts of the federal government with business.

ADDRESS—Hon. Wm. W. Potter, attorney general of the state of Michigan; some observations on commission regulation.

REPORT OF COMMITTEE ON CONSTITUTION AND BY-LAWS—C. D. Emmons, chairman.

Round Table Luncheon Conferences, Hotel Hollenden, 1 to 2.30 P.M.

No. 1. Traffic Regulation—H. B. Flow-ers, sponsor.

No. 2. Taxes—Leslie Vickers, sponsor.

No. 3. The Motor Bus—L. H. Palmer, sponsor.

No. 4. The Trend in Franchises—L. R. Nash, sponsor.

No. 5. Developing Sales Instinct in Platform Employees—G. H. Clifford, sponsor.

No. 6. Advertising—to Increase Riding; to Improve Public Relations.

Tuesday Evening, Oct. 4

ADVISORY COUNCIL NIGHT—B. C. Cobb, chairman of Advisory Council, presiding.

CLEVELAND MALE CHORUS.

ADDRESS—B. C. Cobb, New York.

SOLO—Miss Anna Case of the Metropolitan Opera Company.

ADDRESS—Hon. George B. Cortelyou, president Consolidated Gas Company, New York, and chairman Joint Committee of National Utility Associations.

SOLO—Miss Anna Case.

PRESENTATION OF CHARLES A. COFFIN FOUNDATION AWARD.

SOLO—Miss Anna Case.

DANCING UNTIL 1 A.M.

Wednesday, Oct. 5

EXHIBIT INSPECTION DAY. There will be no formal sessions.

Round Table Luncheon Conferences, Hotel Cleveland, 1 to 2.30 P.M.

No. 7. Cars—What Is Being Done and Results—L. J. DeLamarter, sponsor.

No. 8. The Problem of Financing.

No. 9. Public Relations—T. Fitzgerald, sponsor.

No. 10. Bringing City Service Up to Date.

No. 11. The Valuation Question—Walter A. Draper, sponsor.

No. 12. Trend of Fares—F. W. Doolittle, sponsor.

No. 13. Employee Relations—Britton I. Budd, sponsor.

Thursday Morning, Oct. 6

ADDRESS—E. F. Wickwire, chairman committee on co-operation of manufacturers.

SYMPOSIUM—"How the Industry is Progressing." Five-minute talks by operating executives relating the feature accomplishments of the year on properties in different parts of the country. Questions which will be asked and answered are as follows:

Does aggressive property-wide rehabilitation pay?

How are you arranging service and publicity to secure an additional passenger per car mile?

How have you reduced pull-ins to one in 600,000 miles and how have you reduced equipment maintenance costs to 2 cents per car mile?

How have you reduced overhead line breaks to one in 58 days?

What are the facts about your ability to operate at same cost per mile as prior to the war?

How have you inspired platform men with greater interest in their jobs?

With very low population per mile of track, how have you made your system pay?

How have you sold the public on the railway?

How have you robbed the junk man of your interurban and made it a profitable property?

How are you meeting the transportation needs of your community?

How have you made a 300 per cent increase in revenue?

How did you change an unprofitable bus operation to a highly profitable one?

What has been your experience with deluxe service in a large city?

ADDRESS—Francis H. Sisson, vice-president Guaranty Trust Company, New York; a discussion of factors that affect the market for electric railway securities.

INSTALLATION OF OFFICERS.

Round Table Luncheon Conference, Hotel Statler, 1 P.M.

No. 14. Opportunities and Prospects for the Interurban. Dr. Thomas Conway, Jr., sponsor.

REPORT OF JOINT COMMITTEE ON TRAFFIC AND SAFETY—H. K. Bennett and C. H. Evenson, co-chairmen.

PREPARED DISCUSSION.

GENERAL DISCUSSION.

REPORT OF COMMITTEE ON BONUS AND AWARD SYSTEMS—G. T. Hellmuth, chairman.

PREPARED DISCUSSION.

GENERAL DISCUSSION.

ADDRESS—"Work of National Safety Council"—James P. Barnes, president, Louisville Railway, Louisville, Ky.

GENERAL DISCUSSION.

ACCOUNTANTS' ASSOCIATION

Monday Afternoon, Oct. 3

ADDRESS OF PRESIDENT.

REPORT OF EXECUTIVE COMMITTEE.

REPORT OF SECRETARY-TREASURER.

APPOINTMENT OF COMMITTEE ON NOMINATIONS.

REPORT OF COMMITTEE REPRESENTING THE ACCOUNTANTS' ASSOCIATION AT THE ANNUAL CONVENTION OF THE NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS—W. L. Davis, auditor Lehigh Valley Transit Company, Allentown, Pa., chairman.

Discussion.

REPORT OF COMMITTEE ON BUS ACCOUNTING—M. W. Glover, general auditor West Penn Railways, Pittsburgh, Pa., chairman.

Discussion.

REPORT OF THE COMMITTEE ON STANDARD CLASSIFICATION OF ACCOUNTS—M. W. Glover, general auditor West Penn Railways, Pittsburgh, Pa., chairman.

Discussion.

PAPER—"Public Service Regulation—Effect on Accounting Practice"—Harry Boggs, certified accountant, Indianapolis, Ind.

Discussion.

Tuesday Afternoon, Oct. 4

REPORT OF COMMITTEE TO REVIEW THE PROCEEDINGS OF THE ACCOUNTANTS' ASSOCIATION—J. E. Heberle, assistant to the president Capital Traction Company, Washington, D. C., chairman.

Discussion.

REPORT OF THE COMMITTEE ON FARE COLLECTION—E. A. Tuson, general

auditor Public Service Railway, Newark, N. J., chairman.

Discussion.

PAPER—"Combating the Present Day Criminal." This talk will deal especially with conditions as they exist in street railway auditing departments. W. L. Barnhardt, resident vice-president National Surety Company, New York.

Discussion.

Wednesday, Oct. 5

EXHIBIT DAY—There will be no formal meeting except that a get-together luncheon at 12:30 p.m. will be arranged. The details of this will be announced later.

Thursday, Oct. 6

REPORT OF THE COMMITTEE ON GRAPHS—C. R. Mahan, comptroller Chicago, North Shore & Milwaukee Railroad, Highwood, Ill., chairman.

Discussion.

REPORT OF THE COMMITTEE ON STORES ACCOUNTING—R. A. Weston, special accountant The Connecticut Company, New Haven, Conn., chairman.

Discussion.

PAPER—"Passenger Revenue Auditing and Accounting"—Horace L. Howell, Meyer & Wenthe, Chicago, Ill.

Discussion.

REPORT OF COMMITTEE ON NOMINATIONS.

ELECTION OF OFFICERS.

INSTALLATION OF OFFICERS.

PRESENTATION OF PAST-PRESIDENT'S BADGE.

INFORMAL ROUND TABLE OF ACCOUNTING MATTERS.

CLAIMS ASSOCIATION

Monday Afternoon, Oct. 3

PAPER—"Proposed Uniform Traffic Regulation.—Its Advantages, including the ability of the Hoover Conference Recommendation."—R. A. Sears, general claims attorney, Boston Elevated Railway.

PREPARED DISCUSSION BY

J. J. K. Caskie, supervisor of claims Philadelphia Rapid Transit Company.

Frank J. Gatrell, general claim agent Chicago Surface Lines.

Discussion by a traffic officer on "Advantages of National Uniformity in Traffic Rules."

GENERAL DISCUSSION.

Tuesday Afternoon, Oct. 4

JOINT SESSION WITH TRANSPORTATION AND TRAFFIC ASSOCIATION.

Wednesday, Oct. 5

No formal meetings to be held on this day, which has been set aside for inspection of exhibits. An informal luncheon meeting, however, of Claims men has been arranged. At this meeting "Uncle Red," well-known safety engineer, will give one of his characteristic radio talks.

ROUND TABLE DISCUSSION.

Thursday Afternoon, Oct. 6

SYMPOSIUM ON CLAIMS SUBJECTS:

P. W. Klabunde, acting claim agent Milwaukee Electric Railway & Light Company.

J. C. de Santels, acting general claim agent Montreal Tramways.

Walter Robinson, claim agent Cincinnati Street Railway.

Bert C. Wood, general claim agent Pennsylvania-Ohio Electric Company, Youngstown, Ohio.

Augustus Baker, adjustment department Pittsburgh Railways.

D. A. Finkbeiner, claims attorney Community Traction Company, Toledo, Ohio.

J. W. Giltner, general claim agent Northern Ohio Power & Light Company, Akron, Ohio.

REPORT OF MEDICAL AND SURGICAL COMMITTEE—Dr. W. M. Holtz, Pittsburgh Railways.

PAPER—"The Claimant's Doctor—How May He Be Convinced of the Company's Fairness, and How May the Company Maintain His Friendly Co-operation?"—Dr. Hart E. Fisher, chief surgeon Chicago Rapid Transit Company.

PAPER—"Should the Company Doctor Attend the Injured Claimant?"—Ernest W. Miller, M.D., Milwaukee, Wis.

PAPER—"Should All Accidents Have Medical Investigation and if so, What Information Is Helpful to the Adjuster?"—H. M. Bascom, M.D., Illinois Power & Light Corporation.

PAPER—"The Company Doctor and Litigation"—Value of his examination prior to and his testimony at time of trial—Benjamin E. Sibley, M.D., Boston Elevated Railway.

PAPER—"The Company Doctor and Litigation"—How can he help to nullify the unfavorable effect of the professional medical witness?—John A. Leeming, M.D., Medical Counsel, Chicago Surface Lines.

OPEN FORUM—One-half hour for discussion of any medical problems that may be presented from the floor.

GENERAL DISCUSSION.

ENGINEERING ASSOCIATION

Monday Afternoon, Oct. 3

GENERAL MEETING

ADDRESS OF THE PRESIDENT.

REPORT OF THE EXECUTIVE COMMITTEE.

REPORT OF THE SECRETARY-TREASURER.

REPORT OF COMMITTEE ON NOMINATIONS.

ELECTION OF OFFICERS.

PAPER—"Track Construction and Maintenance Economies"—F. B. Walker, chief engineer, Eastern Massachusetts Street Railway.

PREPARED DISCUSSIONS—Five minutes each.

GENERAL DISCUSSION.

PAPER—"Economies Obtained with Modern Cars"—W. R. McRae, superintendent rolling steel stock and shops, Toronto Transportation Commission.

PREPARED DISCUSSION—Five minutes each.

GENERAL DISCUSSION.

PAPER—"Automatic Substation economies."

PREPARED DISCUSSION—Five minutes each.

GENERAL DISCUSSION.

Tuesday Afternoon, Oct. 4

WAY AND STRUCTURES DIVISION

H. H. George, Chairman, Presiding
W. W. Wysor, Sponsor

REPORT OF STANDING COMMITTEE ON WAY AND STRUCTURES—H. H. George.

Review of Manual—W. R. Dunham, Jr.
Special Trackwork—E. M. T. Ryder.

Arc Welding Processes and Welding Rod Specification—C. F. Gailor.

Alloy Steels Other Than Manganese for Special Trackwork—A. T. Spencer.

Light Section Girder Rails—C. A. Alden.
Rail Corrugation—W. W. Wysor.

Relative Advantages of 7-In. and 9-In. Girder Rails—H. F. Merker.

Effect of Modern Vehicular Traffic on Paving in Track Area—A. E. Harvey.

Bus Garage Design—R. McKay.

Track Ballast and Drainage—S. C. Baker.

Track Checking Gage—C. H. Clark.

Car House and Shop Construction and Wiring Regulations—H. E. Bachman.

Track Construction Specifications—C. L. Hawkins.

Joint Railway and Bus Terminals.

REPORT OF WOOD PRESERVATION COMMITTEE.—C. A. Smith.

REPORT OF WELDED RAIL JOINT COMMITTEE.—E. M. T. Ryder.

ROLLING STOCK DIVISION

A. T. Clark, Chairman, Presiding
P. V. C. See, Sponsor

REPORT OF ROLLING STOCK COMMITTEE—A. T. Clark.

Review of Manual—C. W. Squier.

Motor Coach Design—V. W. Berry.

Modern Cars—H. S. Williams.

Car Lighting—R. W. Cost.
Roller Bearings—W. C. Bolt.
Lubrication—W. G. Stuck.
Suction Strainers for Air Compressors—J. C. McCune.

Motor Brushes—Side Wear.
Noise Reduction in Car Operation—H. S. Williams.

Gearing—F. J. Foote.
Current Collecting Devices—H. Savage.
Journal Boxes—W. B. Adams.
Limits of Wear—J. M. Bosenbury.

REPORT OF COMMITTEE ON UNIFICATION OF CAR DESIGN—H. H. Adams.

REPORT OF COMMITTEE ON HEAVY ELECTRIC TRACTION—H. F. Brown.

PURCHASES AND STORES DIVISION

J. Fleming, Chairman, Presiding

ADDRESS—Daniel Durie.

ADDRESS—J. G. Barry.

ADDRESS—B. J. Yungbluth.

REPORT OF COMMITTEE ON PURCHASES AND STORES.

Manual Review.

Unused Inactive Materials.

Practices in Testing.

PAPER—"Some Phases of Stores Practice"—W. E. Scott.

POWER DIVISION

F. McVittie and W. E. Bryan, Presiding
L. D. Bale and C. H. Jones, Sponsors

REPORT OF COMMITTEE ON POWER TRANSMISSION AND DISTRIBUTION—F. McVittie.

Manual Review.

Catenary Construction and Materials.

Trolley Wire Wear.

Trolley Wire Specifications.
Radio Interference.
Trolley Wire Reels.
Distribution Layout for Automatic Substations.

Standards for Comparison of Operating and Maintenance Results.

REPORT OF COMMITTEE ON POWER GENERATION AND CONVERSION—W. E. Bryan.

Manual Review—C. W. Saathoff.
Ventilation of Substations—F. W. Peters.
Mercury Arc Power Rectifiers—G. I. Wright.

Economical Trolley Potential for Congested Areas—R. L. Weber.

Thursday Afternoon, Oct. 6

GENERAL MEETING

PAPER—"Trends in Motor Coach Engineering."

PREPARED DISCUSSION—Five minutes each.

GENERAL DISCUSSION.

PAPER—"Maintenance of a Large Overhead System"—M. W. Cooke, superintendent power and incline, Pittsburgh Railways.

PREPARED DISCUSSION—Five minutes each.

GENERAL DISCUSSION.

PAPER—"General Aspect of Commercial Aviation"—R. H. Horton, former vice-president, Philadelphia Rapid Transit Air Service and formerly director air transport survey of the Department of Commerce, Washington, D. C.

GENERAL DISCUSSION.

INSTALLATION OF OFFICERS.

PRESENTATION OF PAST-PRESIDENT'S BADGE.

NEW BUSINESS.

TRANSPORTATION AND TRAFFIC ASSOCIATION

Monday Afternoon, Oct. 3

ADDRESS OF PRESIDENT.

REPORT OF EXECUTIVE COMMITTEE.

REPORT OF SECRETARY-TREASURER.

APPOINTMENT OF CONVENTION COMMITTEE ON RESOLUTIONS.

REPORT OF COMMITTEE ON NOMINATIONS.

ELECTION OF OFFICERS.

REPORT OF COMMITTEE ON BUS OPERATION—R. N. Graham, chairman.

Discussion.

BUS OPERATORS' SCHOOL—A demonstration of the school of the Northern Ohio Power & Light Company for the training of operators.

Discussion.

Tuesday Afternoon, Oct. 4

JOINT MEETING WITH CLAIMS ASSOCIATION

REPORT OF JOINT COMMITTEE ON

TRAFFIC AND SAFETY—C. H. Evenson and H. K. Bennett, co-chairmen.

REPORT OF COMMITTEE ON BONUS AND AWARD SYSTEMS—G. T. Hellmuth chairman.

ADDRESS—"Work of the National Safety Council"—James P. Barnes, president Louisville Railway.

Wednesday Afternoon, Oct. 5

Wednesday being given over to inspection of the exhibits, there will be no meetings.

Thursday Afternoon, Oct. 6

REPORT OF COMMITTEE ON SERVICE BETTERMENT.

Discussion.

REPORT OF COMMITTEE ON RESOLUTIONS.

INSTALLATION OF OFFICERS.

PRESENTATION OF PAST-PRESIDENT'S BADGE.

American Executive Committee Urges Car Exhibit

STRONG appeal for a representative car exhibit was made by the American Electric Railway Association executive committee in a meeting held in the office of J. H. Alexander, president Cleveland Railway, on Aug. 26. This appeal was made following a report by the exhibit committee that track reservations for car exhibits this year by both manufacturers and operators so far total 25, with only comparatively small track reservations made by some of the large car builders. President W. H. Sawyer declared that the selection of Cleveland as the site for this year's convention had been dictated primarily by the need on the part of the industry for a representative car exhibit which would help to stimulate development in design, and the improvement of electric railway service. An exhibit of cars on a scale large enough to furnish further stimulus toward improvement of design and the replacement of obsolete equipment was held by the president to be of primary importance to the welfare of the industry. Each member of the executive committee was urged to do everything in his power to aid in bringing about a car exhibit that would equal or exceed that of last year, particularly as regards improvement and development shown. Such an exhibit, insisted the president, is of vital importance to the welfare and progress of the industry.

Those who attended the meeting included the following: President W. H. Sawyer, J. P. Barnes, L. S. Storrs, J. W. Welsh, J. V. Sullivan, E. P. Waller, B. A. Hegeman, Jr., Thomas Finigan, G. A. Richardson, T. A. Kenney, M. B. Lambert, S. J. Cotsworth, C. R. Ellicott, H. L. Brown, T. W. Casey, G. L. Kippenberger representing E. B. Meissner, J. S. Kubu representing C. B. Proctor, J. H. Alexander, C. H. Beck, Paul Wilson, Martin Ackerman, E. F. Wickwire, W. R. Power, F. C. J. Dell and Charles Gordon.

CLEVELAND CONVENTION PLANS ALMOST COMPLETE

Chairman H. L. Brown of the subjects and meetings committee reported that the program for the Cleveland convention was almost complete, with acceptances received from both of the speakers. A complete outline of the program is published elsewhere in this issue. Advance tickets for the noonday luncheon meetings on Tuesday, Wednesday and Thursday of convention week are being sold rapidly, and there were indications that space would not be available at some of the luncheons for delegates who failed to obtain their tickets at an early date.

The membership committee's report presented by Chairman C. R. Ellicott showed a current membership of 320 operating companies, 35 associate companies, 440 manufacturing companies, and 1,175 individuals. In the absence of Chairman J. H. Hanna, Managing

Director Storrs for the special subcommittee on depreciation said that a meeting of the full committee, together with the committee on national relations would be held some time during the convention. Mr. Storrs also reported that the hearing on the steam road depreciation case would be held on Nov. 9 by the Interstate Commerce Commission. The committee has been assured that the electric railway case will not be called up until after the steam road decision is made by the commission.

CHANGES PROPOSED IN CONSTITUTION AND BY-LAWS

Changes in the constitution and by-laws have been prepared in pamphlet form to show the old and new provisions, for the information of delegates voting on the new constitution at the convention. Chairman E. F. Wickwire, for the committee on co-operation of manufacturers, reported progress in the preparation of two booklets for distribution at the convention, one on stimulating the replacement of obsolete equipment, and the other on suggestions for increasing the sale of car rides.

A report by the nominating committee, read by Chairman C. R. Ellicott, placed the names in nomination for officers and members of the executive committee for the ensuing year. These were published in the issue of Aug. 6, page 242.

Progress in the study of the statistical work of the association, and in the co-ordination of statistical activities on the part of the several agencies in the electric railway field, was reported by Chairman J. P. Barnes. A meeting of the committee will be held in New York on Sept. 19 for the purpose of drawing up final recommendations.

Managing Director Storrs called attention to the apparent apathy on the part of operating companies toward some of the awards offered to the industry for outstanding accomplishments. He called particular attention to the opportunity offered by the Brady Safety Award for capitalizing the safety of electric railway transportation in the eyes of the public. Entries in the Brady competition have been very disappointing, Mr. Storrs said, and indicate a failure on the part of operating companies to take advantage of the opportunity afforded. Members of the executive committee were urged to cooperate in promoting the advantages of that contest. Plans prepared by the committee on education for its program during the coming convention were read by Secretary Welsh in the absence of Chairman Edward Dana. Enough registrations in the training course for foreman-conference leaders are in hand to show that the course will be well supported. The committee is planning an educational day at the convention for Friday, Oct. 7.

RAPID TRANSIT REPORT REVIEWED AND COMMITTEE CONTINUED

G. A. Richardson, chairman, reviewed the report of the committee on rapid transit, which has continued the collection and interpretation of information on the subject for a period of several years. In the 1927 report the entire question of financing rapid transit, and the allocation of costs, is developed. The work of the committee has consisted in the establishment of fundamental principles regarding rapid transit construction and economics, which are expected to lay the foundation for sound financing of such construction in the future, which in turn will permit more extensive development of rapid transit facilities throughout the country than would otherwise have been the case. Although Mr. Richardson expressed the opinion that the committee's work this year would be so far completed as to avoid the need for its continuance during the next year, it was the opinion of the executive committee that the special committee should be continued in order to tie together, for the purpose of continuity of thought, the representative membership which is included. It was felt that even though only a single meeting be held next year, and no formal report prepared, there would be considerable advantage for the industry in having the committee in essentially its present organization and membership.

The insurance committee, according to chairman Paul E. Wilson, will report a second year of favorable fire loss showing. The committee will also recommend that it be authorized next year to negotiate with rate-making bodies for a general rate reduction in electric railway insurance based upon the experience record of the industry. Mr. Wilson reported an increased interest on the part of all electric railway companies in fire prevention work and said that present figures show a profit

COMING MEETINGS

OF

Electric Railway and Allied Associations

Sept. 7-9—American Society of Mechanical Engineers, Machine Shop Practice Division, first national meeting, Mason Laboratory, Yale University, New Haven, Conn.

Sept. 8-9—Central Electric Railway Master Mechanics Association, Hotel La Salle, South Bend, Ind.

Sept. 13-15—International City Managers Association, Dubuque, Ia.

September 19-23—American Welding Society, national meeting, Book-Cadillac Hotel, Detroit, Mich.

Sept. 26-30—National Safety Council, annual congress, Hotel Stevens, Chicago, Ill.

Oct. 3-7—American Electric Railway Association, annual convention, and exhibit, Public Auditorium, Cleveland, Ohio. Exhibits open at noon of Oct. 1.

for the insurance companies of 18 per cent on electric railway car policies.

After some discussion it was tentatively decided to throw the convention exhibit open to the Cleveland public on Sunday afternoon and Wednesday night of convention week. President J. H. Alexander of the Cleveland Railway, as chairman of the exhibit committee, said that no trouble was anticipated from this admission of the public, and that adequate police protection would be provided to insure that exhibits will not be disturbed. An early attendance on the part of delegates to take advantage of the opening of exhibits on Saturday noon preceding convention week is indicated by the report of Paul E. Wilson, chairman of the hotel committee, that almost half of the hotel reservations so far made indicate arrival of delegates on Saturday. Regarding housing accommodations available, Mr. Wilson also reported that the Cleveland, Hollenden and Statler rooms have all been reserved, but that many good rooms in downtown hotels are still available. Telephone facilities are to be increased 100 per cent over what were available last year in order more effectively to handle convention business. Still further to facilitate inter-communication between hotels, there will be special telephone stations provided in each hotel, so that a delegate making a call from one hotel can use a station directly connected to the switchboard of another hotel. Advance registration indicates a total attendance that will exceed that of last year.

SPECIAL TRAINS PLANNED

On the subject of transportation, Carl Beck, chairman of the committee, reported arrangements for special trains from St. Louis, Chicago, New York and Boston. Most of these trains, with the possible exception of those from Chicago, will arrive Saturday night or Sunday morning, in order to permit delegates to attend the exhibit before the opening of the convention on Monday morning. Every effort will be made to stimulate early arrival by delegates.

A resolution commending the work done by J. W. Colton as editor of *Aera* was read by Secretary Welsh upon suggestion of G. A. Richardson. This resolution, which read as follows, was unanimously adopted by the executive committee.

Whereas, the executive committee of the American Electric Railway Association, believing it to be the best policy to discontinue the publication of *Aera* in its present form and supplant it with a smaller magazine without advertising, feels it proper that this statement be made regarding the services of John W. Colton, who has edited *Aera* since 1921;

Mr. Colton's editorship has been of the highest order and the change in the form of *Aera* is in no way a reflection on his ability.

He assumed the editorship at the request of association officials, resigning the editorial page directorship of the *Hartford Times*, to which position he had been called for a long and honorable period in New England journalism.

During the past four years the circula-

tion, advertising and financial results have been completely changed and *Aera* has gained much new circulation among persons outside the industry, including financial writers, students, city officials and others. Therefore, be it

Resolved, that this executive committee extend to Mr. Colton its sincere appreciation of his efforts and assure him that he has performed the duty to which the association officials assigned him to their entire satisfaction.

H. L. Brown was instructed to draw up a suitable resolution thanking Mr. Albee, president of the Keith-Albee vaudeville theaters, for his co-operation in discouraging the needless disparagement of electric railway service from vaudeville stages. A vote of appreciation to L. J. De LaMarter, vice-president and general manager Grand Rapids Railway, for his work in enlisting Mr. Albee's co-operation, was passed by the committee.

The next meeting of the executive committee was fixed for Cleveland, Ohio, on October 7.

Members Elected

NEW members elected at the meeting of the executive committee of the American Electric Railway Association held on Aug. 26 include twelve manufacturers and 34 individuals. A list of new company members follows:

MANUFACTURER COMPANIES

Cincinnati Car Company, Cincinnati, Ohio.
Commercial Shearing & Stamping Company, Youngstown, Ohio.
Graham-White Sander Corp., Roanoke, Va.
Hynson, Westcott & Dunning, Baltimore.
Murray Conduit Systems, New York, N. Y.
Murray Corporation of America, Detroit, Mich.
National Standard Parts Association, Detroit, Mich.
The Russell Manufacturing Company, Middletown, Conn.
Skinner Automotive Device Company, Inc., Detroit, Mich.
Snap-On Wrench Company, Chicago, Ill.
Titeflex Metal Hose Company, Newark.
The Van Dorn Electric Tool Company, Cleveland, Ohio.

Training Course for Foreman-Conference Leaders

THE staff which is to conduct the training course for foreman-conference leaders in connection with the Cleveland convention met in Washington Aug. 29 to 31 with the staff of the Industrial Education Service, Federal Board for Vocational Education. The program for the training course was worked out in detail, insuring the best possible use of the time of the members of the group. It was agreed to be necessary to hold the registration strictly to 50 and to divide the group into morning and afternoon sections, 25 men in each. On Friday, Oct. 7, "Educational Day," the two groups will meet simultaneously, in different rooms, to permit the men to attend the round-table conference, under the leadership of Dr. A. J. Rowland, which is to be held immediately after the educational luncheon on that day. On Saturday,

also, the two sections will meet simultaneously in the morning so that the course will close promptly at 1 p.m. on that day.

Publications Available At A.E.R.A.

FOLLOWING is a list of publications available at the American Electric Railway Association, New York City. The supply is limited but members can obtain them free of charge upon application.

Electric Railway Practices in 1923, 1924, 1925, and Making Transportation Pay—Electric Railway Practices in 1926. Series of four volumes edited by H. H. Norris, reviewing the presentations made by electric railway companies for the Charles A. Coffin Annual Award. The presentations include new developments of progressive properties that have achieved success and show what electric railways are doing to improve transportation and how they are doing it.

Handbook of Modern Electric Railway Methods and Practices, 1925. A compilation of methods, practices, experiences and policies of electric railways of the United States as obtained from the companies by the committee on management and operation of the American Electric Railway Association.

Proceedings of the American Electric Railway Association, 1924, 1925. Annual volumes of convention reports and discussions of the problems confronting the executives of electric railway companies in the successful operation of urban and interurban transportation systems.

Proceedings of the American Electric Railway Accountants' Association, 1923, 1924, 1925. Annual volumes of convention reports and discussions of accounting methods and classifications used by electric railway companies.

Proceedings of the American Electric Railway Claims Association, 1924, 1925. Annual volumes of convention reports and discussions of the problems of the claims and medical departments of an electric railway company.

Proceedings of the American Electric Railway Engineering Association, 1924, 1925. Annual volumes of convention reports and discussions of the standards, recommendations and miscellaneous practices for apparatus and materials in the operation of the equipment, power, way, structures, purchases and stores departments of an electric railway company.

Proceedings of the American Electric Railway Transportation and Traffic Association, 1923, 1924, 1925. Annual volumes containing reports and discussions of the problems of the commercial, personnel, traffic and safety departments of an electric railway company.

Progress in Cars—Report of Committee on Essential Features of Modern Cars, 1926. Contains a series of typical cars, experiences with modern cars of three interurban and five city electric railway companies, passenger car statistics, age of electric passenger cars and a bibliography of articles on car replacements and the advantages of new cars.

Service at Cost Plans, by Harlow C. Clark, 1920. An identical analysis of statutes, ordinances, agreements and commissions' orders in effect or proposed, together with a discussion of the essentials of local transportation franchises.

News of Other Associations

Standardized Practices of the Milwaukee Way Department*

BY E. J. ARCHAMBAULT

Engineer Way & Structures Milwaukee Electric Railway & Light Company, Milwaukee, Wis.

REPAIR of tracks and pavement on congested city streets becomes increasingly difficult each year. The growing congestion of vehicular traffic requires more painstaking care in planning the work and in safeguarding the workmen and the public. It is obvious that in the larger cities more track repair work must be done at night to secure the best results, and to do it at the least cost and at the greatest safety to employees. This applies particularly to the replacement of track special work parts, the minor track and pavement repairs necessary in the downtown section of the city, and especially track welding and rail grinding work. The major portion of the work of the track department, however, must necessarily be performed in the daytime. With the co-operation of the city in closing streets temporarily, obviously it can be done with more safety, with greater speed and with better results.

The track construction and reconstruction program in Milwaukee usually comprises the building of 10 to 12 miles of track in paved streets each year. It may be of interest to describe the form of track construction which has been adopted as standard in Milwaukee.

MILWAUKEE TRACK STANDARDIZED

The track trench is usually excavated for the full width of double track to a depth of 21½ in. below the grade of the street. This sub-grade is rolled thoroughly with a 7-ton roller. Sub-grade drains are placed crosswise of the trench at every city manhole connected with a storm sewer. No. 4 crushed limestone is then spread on the sub-grade to a depth of 6 in. and thoroughly rolled. Upon this the new track is placed. No. 2 crushed limestone is used for tamping the track. With fabricated track sections and Lorain electric butt welds the surfacing of the track is done after the welding work has been completed. In certain cases where rail ends are thermit welded the tracks are tamped in advance of the welding operation. Tie plates and tie rods are used on all city and suburban track.

By special arrangement and with the approval of the city 10-in. reinforced concrete pavement has been adopted as standard. Since 1919 more than 300,000 sq.yd. has been laid in the track zone.

The standard rail section used on the Milwaukee system is the 7¼-in. No. 102 T-rail, which has a slight bevel on the outside edge of the rail head, bringing the rail ¼ in. above the adjoining pavement.

TRACK FABRICATED IN YARD

In Milwaukee some departure has been made from the usual practice of laying track. Fabricating sections in 62-ft. lengths with the track building machine designed by our engineers enables the building of the track sections in our lower Cold Spring yard, hauling them to the job and placing 1,200 to 1,500 ft. of track in one night. We have found that this practice saves considerable time and confusion over the former method of delivering ties, rails, tie plates, spikes, etc., separately and building the track on the job.

On practically all of the track construction and reconstruction jobs extensive use is made of temporary track on the side of the street. This track is made up in 33-ft. sections, constructed of No. 60 T-rail bolted to 3-in. planks for ties. Kerwin or high type crossovers are used almost exclusively and very little trouble is experienced with derailments, as we have developed a very satisfactory design for the run-off rails for this sturdier and more substantial type crossover.

Trackwork is always carried on so as to cause the least amount of inconvenience to the public. It is the usual practice for the construction engineer to interview the business people along the street and to advise them fully of our plans. We find that this practice is productive of good will. Merchants appreciate this advance information. We make it a point to convince them, by deed as well as word, that we wish to do the work with the least amount of interference to their business. The city of Milwaukee usually permits us to shut off the street entirely to vehicular traffic, enabling the work to be carried on in the most expeditious manner. Proper detour signs are provided by the way department and placed at such places as are suggested by the city or county.

MECHANICAL EQUIPMENT SPEEDS UP WORK

The use of mechanical equipment for carrying on the activities of the way department is important. The way department has three electric shovels on

caterpillar tractors for excavating work, fourteen electric-driven compressor outfits, which operate pneumatic tie tampers and concrete breakers, and two electrically operated tie-tamping outfits, which are generally used on the inter-urban lines. Our equipment also includes a complete concrete paving outfit, with an up-to-date 1-yd. mixer, two bucket loaders with measuring hoppers for properly proportioning the sand and stone, several truck tractor outfits for the delivery of the aggregate to the mixer, and with a special loader for the placing of the cement on the trucks as they proceed to the mixer. This concrete outfit is also provided with a special finishing machine, which has been in use for three years, and produces a finished job which we believe is unsurpassed by any other street railway paving outfit.

For the handling of construction material in the Cold Spring yard the company has a 45-ton Brownhoist electric locomotive and two modern double drum derrick cars which are used for the handling and delivery of temporary and permanent track sections, rail and special work. Probably no single piece of equipment effects greater economies than do these derrick cars. Use is frequently made of these derricks in conjunction with the pile driver outfit and for the air-operated pile driver in breaking concrete where street pavement is removed for track extensions.

MOTOR CARS HAVE PLOWS

The utility division is equipped with modern Differential motor cars and trailers which provide facilities for side dumping so that the material is deposited free of the track, thus minimizing rehandling. Two of the motor cars are equipped with wing plows, air operated, which constitute some of the company's formidable snow-fighting apparatus, in addition to their use for spreading dirt and ballast on open track construction. During heavy snowstorms several trucks are available and provided with the necessary attachments for the quick installation of plows. This equipment supplements the snow sweepers of the transportation department and is used primarily for cleaning landings and special work layouts.

Cold Spring yard is provided with a sand drier outfit of modern design which was constructed a few years ago. Sand is hauled in from our gravel pit, dumped in a hopper, and by gravity is fed to a conveyor leading to the sand drier, whence it passes over a gravity screen discharging the rejection in a separate bin. A substantial structure houses the sand drier and from 4,000 to 5,000 cu.yd. of sand is run through this drier each year for use on city tracks.

The company operates its own stone quarry, about 15 miles north of Milwaukee on the Milwaukee-Northern Railway, an associated company. It is equipped with modern crushing machinery and buildings and a 50-B Bucyrus shovel and 45-ton electrically driven Brownhoist crane. The output of this quarry runs about 300 to 400

*Abstract of a paper presented before the Transportation Section, Wisconsin Utilities Association, Milwaukee, Wis., Aug. 18-19, 1927.

tons per day, the major portion of which is used by the company for track reconstruction and paving work.

CHROME NICKEL STEEL USED IN SPECIAL WORK

It is the standard practice in Milwaukee to use chrome nickel steel on most of the track special work layouts. Its development and use came during the war, when the price of manganese steel made its use almost prohibitive, and we believe that the substitution of chrome nickel steel in place of manganese has been a boon to the industry. We get excellent results with the use of this kind of special work and have adopted it as standard. Chrome nickel steel has a great advantage in that it lends itself admirably for top welding, maintaining uniformly level flangeways in flange-bearing layouts. It permits also of the welding of the joints in the special work layout. In fact, a track special work layout is not installed in Milwaukee today without thermit welding all of the internal joints of the layout except for the standard switch and mate castings, thus making it entirely homogenous. All track special

work layouts are generally paved with granite block.

During the last few years considerable attention has been given by the company to the construction of rapid transit lines. There was completed and put in operation on June 14 of last year the first of these projects. It involved the building of approximately $4\frac{1}{2}$ miles of double track on private right-of-way leading from the west side of Milwaukee to a connection with the Watertown interurban west of West Allis. The building of this line reduced the running time to Watertown by approximately twenty minutes. On June 20 of this year the second step in rapid transit line construction was completed and put in operation. This consisted of a connection between the Watertown line and the East Troy-Burlington line. Although but 1 mile in length, its strategic position enabled a reduction of 23 minutes in running time between terminals. The building of these rapid transit lines has not only speeded up interurban railway service, but has opened up a vast territory for suburban development to the west and southwest of this city.

but with no allowance for interest charges on track. It may also be said that a bus route is not ready for conversion to rail until it is economical to replace the buses with the same or a shorter headway with cars of larger capacity.

There appears to be no great difference in the accident record of the car and the bus. Comparison is difficult in any event, because the two types are used under such different circumstances. The average of thirteen operators showed 5.06 collisions per 100,000 car-kilometers (per 62,000 car-miles) and 5.28 per 100,000 bus-kilometers (per 62,000 bus-miles). The corresponding personal injury averages are 2.66 for the car and 1.74 for the bus. The higher car figure is probably due to the inclusion of trailers as though they were part of a motor car.

Where the bus is operated as supplementary on a unified flat-fare transportation system, rates tend to be the same as on the cars. A number of zone-fare systems, however, charge 30 to 40 per cent more on the buses. Most systems charge higher fares in any event. There are also cases where suburban bus rates are modified if the passenger continues via car.

Chartered service amounts often to 10 per cent of gross revenue at rates varying from 90 pf. to 2 marks per kilometer (36 cents to 80 cents per mile).

RUNNING SPEEDS

Permissible running speed of buses over different sections of city streets ranges up to 45 km. (27.9 miles) per hour, with an average of 30 km. (18.6 miles). Occasionally a speed like 16 km. (9.92 miles) is specified because trailers are used.

On the other hand, many street railways are still supposed to stick to 25-year-old regulations specifying rates like 8 km. (5 miles) per hour over certain sections. The few tramways which are free to run at any speed in the discretion of the motorman are also those showing the least number of accidents per 100,000 ton-kilometers.

Yet some systems report speeds actually below those permitted by ordinance. The range of car running speeds reported is 18 km. to 50 km. (11.16 to 31.0 miles) per hour, and of buses, 25 to 60 km. (15.5 to 37.2 miles).

The difficulty with the lowest-speed railways is that the rates of acceleration are too low to permit satisfactory schedule speeds. In this connection, the new articulated motor-car train of the Berlin Street Railways is commended because it enjoys a good rate of acceleration, even on slippery rail.

Schedule speed (probably exclusive of layovers—Ed.) of street railways ranges from 12 to 17.24 km. (7.44 to 10.69 miles) per hour, and of buses, from 10.8 to 25 km. (6.7 to 15.5 miles). The higher speeds include suburban routes. There is no substantial difference in speed of car and bus under like traffic conditions.

Speed is of such extraordinary importance in large city transport that a

Motor Buses and Street Railways in Large Cities*

By KONRAD SIEBER

Managing Director Nürnberg-Fürther Street Railway

REPLIES received from operators in 45 large cities included 30 with both bus and car operation. In 25 of these cases the buses are operated directly by the railway and in the other five by subsidiaries.

The preponderant use of the bus for routes where the traffic is light is indicated by the fact that the annual car trips varied from 128,000 to 461,000 per kilometer of route (205,000 to 738,000 per mile), whereas the bus range was less than half this (8,100 to 172,000 per kilometer of route, or 13,000 to 275,000 per mile of route). The flexibility and small capital investment of the bus are of great benefit in developing new realty values.

Most of the bus routes are not directly profitable, but this is to be expected in view of their extensive use as feeders.

Data on operating and overhead costs are more liberally supplied than reports on profits, but there is room for greater clarity in accounting. The operating expenses of street railways are given as ranging from 45 to 102 pf. per car-kilometer (16.2 cents to 40.2 cents per car-mile), while that of buses are from 34 to 132 pf. per kilometer (13.6

cents to 52.8 cents per mile). The average operating cost of cars was 65.1 pf. per car-kilometer (26.1 cents per car-mile) and of buses 74.5 pf. per bus-kilometer (29.8 cents per bus-mile).

The chief difference between cities in operating cost is due to wages, which range from 65 to 238 pf. (16.2 cents to 59.5 cents) an hour. Next in line is the character of operation. Thus, the same wages and vehicles yield a range of 55.8 pf. to 118.7 pf. per bus-kilometer (22.3 cents to 53.5 cents per bus-mile) because the annual performance ranges from 50,300 km. (31,186 miles) to 18,900 km. (11,718 miles).

The only certainties are that for like conditions the bus costs materially more than the car in power, lubrication and wheel (tire) wear.

Railways usually pay heavier taxes than the buses, reaching a maximum of 14.5 pf. per car-kilometer (5.76 cents per car-mile), whereas the bus maximum is 8.1 pf. (3.2 cents per bus-mile).

Capital charges on street railways range from 5 to 24 pf. per car-kilometer (1.4 to 9.6 cents per car-mile); on buses from 5 to 30 pf. (1.4 to 12 cents). The overhead for railways goes up rapidly as the traffic becomes thinner.

After weighing the various factors involved, it may be said broadly that the dividing line in favor of the rail for a service offering an equal number of seats is a twenty-minute headway,

*Abstract of paper presented at Copenhagen convention of the Internationaler Strassenbahn und Kleinbahnverein (International Street and Interurban Railway Association), June 22-24, 1927.

saving of five minutes per trip for each of the 4,000,000,000 riders a year carried by association members would save 20,000,000,000 minutes, worth 200,000,000 marks (approximately \$40,000,000), if the riders' time was valued at 1 pf. (0.25 cent) a minute. Such an increase in speed would bring about 50,000,000 marks (approximately \$12,500,000) more operating revenue and almost as great a saving in operating expenses.

Besides a higher rate of acceleration, the stop spacing, car type, make-up of train and braking equipment are important factors in raising schedule speed.

As to the most efficient capacity for cars, the experience in America with large cars in competition with jitneys and buses on shorter headways is proof that cars must not be so large as to tempt the operator to lengthen headways. Replies to the questionnaire show that operators in large cities are of this opinion, as their preference is for cars 9 to 11 m. (29.5 ft. to 36 ft.) over all. There is a greater difference of opinion concerning the proper motor bus capacity.

On dry roads the braking of cars and buses seems to be equally efficient, but cars are affected somewhat by slippery rail.

RATES OF PASSENGER INTERCHANGE

Wide variations exist in the speed of passenger interchange. On ordinary cars it takes 1.5 to 2 seconds per passenger, but with extra doors this time has been cut to 0.75 second per passenger. Vienna reports a record of 0.3 second per passenger in filling a car with 100 passengers pleasure-bound. Vienna motor cars have three doors and the trailers have four.

On one of the association properties reduced stop time by means of three-door cars and a spacing of 430 m. (1,410 ft.) between stops would produce a schedule speed of 17.2 km. (10.66 miles) per hour.

Theoretically, a satisfactory passenger interchange rate ought to be secured with one exit or entrance passage for every 3.38 m. (10.9 ft.) of car length. On such a car the effective passenger-carrying area would be 5.3 sq.m. (57 sq.ft.) per passage. On buses with no more than two passages at best the area per passage must not exceed 10.6 sq.m. (114 sq.ft.) if the bus is not to fall too far behind three-door cars in handling heavy traffic.

Only five street railway and two bus operators used separate exits and entrances. Others had abandoned this practice because of unbalanced loading and resulting arguments with passengers who could not see why they should not have the right to use any passage available.

Vienna reported a total of 30,000 car passengers handled per hour one way on a single track which is believed to be a world record. Two or three lines of buses would have been required for the same job. A high bus figure is that of 5,680 passengers

per hour for the Fifth Avenue Coach Company between 31st and 42d Street, as given in the *ELECTRIC RAILWAY JOURNAL*, page 590, Oct. 10, 1925.

The plan sometimes suggested of running buses in the downtown areas and cars in the outer areas with transfer of passengers is not desirable. The opposite method would be more logical.

Eight rail systems and eight bus systems operate one-man equipment, but only for light service. At Vienna auxiliary conductors and slot machines for ticket sales help to broaden the scope of one-man operation. Several undertakings gave up one-man operation because their excessive stop time for passenger interchange delayed other street traffic.

INCREASING PASSENGER COMFORT

The consensus of opinion on means for increasing passenger comfort and traffic may be summarized as follows: Replace obsolete cars with new cars possessing large platforms, low floors, low windows with arm rests, pleasing interior, unimpeded outlook, mirrors, leather cushions with suitable proportion of cross-seats, broad aisles, comfortable handholds for standees, good lighting, good ventilation, improved spring suspension, more easily read destination signs, display of pleasing local scenes within the cars, electric heating (with fresh air instead of exhaust in buses), pneumatic tires, six-cylinder buses, decreased noise, better upkeep and greater cleanliness. A variety of track improvements are also desirable, as well as safety islands and more sheltered waiting places. Increased attention could also be given to time-tables for the public and various types of fares to meet the varying degrees of patronage.

Higher schedule speed would be obtained by such measures as: More powerful motors, three or four exits and entrances per car, up-to-date brakes, electric signals (push-button, door contact, etc.), bow contact for current collection, which avoids wire derailment delays, shorter intervals by decreasing train units, synchronized watches and clocks, stops lengthened to intervals of 400 to 500 m. (1,312 ft. to 1,640 ft.) etc.

The increasing congestion from automobiles which use street space so inefficiently calls for many changes in street railway practice, such as, re-routing, relocation of tracks in streets and plazas, safety isles, stop-and-go signals and motorman's signals for securing a quicker getaway from the traffic policeman. It is a question whether the street railway should have to bear so much of the burden of reconstruction cost, but it is unwise to follow a needlessly obstructive policy.

The answers to supplementary questions on bus practice showed that pneumatic tires are used almost everywhere with an average life of 30,000 km. (18,000 miles). Seven undertakings have six-wheelers in service. Sixteen undertakings operate with right-hand control, seven with left-hand and five use either.

Reducing Accidents*

By J. H. HANDLON

Claim Agent Market Street Railway,
San Francisco, Cal.

FROM a brief review of the effort now being put forth it would appear offhand that all that we can do to further safety work is to show greater zeal and to render more effective what is now being done. However, I submit these suggestions hopeful that perhaps some, if not all, will, if adopted, be the means of further reducing accidents.

1. I would suggest a closer study of the accident breeding habits of employees. A closer supervision of each man's work and a study of each man's accident record may reveal a tendency on his part to take unnecessary chances, or follow careless habits, or both.

2. The transportation department should be urged to avail itself of the opportunity the claim department offers it to investigate and determine the causes of accidents regardless of whether a claim is presented, for when causes are determined then remedies can be applied, assuming that the conditions are controlled by the company.

3. A careful inspection of company property and trackage should be continually maintained. Construction work; new buildings; street work; new crossings; temporary or permanent diversion of street traffic; new grade crossings; obstructions near company tracks, etc., all set up hazards of which due cognizance should be taken and safety measures adopted to meet these changed conditions.

4. Consideration should be given to establishing a uniform method of detecting, systematically, defects in eyesight and hearing of platform men and some thought to the advisability of devising tests to see how they respond to certain circumstances and conditions.

5. Claim agents should keep fully informed all operating officials of instances that come to their attention of employees being careless or derelict in the performance of their duties, realizing that their impartial investigations disclose facts that would otherwise not be known.

6. Claim agents should also investigate the cost from an accident standpoint so far as possible of any alterations or changes in the rolling stock or any saving effected by their use.

7. Through company magazines and by means of badges, buttons or some other insignia recognition should be given to the platform men having excellent accident records and a permanent safety campaign should be fostered.

8. Every effort should be made to lessen the turn over of platform men on the theory that the experienced trainman is better qualified to prevent accidents. Splendid work in this direction can be done by interviewing every employee who voluntarily leaves the service.

*Abstract of a paper presented before the eighteenth annual convention of the Pacific Claim Agents' Association, Tacoma, Wash., July 21-23.

News of the Industry

Summary of Piedmont Briefs

Pros and cons cited on application of Southern Electric Railway to Build 128 miles of line

QUESTIONS as to the jurisdiction of the Interstate Commerce Commission to issue or withhold a certificate authorizing the construction of an extension of an electric interurban railway, as well as issues raised by the opposition of existing steam railroads to the proposed extension, are discussed in briefs just filed with the commission. The case involves the application of the Piedmont & Northern Railway for authority to connect its existing lines by completing the gap between Spartanburg, S. C., and Gastonia, N. C., 53 miles, and by building from Charlotte, N. C., via Salisbury, to Winston-Salem, N. C., 75 miles.

The application is opposed by the Southern Railway, the Seaboard Air Line Railway, and the Atlantic Coast Line Railroad, with its affiliated lines, the Louisville & Nashville, the Carolina, Clinchfield & Ohio and the Charleston & Western Carolina, while the Georgia & Florida Railroad is supporting the application.

The applicant electric line, in addition to pointing out what it asserts to be the public need for the proposed extension, takes the position that its road is not operated as a part or parts of a general steam railroad system of transportation, and is therefore, by paragraph 22 of section 1 of the interstate commerce act expressly excluded from the operations of paragraphs 18 and 21 of section 1, under which the commission grants certificates of convenience and necessity.

SAYS COMMISSION IS WITHOUT JURISDICTION

It contends that the commission is without jurisdiction also on the ground that the proposed construction was begun in good faith prior to the effective date of paragraph 18 and was never abandoned. However, it asks, that in the event the commission holds it has jurisdiction, the certificates be issued permitting the proposed lines to be built.

The Georgia & Florida, in its brief supporting the application, points out that it operates a line from Madison, Fla., to Augusta, Ga., and is now engaged in extending its line 56 miles from its northern terminus at Augusta, Ga., to Greenwood, S. C., where it will connect with the Piedmont & Northern, so that it is vitally interested in the proposed through routes that would be opened up by the electric line extensions. This company believes that the exceptionally favored territory in Georgia and North and South Carolina, served by the petitioner and the Georgia & Florida, which already has made such remark-

able strides industrially and agriculturally within the last decade, is destined to expand even more rapidly within the next few years. It says that "the Piedmont & Northern will introduce into this territory much needed and healthy competition and thus improve vastly the convenience of the public."

It is also asserted in the briefs in favor of the application that it is supported by every available representative of public interest in the territory affected, including the Governors of North and South Carolina, the Railroad Commission of the State of South Carolina, the Corporation Commission of the State of North Carolina and by representatives of cities and towns, shippers and citizens generally.

As indicated previously in the ELECTRIC RAILWAY JOURNAL, the Southern Railway, in its brief, says the Piedmont & Northern is controlled by the "Duke interests" that control the Southern Power Company, Southern Public Utilities Company and other allied companies, and that these relations have resulted in control by it of a vast amount of traffic.

The Piedmont & Northern contends, in its brief, that the community of interest existing between it and the power interests is neither improper, illegal nor opposed to the public interest; that business diverted from other lines will be inconsequential, and that the proposed lines will develop additional traffic and furnish competition in transportation.

Tacoma Railway Replies

Charges in Engineer Harlan's report refuted by Manager Sullivan. Offers solution. Another answer on way. New franchise suggested with sliding scale of fares and fixed minimum return

THE Tacoma Railway & Power Company, Tacoma, Wash., in a 197-page report has replied to the report prepared by Kenneth G. Harlan, city utilities engineer, several months ago. The propriety of the financial set-up of the company, economy of its operation, justification of certain operating and interest charges, valuation for rate-fixing purposes and various other angles to the Tacoma transportation problem have been presented in the report. Taking issue with the city engineer on practically all his theories of public service corporation finance and operation it supplements the report with 121 pages devoted to alleged errors of fact and figures in the city report. The original report took eight months to prepare and covered 221 pages. It was received by the Tacoma management on April 30 and the answer was filed on Aug. 22. The City Council has taken the reply, signed by R. T. Sullivan, manager of the company, under advisement and the author of the original report says he will have an answer to the railway reply within ten days.

USE OF INGENIOUS METHODS CHARGED

It is charged that the Harlan report figured average fare by dividing the number of revenue passengers into the total revenue, including freight, express, advertising space and power sold, rather than including passenger revenue; that it assumed that all power ever purchased by the local street railway companies would have been purchased at a new and reduced rate which the city of

Tacoma municipal light plant put into effect on Aug. 1, 1926, the previous rate having been nearly double the new rate; that it assumed that extensions and betterments were made at no cost, whereas, as a matter of fact the company claims that all of the net earnings available and millions besides have been spent on improvements and betterments.

Replying to the charge that operating costs of the Tacoma street car system were unnecessarily high, the company shows that the Tacoma Railway & Power Company and the Pacific Traction Company are operating efficiently, the cost per car-mile in 1926 having been only 23.12 cents. In this connection it points out that there are only two cities of more than 100,000 people in the United States operating at a lower cost per mile, according to the American Electric Railway Association's analysis.

Whereas the Harlan report asserted that a valuation of not more than \$2,500,000 could be justified, the reply asserted that if a revaluation were made today of the properties in Tacoma, a figure much higher than that allowed by the state now for rate-making purposes would be given, \$10,000,000.

The reply concluded its analysis of the situation with a suggestion for a solution, consisting of a proposal for a new franchise to supplant the 40 existing and varying franchises. This should provide for a sliding scale of fares, depending on the showing of returns made, and permitting the company to earn, if possible, a certain minimum after taxes. Manager Sullivan, in submitting his suggestions

for a solution, asserted the readiness of the company to meet the city more than half-way and do everything possible to give the city an adequate service for the upbuilding of the city.

Engineer Harlan, after a hurried scanning of the company's refutation of

these and other charges, declared it was an attempt to confuse the issue with a mass of irrelevant and unimportant correction of things he never intended to be accurate to the penny. He declared he was ready to meet the company upon all issues raised.

City Council Revises Chicago Bills

Aldermen decide to appoint sub-committee to draft an entirely new set of bills for presentation to Assembly. Governor to be heard from on special legislation session

DETERMINATION on the part of the City Council of Chicago to work out a traction program satisfactory to both city and companies was renewed after a lull of more than three weeks on Aug. 17, when the Aldermen decided to appoint a subcommittee to draft an entirely new set of bills for presentation to the general assembly, if Governor Small keeps his original promise to call a special session in October. The new bills are to represent the city's viewpoint on the legislation required to settle the city's traction problems, while the five bills defeated by the Legislature last June were regarded as company measures.

Prior to the appointment of this subcommittee a written opinion on the validity of the five former bills and their amendments was given the Aldermen by Corporation Counsel Breen. Briefly, the opinion holds that three of the bills and their amendments are constitutional but that two of them are not. The three that were found legal are the subway bill, the local transit commission bill and the measure which changes the cities and villages acts to conform to the proposed changes in other bills. Amendments added to the indeterminate permit and traction unification bills in the house of representatives make them unconstitutional, the opinion holds.

Although the old bills together with amendments are being used as a working basis by the new subcommittee, many important changes have been made in the new drafts. In the two weeks following its appointment, the subcommittee had completed the revision of the entire set of bills, *i.e.*, the measures dealing with the length of franchise grants, local transit commission, unification of local transportation systems, amending the cities and villages act, and the construction of subways. Among the most important of the changes adopted was the elimination of an amendment to House bill No. 437 which limited franchises to 40 years. The new bill would permit the city to grant either an indeterminate permit or a franchise for 20, 30, 40, 75 or any other period.

Revisions to the local transit commission bill provide that four of the five members of that body shall be appointed by the Mayor and the fifth by the County Board, whereas the original bill specified that two members should be named by the Governor, two by the Mayor and one by the County Board.

With the completion of the work of revising the bills, the sub-committee is now ready to report to the full committee.

Anxiety over the prospects for a permanent settlement of the traction problem this fall caused the City Council to appoint a second subcommittee to confer with Governor Small at Springfield Aug. 23 to learn whether he will stand by his original promise to call a special session of the legislature to consider enabling legislation when the city and companies have agreed on a unified transit program. The city's alarm in this matter was attributed to a statement made by the Governor the previous week in which he intimated that he would have the legislature pass the necessary laws only if an ordinance is first submitted to and approved at a popular referendum, as well as by the city and companies.

The Governor refused to commit himself on the matter, however, until he can reach some agreement with Mayor Thompson, and the Alderman returned to Chicago with less hope than ever for a special session.

New Business Campaign of Illinois Traction

A new business campaign was started on July 15 by the Illinois Traction System. It is built on the idea that the modern railway company can no longer be content with accepting only the business that may come to it through the usual channels of solicitation. Its first effort along the line of interesting employees in selling its services was the organization of the Go-Getters Club. This activity has now been enlarged and intensified with the present organization known as the Employees New Business Club, which is extended to employees of Illinois Power & Light Corporation and associated companies. It started its activities with a special 90-day summer campaign. The co-operation of employees of the several associated companies has been invited and is freely given on the basis that whatever is good for the Illinois Traction System is good for the entire company family.

Employees of Illinois Traction System numbering about 2,000 men and women will endeavor during this 90-day special campaign to make an average of one call per day on a prospective customer

for Illinois Traction System service. Each employee will talk to his friends, his neighbors, his lodge and church associates, his local merchant or manufacturer, with the idea in view of selling the services of the railway. Where it is possible to secure a direct piece of passenger, freight or express business this will be done, but the prospects will be told about these services.

Employees of the Illinois Power & Light Corporation in the territory served by Illinois Traction Systems are co-operating in this campaign to the extent of acquainting themselves with the specific services of the electric railway and soliciting business in the same manner as Illinois Traction System employees, except that they are not asked to make daily reports. Neither do they participate in the competitive feature of the campaign.

Referendum to Be Recommended in New York

In his report to the commission which is partially completed Samuel Untermyer, special counsel of the Transit Commission, will recommend a referendum to determine if the voters favor the maintenance of the 5-cent fare on the city's proposed unified transit system with the deficit from operation, if any, carried and paid by the taxpayers. He will make it clear, however, that no loss is expected. His plan will be based on the recapture of the Brooklyn-Manhattan Transit Corporation subway system. Mr. Untermyer's idea is that the returns from these profitable lines will go a long way toward carrying the high-cost new subways at a 5-cent fare.

Negotiations with representatives of the Interborough Rapid Transit Company for the purchase of its lines, unsuccessful so far, are still pending. The great difficulty in the negotiations with the Interborough has been the necessity for making some arrangement with the stockholders of the Manhattan Railway, which owns the Manhattan and Bronx elevated lines, now operated by the Interborough on a 99-year lease.

Dayton and Springfield Properties Sold

The Peoples Railway, Dayton, and the local railway in Springfield, Ohio, owned by the same interests, are reported sold. The new owners are Wood & Turner, Philadelphia.

The Peoples Railway for years was owned by the American Railways. It was later sold to the American Gas & Electric Company. Wood & Turner were anxious to procure the Electric Light & Power Company in Wilmington, Del., owned by the American Gas & Electric Company, but that company is said to have refused to sell the Wilmington utilities unless the two Ohio companies were included. The property is not to be formally transferred until Sept. 15.

Baltimore Fare Hearing Set

The Maryland Public Service Commission has set Sept. 6 as the date to start a hearing for an increase in fares on the application of the United Railways & Electric Company, Baltimore. The company seeks to raise the fare from 8 cents, or two tokens for 15 cents, to 10 cents. In addition it applied for an immediate emergency increase. This plea will be heard first.

An intervening petition against an increase of fare for the United Railways & Electric Company, Baltimore, has been filed with the Maryland Public Service Commission by The People's Committee Against Increased Fares of the People's Corporation.

This petition declares among other things that there is no unforeseen sharp or unusual rise in the cost of doing business or unforeseen lapse in the volume of business; that loss of 29,000,000 passengers since the fare was increased to 7½ cents, despite normal increase in population, is due to the increase and not to automobile competition as contended by the company; unprofitable long riding has grown and short riding has decreased, fare increases being held responsible. The petition says that as a matter of principle and common fairness, the company's right to a fair return on fair value is not disputed, but "we do protest the suicidal and reactionary policy of attempting to increase returns by further advance in fares."

Date Set for North Shore Rate Hearing

A hearing is to be held in Chicago on Sept. 15 before Examiner Hoy on the intrastate passenger rates of the Chicago, North Shore & Milwaukee Railroad within the states of Illinois and Wisconsin. Formal investigation was ordered recently by the Interstate Commerce Commission. In a petition the railroad alleged that its passenger fares between points in each state were below the level of rates charged for interstate travel and that the railroad commissions of both states had refused to permit an increase in local tariffs.

Higher Fare Sought in Madison

The Madison Railways, Madison, Wis., filed a petition with the Wisconsin Railroad Commission on Aug. 17, asking that the rate in Madison be raised to 10 cents for adults and 5 cents for children under twelve years. It was claimed by the company that such increases were necessary to carry out its program of improvements. W. Dineen, secretary of the commission, stated that the petition would be heard in September.

An increase on Jan. 2, 1925, was allowed to provide funds to carry out a program of additions and improvements agreed upon between the railway and the city of Madison. According to the petition, "during the 30 months

which has elapsed since that order was entered the revenues of petitioner accruing under such schedule of rates and fares have been at all times insufficient to provide petitioner with any funds to carry out said program." The petition also stated that the rates of fare had been and were inadequate to afford a reasonable return on the fair value of its property devoted to the service of the public.

If the plea is allowed, tickets or tokens would sell at fifteen for \$1. At present they are seventeen for \$1. School children's tickets would undergo no change in price.

The petition was signed by F. W. Montgomery, president, and Alice N. Montgomery, secretary of the company.

Changes in Holyoke Delayed One Month

At a hearing before the Massachusetts Public Utilities Commission on Aug. 23 on the petition of the Holyoke Street Railway, Holyoke, Mass., for a readjustment of its fare rates and a revision of its zoning system, a delay of one month, making Oct. 1 the day when it is proposed to make the changes effective, was granted on request of city officials of Holyoke and Chicopee. More time was desired by them to study the schedules. A further hearing by the commission on the subject was set for Sept. 21. L. D. Pellissier, president of the company, said it was expected the readjustment would bring in about \$175,000 additional revenue yearly.

An unusual feature of the first hearing before the utilities board, on Aug. 23, was that all the speakers, mayors, legislators, aldermen and selectmen, paid the Holyoke Street Railway the compliment that it was giving satisfactory service, maintaining adequate equipment and presenting a fine upkeep. There was no complaint against the company, but a feeling that it might not be necessary to give it a 25 per cent increase in fares.

State Sues United Railways for Collections from Riders

The State of Missouri on Aug. 29 filed suit in the United States District Court in St. Louis to take from the United Railways a total of \$83,000 collected from car riders last February under the form of an increase in fare which a special United States Court later held was not warranted. At the time the fare increase was put into effect the company was operating under the protection of an order from Federal Judge Reeves of Kansas City.

During this period the company raised the fare from 7 cents to 8 cents, but gave receipts for the extra penny to passengers on demand. Later when the special court ruled against the company those passengers who presented the receipts were paid back the pennies. While the 8-cent temporary fare was in effect the company collected about \$85,000 in

extra pennies, but later returned \$2,000 to patrons who presented the desired receipts.

The state now contends that the company has no legal right to retain the money and that it is the property of the people who paid it. The state seeks to place it in a fund and if the rightful owners do not assert their claims to turn it over to the state treasurer for state expenditures.

The state suit is in the nature of an intervening petition in the federal receivership case. Charles W. Bates, counsel for Receiver Rolla Wells, has stated that the suit of the state will be vigorously opposed.

Charles W. Bull, associate city counselor, several days ago informed the St. Louis Board of Estimate and Apportionment that neither the city nor the state had a legal right to claim the money. That the return of the extra fare was a private matter between the company and the car rider and that if the car rider did not claim the money the company could retain it.

Portland Employees to Serve as Tourist Guides

Franklin T. Griffith, president of the Portland Electric Power Company, Portland, Ore., has suggested through a letter to Mayor Baker of Portland that the services of a staff of seventeen traffic inspectors of his company be allowed to act as volunteer information guides while on duty during convention periods or heavy tourist seasons. He said these men were carefully instructed in service of this character. The Mayor replied that the offer was appreciated as an excellent suggestion and that it would help to create a spirit of welcome to travelers in the city.

Mercury Arc System in Bridgeport

Energy for street railway operation by the Connecticut Company in the city of Bridgeport was changed over on Aug. 23 from the company's own generating system to a mercury arc rectifier system fed from the lines of the New York, New Haven & Hartford Railroad. Mention of the order placed for the rectifiers was made in the ELECTRIC RAILWAY JOURNAL, issue of Jan. 22, 1927, page 189.

Hearing on Schenectady Fares Scheduled

A hearing will be held before the Public Service Commission in Albany, on Sept. 8, on the petition of the Schenectady Railway for permission to increase its cash fare rate in Schenectady, N.Y., and in each operating zone on its Albany, Troy and Saratoga divisions from 7 to 10 cents and school tickets from 2½ to 3 cents. The company also asks the right to increase commutation ticket rates.

Recent Bus Developments

Albany Official Wants Trolley Given a Chance

Bertrand T. Fay, assistant to the vice-president of the United Traction Company and the Capitol District Transportation Company, Albany, N. Y., in an interview with the Albany representative of the *ELECTRIC RAILWAY JOURNAL* on Aug. 18, declared that in his opinion people generally preferred the bus as a means of transportation in Albany because the bus is constantly moving while the cars of the electric railway are often held for long intervals by congested traffic.

When the United Traction Company embarked on bus transportation three years ago Mr. Fay was placed in active charge of the supervision of the bus operation under the direction of the general manager and vice-president. He has made an exhaustive study of bus conditions of traffic as compared with the street car.

Contrary to the opinion expressed by L. F. Loree, of the Delaware & Hudson Railroad, about a year ago, Mr. Fay does not expect the bus to supplant the street car. He said:

If the automobile traffic on the streets which impedes the street car could be speeded up, the street car would rapidly assert its superiority. While the street car invariably arrives at the end of the route ahead of the bus, the people seem to prefer the bus as a means of transportation because it is almost constantly in motion. They think they are getting there quicker.

My personal opinion is that there is no comparing the comfort of riding in a trolley car with the bus. The trolley car is light, airy and roomy. The bus is often crowded and there is a certain amount of gas that will escape into the car. Yet people seem to prefer all this to the trolley car. My idea is that if the trolley cars were given an even chance to go through the public streets and the carriageway was restricted to moving traffic you would solve the problem of rapid transit.

Buses Expected on Five Auburn Lines

There was a further hearing before Public Service Commissioner Lunn on Aug. 30 on the petitions of the Auburn & Syracuse Electric Railroad for approval of declarations of abandonment of five of its lines in the city of Auburn, N. Y.

It was stated by Mr. Elder, city representative, that the city had arranged with a new company to operate bus lines over the routes traversed by the five trolley lines and that it was expected the bus lines would be in operation by Oct. 15, to operate on a 7-cent fare.

Provided the bus lines are established there will be no objection to the abandonment of the trolley lines. It is expected that applications will soon be

made to the commission for the required authority for operation by the bus lines and early hearing will follow. The case was ordered closed by Commissioner Lunn.

Commission Authorizes Seven Rye Lines

The Public Service Commission on Aug. 23 issued to the County Transportation Company, Inc., a certificate covering the operation of seven lines in Rye, N. Y., to provide bus service where street car lines have been abandoned.

The bus routes are not identical with the lines of the railway and the commission's certificate is subject to the terms of the consent by the village authorities granted on April 6, May 23 and June 15 last. There was no opposition to the company's application at a hearing before Commissioner Van Namee.

The company proposes to use eighteen buses, each carrying 29 passengers, with a zone fare of 10 cents with transfers to other zones in Rye.

The change in service is part of the general reorganization by the New York & Stamford Railway of its transportation system in towns and villages in Westchester County.

Bus Terminal Planned in Heart of New York

Plans to establish in New York City, N. Y., a terminal for interurban bus lines are now being executed following the leasing of Astor Court, the private street running from 33rd to 34th Street at the Waldorf-Astoria Hotel, by the Gray Line Motor Tours, Inc. The spacious area leased from the hotel, which owns the property, together with a large room in the western end of the Waldorf, adjoining the court, will give the Gray Line, which has been operating its sightseeing and tours service from the hotel for some time, rights to the 6,000 square feet of space.

Since the recent regulation of the Police Department has necessitated the establishment of permanent terminals off the streets for interurban bus lines, the Astor Court terminal, to be shared by many other bus companies, will go a long way toward solving the traffic and parking problem, as well as centralizing interurban bus operation for the benefit of the public. The station will be operated under the name of the Gray Line Waldorf-Astoria Bus Terminal. It is estimated that it can take care of buses to the extent of from 500 to 700 a day. J. J. Reddington, manager of the Gray Line Motor Tours, says that the establishment of this terminal will stimulate interurban bus travel. The terminal will be operating early in September.

Alabama Buses Under Commission Jurisdiction

Operation of buses over the state highways of Alabama is now under the jurisdiction of the Alabama Public Service Commission, through a bill which was recently adopted by the Alabama Legislature and favored by a number of companies operating bus lines. Under the new law all bus companies are required to file a petition with the commission for a permit to operate. The commission has the right to allow or refuse the petition.

Before the enactment of this legislative act there was practically no law in Alabama governing the operation of buses on public highways. The last State Legislature before the present one did not enact any bus legislation because there were no bus lines in operation in the state at that time.

Virginia Utility Opposes Bus Grant

The Petersburg-Hopewell & City Point Railway, Petersburg, Va., will oppose the operation of a bus line from Petersburg to Hopewell, according to a statement made by Samuel W. Zimmer, president and general counsel for the company. The Southside Transportation Company recently was granted a franchise to operate a bus service between the two cities, effective within 30 days. The car line serves all plants in Hopewell except Hummell Ross. It is proposed by the bus company to operate buses into the plant area. The franchise calls for three buses to be operated daily with a 60-cent round-trip fare between Petersburg and Hopewell. The car line is operating on a 35-minute schedule at a round trip fare of 25 cents for a labor ticket.

The Councils of Petersburg and Hopewell had opposed the granting of the franchise. It is said that the trolley company will appeal the granting of this franchise to the Supreme Court of Appeals of Virginia, on the grounds that the present railway schedule serves the public adequately by the 35-minute schedule now maintained and also that the company has vested rights in the franchise. During the past few years there has been a decrease on account of business conditions, and now, since there has been a considerable increase of traffic between the cities on account of the new industries, Mr. Zimmer believes the car line is entitled to some returns from the investment.

Toledo Considers Golfers' Trials

A special bus service of three buses a day from the end of the Wildwood feeder line to Heather Downs Country Club for the use of golfers, caddies and residents of the district has been started as an experiment by the Community Traction Company, Toledo, Ohio. Service will be increased if the patronage warrants.

Bus Competition for Oklahoma Interurban Railways

Over the protest of both steam and electric railways the Corporation Commission of Oklahoma has authorized through bus transportation between Oklahoma City and Ardmore, Oklahoma City and Stillwater and Oklahoma City and Tulsa. These routes parallel electric lines between Oklahoma City and Norman, Oklahoma City and Guthrie and Sapulpa and Tulsa. The commission has assumed to modify or neutralize the effects of the new competition by prohibiting the motor carriers from picking up or discharging passengers between points served by electric railways, but the latter lines express apprehension over the loss of business heretofore delivered to them at points of connection with the motor routes.

North Shore Line Renews Chicago-Milwaukee Bus Service

Supplementary motor coach service between downtown Chicago and the business center of Milwaukee was re-established on Aug. 20 by the Chicago, North Shore & Milwaukee Railroad. A similar coach service between these cities was started last year by the North Shore Line but was discontinued after a few months because of insufficient earnings.

The new line is operated as a non-stop service between Evanston, Ill., a suburb of Chicago, and Milwaukee. Only interstate passengers are carried. Coaches leave the Auditorium Hotel in the Chicago "Loop" at 8:20 a.m. and 2:20 p.m. daily for Milwaukee, stopping at the North Shore Line rail terminals at Adams Street and Wabash Avenue, Wilson Avenue, Chicago, and Dempster Street, Evanston. Two trips are also made daily from the Milwaukee terminal of the railroad to Chicago. The coaches make the 90-mile run each way in 3½ hours, connecting at Wilson Avenue and Dempster Street with the company's trains to and from Chicago. The new motor coach rate between Chicago and Milwaukee is \$3.06. Tickets are interchangeable, being honored on either the buses or trains.

Service on the new route is furnished with one 29-passenger A.C.F. Newell type parlor-observation coach and one, 29-passenger Fageol parlor coach.

Bus Terminal at Cincinnati Under Attack

The use of Government Square, Cincinnati, Ohio, for a terminal for all motor coaches entering the downtown district may be discontinued if the suit of Eli G. Frankelstein is successful. He seeks in the Common Pleas Court to enjoin Col. C. O. Sherrill, City Manager, from enforcing the order which permitted the use of the square for a bus terminal.

Government Square, in the center of the main business district, is a block

long and about 100 ft. wide. The center of this square for its full length is devoted to buses of both city and interurban lines. These include vehicles on four city motor coach lines, the Cincinnati Street Railway Company's coach lines and Interurban lines to all parts of Ohio and to cities in Kentucky and Indiana.

Mr. Frankenstein declares that in spite of the fact that the square was dedicated to general street purposes the city has barred all vehicles except buses from one-third of its width and these buses have paid nothing in return for this exclusive privilege. He says the lives and property of the traveling public are menaced because people are permitted to cross the lanes of traffic at any point in this block to the consternation of motorists, who never know when some one will dart in front of them to the buses.

The question of removing the terminal from the square has been up for consideration several times, but city officials have delayed action, recognizing that the square is a very convenient location for this loading.

Iowa Tax Law Again Censored

A second attack on the constitutionality of the Iowa law which taxes buses and freight carriers operating between fixed terminals was heard recently in the Polk County (Iowa) District Court. Advancing the charge that the law passed by the 41st General Assembly is discriminatory in its application, the Iowa Motor Vehicle Association and 25 bus operators of the state began suit before Judge William Bonner to prevent the Board of Railroad Commissioners from collecting the so-called tonnage tax. The fight was led by Mrs. Helen Schultz Brewer, well-known Iowa bus operator.

Much of the time in the presentation of the plaintiffs' side of the case was taken up with showing exhibits and other proof that hundreds of other vehicles ranging from heavy freight and passenger carriers down to taxicabs are using and wearing out the Iowa roads, yet pay no part of the tax because they are not operating on regular schedules but between fixed points.

Casper Schenk, counsel for the bus operators, charged that the law was class legislation and that it penalized regularly organized bus and freight lines while the great majority of commercially operated passenger and freight vehicles went tax free.

After hearing the evidence Judge Bonner took the case under advisement.

The first suit brought to test the legality of the tax resulted in a decision by Judge Lester Thompson of the Polk County District Court, in which he held the statute unconstitutional. Appeal was taken by the state and the Iowa Supreme Court ordered the case back to the district court for retrial on grounds that the lower court erred in allowing the facts to be stipulated instead of brought out by testimony.

Operators Come Out of Legal Excitement Unscathed

Bus operators in Georgia have new regulations to observe as a result of the passage of a new motor vehicles measure by the Legislature at its 1927 session.

If they are operating automobiles, the license charge will be made upon the basis of weight, the charge being 50 cents for each 100 lb. or fraction thereof. If they are operating buses they will find the charges the same as last year on a capacity basis, ranging from \$15 to as high as \$1,125 for heaviest trucks. Tractors, except those used exclusively for agricultural purposes, trailers, semi-trailers, and motorcycle side cars will be charged a license fee for the first time in the state.

The speed limit in Georgia has been increased from 35 to 40 m.p.h. for cars under 10,000 lb. For motor vehicles between 10,000 and 16,000 lb., the speed limits have been set at 8 m.p.h. for metal tires, 20 m.p.h. for solid tires and 25 m.p.h. for pneumatic tires. And for buses and trucks of more than 16,000 lb. weight, the speed limits are 5 m.p.h. for metal tires, 18 miles for solid tires and 20 miles for pneumatics.

Other attempts were made to tax bus companies, but all these failed in the closing days of the Legislature.

Line Between Lawrence and Lowell

The Eastern Massachusetts Street Railway, which has sought to establish a bus line between Lawrence and Lowell, Mass., for some time, has been successful in securing permission and the necessary licenses from Mayor Walter T. Rochefort of Lawrence, Mass. It is planned to start operations as soon as possible. All other municipal licenses have been secured and schedules are now being worked out. The line will operate via Tewksbury and Andover.

Fee Charged Intercity Buses

For the first time in four years intercity buses must pay a license fee in Chippewa Falls, Wis., according to the terms of an ordinance recently adopted that all buses operating in and out of Chippewa Falls must pay an annual license of \$25 a year. The police department has been assigned the duty of enforcing the ordinance.

Rail-Light Company Protests Buses

A protest against the application of the Buckeye Stages, Inc., seeking to operate bus service between Columbus, Ohio, and Westerville, has been filed with the Public Utilities Commission by the Columbus Railway, Power & Light Company. The protestant declares that its system has provided ample service between these two points and that additional service could be provided.

Financial and Corporate

Rail Earnings Continue to Show Profit in Pasadena

Continuous losses in income from the operation of buses in the city of Pasadena, Cal., are shown in the June report of the Pacific Electric Railway, recently filed with the City Directors of Pasadena. The report shows a loss of \$10,559 for the month of June, while the first six months of 1927 shows a loss of \$50,172.

During June, 141,247 bus-miles were traveled by the buses in Pasadena, the average earning was 0.1796 cent and the average expense 0.2403 cent. The number of passengers carried on the bus lines in June was 487,022 compared with 529,529 in June, 1926. The report shows 395,499 passengers paid fares, 76,612 rode on transfers and 14,951 rode free. Passenger earnings amounted to \$25,107.

During the same time, the railway transportation in Pasadena has continued to show a profit according to the report, the net operating income for June being \$6,328. Analysis of the passenger traffic on the rail lines for June showed a revenue of \$26,271. A total of 486,012 passengers was carried, 410,395 paying fares, 56,381 riding on transfers and 19,236 riding free. The car mileage traveled was 104,237.

New Bedford Line Sold

Sale of the New Bedford & Onset Railway, New Bedford, Mass., to a New York group whose identity was not revealed, was announced on Aug. 24 by Elton S. Wilde, president of the Union Street Railway of which the Onset line is a subsidiary. Mr. Wilde asserted that the new owners plan to continue operation.

B. M. T. Fights Bond Decision

Seeking a rehearing on its petition the Brooklyn-Manhattan Transit Corporation, Brooklyn, N. Y., has taken issue with the Transit Commission for exceeding its authority in denying the application to issue \$20,000,000 bonds of the New York Rapid Transit Company to be taken by the Brooklyn Company for \$16,000,000. In denying the application the Transit Commission held that the sale of the bonds to the B.-M. T., which is the parent company, was among other things prejudicial to the interests of the city of New York because of the city's partnership with the company in the routes on which the cars are to be used.

The application for a rehearing was considered and referred to counsel at the meeting of the commission on Aug. 31. This action on the part of the company is regarded merely as a formality

precedent to an application to the Appellate Division for a writ. Among other things the company contends that Mr. Untermyer, as special counsel, the commission and the city, said there would be no objection to the sale of \$3,467,000 of the bonds at 80 for equipment for additional operation. Reference was made to this bond sale in the *ELECTRIC RAILWAY JOURNAL* previously.

Indiana Utility Would Issue Preferred Stock

The Northern Indiana Public Service Company, Gary, Ind., an Insull utility, has applied to the Public Service Commission for authority to issue \$1,300,000 of preferred stock at 6 per cent. The proceeds, according to the petition, are to be used to reimburse the company's treasury for capital expenditures made up to Aug. 1 of this year, and for money used in the retirement and purchase of certain stock.

Plans Purchase of Pennsylvania Property

The Pittsburgh Railways, Pittsburgh, Pa., subsidiary of the Philadelphia Company, is negotiating for the purchase of the Homestead & Mifflin Street Railway, operating more than 3 miles in Homestead, Pa. Expenditures of \$300,000 for improvements are planned if the purchase is completed.

Indiana Line Sold

The real estate, right-of-way and rolling stock of the Fort Wayne & Decatur Traction Company, Decatur, Ind., has been sold to the Indiana Service Corporation of Fort Wayne. The line, 22 miles long, ceased to operate cars on Aug. 9 by authority from the Public Service Commission. Electric power will be continued to Decatur and intermediate points by means of the high-tension line now in service. The work of tearing up the rails will begin soon. Equipment from two substations, which will be removed, will be placed at points on the Indiana Service Corporation lines.

\$7,000 for Batavia Property

The S. Snyder Corporation of Rochester, N. Y., has closed negotiations for the purchase of the physical property of the Batavia Traction Company, Batavia, N. Y., and will begin to dismantle the road immediately. Although no price was announced, it is believed approximately \$7,000 was paid for the property, which includes six cars and other equipment. The Batavia Traction Company operated 5 miles of line.

Combined Surplus in Porto Rico \$925,572

The net income of the Porto Rico Railways, San Juan, P. R., for 1926, after providing for depreciation, amounted to \$426,026. Income derived from other sources, \$9,938, made the total net income \$435,964. These facts were contained in the twentieth annual report.

Interest on first mortgage and re-funding mortgage bonds for the year absorbed \$174,329. Provision has been made for the preferred stock dividend for the year, amounting to \$70,000, and a dividend on the common stock, amounting to \$30,000, paid January 15, 1927. The balance of \$141,635 has been

CONSOLIDATED STATEMENT OF PROFIT AND LOSS OF THE PORTO RICO RAILWAYS, LTD., FOR YEAR ENDED DEC. 31, 1926

Net profit from operation for year after providing for depreciation.....	\$426,026
Add: Net income from other sources.....	9,938
	<hr/>
	\$435,964
Less: Interest on bonds—	
First mortgage bonds.....	\$109,845
Refunding mortgage bonds....	64,483
	<hr/>
	174,329
	<hr/>
	\$261,635
Less: Income tax accrued.....	20,000
	<hr/>
	\$241,635
Deduct: Dividend on preferred stock.....	\$70,000
Dividend on common stock....	30,000
	<hr/>
	100,000
	<hr/>
	\$141,635
Add: Balance at credit Dec. 31, 1925.....	\$794,926
Less amount applicable thereto..	10,989
	<hr/>
	783,936
	<hr/>
Combined surplus carried forward.....	\$925,572

added to surplus account, which has been carried forward at \$925,572. The amount of first mortgage bonds outstanding was reduced during the year by the sum of \$66,500, in compliance with the terms of the trust deed.

The current assets as of Dec. 31, 1926, including bonds purchased for future requirements of the sinking fund, amount to \$814,284, against \$702,298 in the previous year. Current liabilities stand at \$426,139, compared with \$336,618 a year ago. The net working capital of the company has thus been increased by \$22,466, and now amounts to \$388,144. During the year there was expended on capital account the sum of \$158,044, mostly for additions in power and light divisions.

More New Jersey Stock for the Public

Another campaign for the sale of the company's 6 per cent cumulative preferred stock to consumers will be put into effect in the fall of this year by the Public Service Corporation of New Jersey. The sale will be under the supervision of Charles G. Colyer, vice-president of the Public Service Stock & Bond Company, a subsidiary. The total number of preferred stockholders has increased from 2,763 in 1921 to 55,253 on Dec. 31, 1926.

General Engineering Concern Disposes of Utility Holdings

The World Engineering Corporation, Boston, Mass., engaged in the business of construction and appraisals, has announced through its president, Carl M. Ahl, the disposition of its public utility holdings to the J. G. White Management Corporation, 33 Liberty Street, New York City, N. Y. The holdings include the Derry Electric Company, Derry, N. H.; Yarmouth Light & Power Company, Ltd., Yarmouth, Canada; West Virginia Light, Heat & Power Company, Sistersville, W. Va., and the Sistersville & New Martinsville Traction Company, Sistersville.

Louisville Properties Valued at \$28,393,734

Report of the Beeler Organization on the appraisal of the properties of the Louisville Railway, Louisville, Ky., made public by members of the Board of Public Works, recently, showed the total property values of the company to be \$28,393,734. There was a depreciation of \$3,944,952 on the grand total, leaving a balance of \$24,448,782, which is considered the sound property value which will be used as a basis for fixing the rate of fare to be charged by the company in the future.

In making the report public members of the Board of Works refused to comment on the contents as did James P. Barnes, president of the Louisville Railway. Mr. Barnes and Charles Milner, counsel for the railway, conferred with members of the board regarding the report, but did not have time to study its contents. It will be three or four months before the board will be ready to make a statement, according to David R. Castleman, chairman. The report in four large volumes dealt with every phase of the management and operation of the Louisville Railway. A copy of the report was turned over to George W. Hubley, engineer for the Public Utilities Bureau, with the request that he make a study of the contents in order to advise members of the board regarding various items prepared by representatives of the Beeler organization.

Michigan Line Abandoned

The Marquette County Electric Railway, operated under the management of the Michigan Gas & Electric Company, suspended operations on Aug. 20 for an indefinite period. The Twin City Motor Bus Company, managed by W. J. Billing of Ishpeming, Mich., has arranged its bus schedule to follow as closely as possible the route of the cars, with half-hour service between Negawnee and Ishpeming.

The railway has been operated under numerous managements since July 1, 1892. One of the chief obstacles to the successful operation of the road has been the severe winters. Often only summer

schedules were maintained. With the impoverished cars and the inability to add new ones, the company intends to junk the equipment.

\$300,000 Value for Sedalia Railway

The Missouri Public Service Commission on July 2 fixed the valuation of the property of the City Light & Traction Company, Sedalia, Mo., at \$1,765,000 as of Dec. 31, 1925. The figures for the various departments follow: Electrical department, \$1,045,000, including \$950,000 for physical property and \$95,000 for going value; gas department, \$420,000, including \$400,000 physical property and \$20,000 going concern value, and railway department, \$300,000 for physical property and no going concern value, because the lines are being run at a loss.

The property was valued in connection with an application for an increase in rates for gas service in Sedalia. The commission denied the application, holding that present rates are fair and will be continued.

The order stated that the commission in fixing going value had been controlled by the circumstances surrounding each department. The state body said that slow growth of the city in recent years did not indicate immediate prospects of a substantial increase in business or extension of service except in the electrical department.

Foreclosure Decree for Massachusetts Properties

Hearing has been given by Judge Sanderson in the Massachusetts Supreme Court on the form of a decree for foreclosure by the American Trust Company of a \$2,500,000 mortgage on the Boston & Worcester Street Railway, Framingham, Mass., securing a \$2,460,000 bond issue, and a mortgage of the Framingham, Southborough & Marlborough Street Railway, securing \$60,000 bonds. It is understood bondholders will purchase the two lines.

The framing of a decree satisfactory to Judge Sanderson involves many details not yet worked out, and counsel has informed the court that the sale cannot be made before six weeks after the decree has been entered. The upset price to be named in that decree by Judge Sanderson is agreed upon as \$360,000, and the purchaser will have to provide about \$180,000 in cash to meet expenses and charges. Counsel reports that a deficiency of \$90,000 still exists in the finances of the Boston & Worcester in spite of the good work done by Franklin T. Miller as receiver.

Oklahoma Line Suspends

The Chickasha Street Railway, Chickasha, Okla., recently suspended operations because of its inability to meet expenses.

\$23,083,776 Depreciated Value Found for Nashville Properties

The railway and electrical properties of the Nashville Railway & Light Company Nashville, Tenn., are valued at \$26,046,773 as of July 1, 1926, in the report to the Railroad and Public Utilities Commission by the special investigation committee composed of William J. Hagenah, Chicago, and Prof. Albert S. Richey, Worcester, Mass.

The committee was appointed by the commission at the request of the local utility company. The report covers two years of research and computation work. In it the engineers declare that the properties of the company are in good condition, without delayed maintenance, and giving an excellent service to the public.

The estimate of the local properties covered a detailed study of every department of the company, its buildings, tracks, ties, poles, rolling stock, motors, power plants and itemized valuations of every piece of property. The report made to the commission shows an initial cost of \$16,843,201 for the properties, which the statistician declared would cost about \$1.65 for every dollar expended at the time of the establishment of the company and its properties in Nashville.

The depreciation on the \$26,046,773 total valuation as of July 1, 1926, would amount to approximately \$3,000,000 or in detail a total of \$1,918,919 on the railway properties and \$1,044,148 on the electrical properties. This leaves a net valuation of \$23,083,776 for the company's entire holdings in the city.

The report showed that the local company had expended approximately \$3,418,000 for repairs and improvements within the past ten years.

Hocker Line Sold for \$28,500

The Hocker line, officially known as the Kansas City, Lawrence & Topeka Electric Railroad, Merriam, Kan., was sold for \$28,500 to the Sonken-Galamba Corporation, Kansas City, Kan., at a special master's sale on the steps of the Johnson County courthouse at Olathe, Kan., on Aug. 26. The line has not been operating since July 16 following a receivership of eight years.

Nearly 300 residents of Shawnee, Merriam and other points along the line, which extends from Rosedale to near Zarah, Kan., were given a faint hope the Hocker cars would not be discontinued and the property junked. Herman Sonken, who made the successful bid for the line, said after the sale his concern would give a "reasonable" time for the citizens served by the road to take over the property for operation. If the offer is refused the line will be junked.

Lester Blanton, president of the Merriam Chamber of Commerce, said citizens would hold meetings in Merriam to plan an organization to operate the road. He blamed the service rendered for the failure of the line to operate successfully.

Legal Notes

ALABAMA—*Injury to Passenger Trying to Board Car.*

Where a street car stops at a point with a manifest purpose of discharging and taking on passengers, it extends an invitation to that end, and it is the duty of those in charge of the operation of the car to exercise reasonable care and diligence that no person in the act of accepting such an invitation in the usual way is put in a dangerous position. Hence, a passenger, at a regular stopping point, whose hand was caught in the platform door when it was closed and was dragged some distance and was injured, could collect damages. [Birmingham Electric Co. vs. Cleveland, 113 So., 403.]

CALIFORNIA.—*Disclosure of Names of Witnesses Not Obligatory.*

A section of the civil code requires an injured plaintiff to submit himself to physical examination and the defendant to permit the plaintiff's expert to examine the machinery alleged to have caused the damage. A section of the penal code requires the drivers of vehicles which have caused injury to give to the occupants of the vehicle or person injured the names of the passengers, not exceeding five, in the vehicle causing the injury. It was held that neither of these sections requires the motorman on an interurban car to give to the plaintiff in an action for damages the names of the witnesses obtained by him after the accident. [Barrington vs. Pacific E.R., 256 Pacific, 567.]

CALIFORNIA—*Motorman May Assume that Motorist Will Use Due Care.*

Where an autobus driver approaches a railway crossing coincidentally with a railway car, the continuing duty rests upon him to use reasonable caution in protecting his passengers from collision. He must presume that the motorman of the car, in reasonable probability, would continue up to and over the crossings without slowing up. The motorman may presume that the autobus driver approaching the railway crossing will use due care and need not check the otherwise rightful speed of his car in passing such crossing until he has reason to believe that the bus driver is neglecting to use care. [McCarthy vs. Pacific Elec. Ry., 255 Pac., 868.]

KENTUCKY—*Several Charges to Bus Lines Not Double Taxation.*

The law imposing a franchise tax on companies possessing special privileges from the State was held to cover bus lines. Charges for use of the highway can also be collected from them by the State under its police power, provided these charges are intended for the repair of special injuries to the highways caused by the operation of the buses. Additional charges can also be collected to help to defray the expenses of administering this law. These several

charges do not constitute double taxation which is prohibited under the Kentucky constitution. The fees mentioned for the use of the highway, etc., may properly be measured by capacity and weight, as well as a charge for the tag required for each of them. [Blue Coach Lines vs. Lewis, et. al., 294 S.W., 1080.]

ILLINOIS—*Policy on Issue of Certificate Defined.*

It is the policy of the State, established by legislation for the regulation of public utilities, to provide the public with efficient service at a reasonable rate by compelling established utilities occupying a given field to provide adequate service and at the same time protect them from ruinous competition. Where an additional or extended service is required, and a utility in the field is willing and able to furnish the required service, the Commerce Commission is not justified in granting a certificate of convenience and necessity to a competing utility until the existing utility has had an opportunity to demonstrate its ability to give the required service. While priority in the field is an element to be considered, it will not of itself govern the granting of the certificate. Where the extension of service of an existing utility was required and it proposed to furnish that service only by transferring passengers at a point which was without adequate facilities for the necessities and convenience of passengers while awaiting transfer, the Commission was warranted in granting a certificate to another company which was willing to give through service. [Bartonville Bus Line, vs. Eagle Motor Coach Company, 157 N.E., 175.]

MASSACHUSETTS—*A Utility May Be Responsible for Passenger's Injury.*

A street railway, as a carrier of passengers, may be liable for negligence in failing to warn a passenger of danger in alighting from its car or in failing to see that he alights in safety. [Williamson vs. Boston Elevated Ry., 156 N. E., 21.]

MASSACHUSETTS.—*Responsibility Defined for Construction Defects in City-Owned Subway.*

The Tremont Street subway was constructed by the Boston Transit Commission, which ceased to exist in 1918, all of its powers and duties being imposed on the city of Boston. The subway is now owned by the city, which derives a return from it. The service in the subway is supplied by the Boston Elevated Railway. A passenger was injured by falling into an open space left in the original construction between the station platform and the car body and brought suit against both city and company. The latter was held not responsible, as the platform was designed and constructed by public authority, and the city also was not responsible because

the subway is a public enterprise for the general welfare, hence the city cannot be deprived of the defenses which are open to the public agency in undertakings of this kind. [Bartol, vs. City of Boston and Boston E.R., 156 N. E., 844.]

NEW YORK—*Motorman Held Not Responsible for Pedestrian's Acts.*

A pedestrian who, in crossing a street between blocks, stepped in front of an approaching car 20 to 25 ft. away, and was struck by the near corner of the car, was held guilty of contributory negligence and motorman was not held negligent, as he was not required to anticipate the pedestrian's acts. [Schneller vs. Ninth Ave. Ry., 220 N. Y. Supp., 434.]

MINNESOTA—*Railway Not Liable for Injuries to Repairer of Fire Alarm Wire Attached to Its Poles.*

A fire alarm wire was attached to a railway pole without the company's express consent, though without its objection. When the wire broke a person not an employee of the city but with the consent of the fire department began to make repairs and was injured when the pole broke. The company had not given permission to anyone but its own employees to climb the pole and was held not liable for the injuries. [Howard vs. Minneapolis & St. P. S. R. Co., 214 N.W., 658.]

MISSOURI—*Duty of Pedestrians When Crossing Street to Look and Listen.*

In order not to be guilty of contributory negligence, one must, before entering on a street railway track, look and listen in both directions for cars, provided by looking and listening he could discover their approach. Where the view of a person is obstructed as he approaches a railroad track, he must look in both directions for approaching cars after he passes the obstruction and reaches a point from which looking would be rendered effective. [Zlotnikoff vs. Wells, 295 S.W., 129.]

MISSOURI—*No Damages Allowed for Mental Distress.*

No recovery can be had for fright, terror, anxiety or mental distress caused by negligence, where unaccompanied by any personal injury, or for personal injuries caused solely by mental disturbances without external impact. [Gibbon vs. Wells, 293 S. W., 89.]

WASHINGTON.—*Commission May Anticipate Future in Granting Certificates.*

In granting certificates of convenience and necessity, allowing the operation of motor transportation companies under the State Law, the Department of Public Works may anticipate the future as well as consider the present necessity and convenience. Such action was upheld as regards a district not completely served by a railway, although the latter was not given a special opportunity to furnish increased facilities before the competing carrier was licensed. [Northern Pacific Ry. et al. vs. Department of Public Works, 256 Pacific, 333.]

Personal Items

Walter J. Cummings New President of Chicago and West Towns Railway

Walter J. Cummings, an outstanding figure in the industrial and civic life of Chicago and president of the Cummings Car & Coach Company, was elected president of the Chicago & West Towns, Railway, Oak Park, Ill., on Aug. 22, succeeding the late ex-judge Willard M. McEwen. The new incumbent's connection with this railway



W. J. Cummings

property dates back to 1913. He has been chairman of the board since 1918.

As manufacturer and operator Mr. Cummings knows the railway business, senses its needs and has confidence in its future. His active interest in the electric railway industry dates back approximately twenty years when the successful foundry and forging business that had been built up by the Cummings brothers was expanded through the purchase of the McGuire Manufacturing Company, well-known manufacturer of trucks and sweepers.

Later with the addition to its line of products of a gas-electric bus for supplementary railway service, the name of the company was changed from the McGuire-Cummings Manufacturing Company to the Cummings Car & Coach Company. In 1904 Mr. Cummings became vice-president of the McGuire-Cummings Manufacturing Company and president in 1918. His ardent belief in the future of the railway business was expressed in an interview published in *ELECTRIC RAILWAY JOURNAL* for March 27, 1926. He has steadfastly held to the view that the essential nature of the service rendered by the electric railway made its position fundamentally sound. He believed that the bus added a new and valuable agency for handling the type of service that did not justify railway construction and contended that bus operation by electric railways need not be a losing venture when approached from the proper viewpoint.

Mr. Cummings was born on June 24,

1879, at Springfield, Ill. His early training was in the banking business. The Chicago & West Towns Railway, over which he now assumes executive control, operates 67 miles of electric railway in the section lying just west and southwest of the Chicago. In addition, it owns more than 7 miles of track which are leased to the Chicago Railways Company. The company also operates bus lines supplementing its railway service.

G. I. Wright, Engineer of Electric Traction at Reading

G. I. Wright has been appointed to the new position of engineer of electric traction of the Reading Railroad, Reading Pa.

Following his graduation from Leland Stamford University in 1913 as an electrical engineer he was employed by the Southern Pacific Railroad in connection with the electrification of branch lines. He left that post in 1917 to enter the United States Navy, being appointed electrical officer of the *U. S. S. Montana* after a course of instruction at the Naval Academy. In August, 1918, he was promoted to lieutenant and sent to the Portsmouth Navy Yard to supervise the construction of several submarines.

He resigned from active duty in February, 1919, and for three years was construction superintendent of the Duluth Edison Electric Company, at Duluth, Minn. Following this, he was employed by the Illinois Central Railroad as assistant engineer in charge of electrifying their Chicago Terminal. He was with that company for five years, during which time he was promoted to office engineer and handled all features of that work.

C. H. Forsgard in Toledo. Other Changes in Line-Up

Charles H. Forsgard, who has been made general superintendent of the Community Traction Company, Toledo, Ohio, and given direct supervision of the operations of the company, has been in the service of electric power and railway properties ever since his graduation as an electrical engineer from the Texas Agricultural and Mechanical College in 1911.

Mr. Forsgard is a native of Waco, Tex. His first work was with the Houston Light & Power Company, controlled then by the United Gas & Electric group. Later he went into the Texas Panhandle district to manage three small properties for a Boston financial group. In 1917 he went to the Weston Light & Power Company, in Colorado, later taken over by Henry L. Doherty & Company. Here he re-

mained with this property for seven years and then was transferred to Durham, N. C., in an executive capacity with the Doherty utilities there.

In his new capacity at Toledo, mention of which was made in the *ELECTRIC RAILWAY JOURNAL*, issue of Aug. 13, page 290, he will relieve J. Frank Johnson, vice-president and general manager of the company, from many of the details of operation, permitting Mr. Johnson to take a greater part in the promotion of public relations and general policies of the company.

In the change E. V. Emery, who has been transportation superintendent of the company, will go to the New York offices of Henry L. Doherty & Company.



C. H. Forsgard

Sidney L. D. Jackson, attorney who has been with the law firm of Tracy, Chapman & Welles, general counsel for the company, has also been added to the claims staff of the Toledo company to assist Attorney Donald Finkbeiner.

OBITUARY

WILLARD M. McEWEN, president of the Chicago & West Towns Railway, Oak Park, Ill., died suddenly on Aug. 18 at his summer home at Ephraim, Wis. Mr. McEwen was an ex-judge of the Superior Court of Cook County and a former law partner of United States Senator Charles S. Deneen. Recently, Mr. McEwen was in the limelight when he directed the litigation of the now famous bus case which resulted in the ruling of the Illinois Supreme Court to the effect that the State Commission must give preference to able existing utilities over those desiring to compete.

HARLEY W. BRUNDIGE, for eight years a member of the California State Railroad Commission, died on July 16. It was in 1919 that Governor Stephens named him to the commission. Prior to that time he had been engaged in journalism, the career he chose after leaving college. His first editorial experience was in Missouri, where he attained distinction. He later went to California and filled several important positions in the newspaper field. Mr. Brundige was born in Ohio in 1865.

Manufactures and the Markets

New Electric Rolling Stock in England

Hitherto the London, Midland & Scottish Railway has employed on its London suburban electrified lines cars open internally from end to end with end and center doors. These are in general similar to those used on the London tube railways and are employed in through service between the Baker Street and Waterloo Railways and Watford on the L. M. S. line. This was started before the railway amalgamations, when the Watford route was part of the then London & North Western Railway. On the other hand the Southern Railway has on its London suburban electrified lines (Brighton section) compartment cars similar to those employed on the steam railways. With this idea in mind the London, Midland & Scottish Railway in its latest order for additional cars has chosen the compartment type. The vehicles are arranged in three-coach units as usual, but two or more units can be coupled up when long trains are required during the busy periods. The new order embraces 28 third-class motor cars, 24 composite trail cars and 23 third-class control trail cars. The body length of motor cars is 59 ft. and of the others 57 ft., with a body width in each case of 8 ft. 11 in. The centers of the bodies are 39 ft. apart. The unladen weights of each type are respectively 56 tons, 28 tons and 30 tons, while the seating accommodation is for 84,100 and 96 passengers respectively.

The bodies are of No. 14 gage channel finish galvanized steel and the floors are of galvanized steel sheets covered with decolite. The seating is after the usual British steam train type. In general, it may be said that the cars conform largely to standard practice.

Economic Problems Before Chamber of Commerce

The part organized business is to play during the forthcoming year in the solution of outstanding economic problems, such as agriculture, flood control, taxation and merchant marine, will be shaped at a meeting of the national councilors, committees and board of directors of the Chamber of Commerce of the United States to be held at West Baden Springs, Ind., Oct. 15 to 18.

It will be the first meeting of the kind to be called by the national organization and the first conference on questions of national economic policy to be held in the environment of the Middle West. The meeting place has been deliberately chosen with a view to affording business interests of that region the widest possible opportunity to present their views on current economic and legislative problems.

The West Baden meeting will, it is expected, bring to a focus opinion of business executives representing organizations in every state. Invitations have been extended to more than 1,000 national councilors, each representing a trade association or commercial organization in the membership of the national chamber, and approximately 200 officers, directors and members of special committees dealing with particular phases of business activity.

Norfolk Receives Five New Buses

Five new 21-passenger buses have been placed in service at Norfolk, Va., by the Virginia Electric & Power Company, Richmond, Va. They have replaced five buses on the Navy Yard routes. The old equipment will receive a general overhauling and renovation. The routing of two trolley lines, the Craddock and the Park View lines, have been changed by the company.

C. V. Marks Hurt in Fall at Ohio Brass Plant

C. V. Marks, treasurer of the Ohio Brass Company, Mansfield, Ohio, on Aug 5, was severely injured in a fall down an elevator shaft while inspecting the company's new office building. He suffered several broken bones, which will incapacitate him for some time. His friends in the industry will be glad to learn that apparently no internal injuries resulted and that he is doing very well.

Pre-Convention Flashes from Cleveland

THERE was an enthusiastic meeting of the decorations sub-committee of the A.E.R.A. exhibit committee in Cleveland last week. Fred Dell, director of exhibits, looked wise and mysterious but said very little about the plans formulated at the pow-wow, which was held in the office of Col. J. H. Alexander, president of the Cleveland Railways. A JOURNAL man after much inquisitiveness unearthed that they were going to decorate the decorations under the big roof, and also that miniature artist models of the buildings were approved. Sumpins' in the wind, but the wind ain't blowin' this way.

Speedy and early shipment of cars exhibited on the track section at Cleveland will greatly facilitate the work of the sub-committee which recently met in Cleveland and tentatively laid out the arrangement of the cars.

I. R. T. Receives Large Shipment of Electric Snow Melters

The Interborough Rapid Transit Company of New York City is receiving from the Westinghouse Electric & Manufacturing Company more than 1,060 snow melter units for railway track switches. The shipment is the largest ever made to one company and is the third order of this equipment for the I.R.T. The company will have 3,200 units in use when these are installed.

Electric snow melters have been used by many transportation companies during the past two years and have given exceptional service by keeping track switches open and operating during heavy snow and sleet storms. During the terrific blizzard of February, 1926, when more than 12 in. of snow fell in less than a day, the heaters gave excellent service.

These units are so installed that sufficient heat is generated at the important points of each switch to prevent the collection of snow or the formation of ice. Each switch group of heaters is individually connected to the power line by a fuse and single-throw switch and the yard men can turn them on whenever occasion demands. This simple method of keeping the track switches clear forestalls possible tie-ups of service during sudden storms and removes the necessity of recruiting a large force of men upon short notice.

Construction Commenced on Warehouse for Kansas City Lines

The Kansas City Public Service Company started excavations on Aug. 11 for a large warehouse and office building at the southeast corner of 40th and Summit Streets. The building will house the equipment and working force of the construction department.

The ground dimensions of the warehouse will be approximately 75 ft. by 135 ft. and a part of the planned structure will be two stories high. The two-story portion of the building will be about 75x100 ft. in area and it will contain the locker rooms for the employees of the construction department, of which there are about 100. The ground floor will be used for the protection of welding machines and other valuable equipment of the department.

Due to the considered setting back of Summit Street for a traffic way, the building will be built 30 ft. from the present Summit Street.

A tentative agreement between officials of the city and those of the Public Service company has been reached, it is understood, whereby the company would not oppose the widening of Summit Street through its Westport yards, which are extensive.

The proposed trafficway would start at 38th Street and cut through residential property at 39th Street east of the intersection of Summit and 39th Streets, to avoid cutting into large business and apartment structures at the intersection.

this plan is followed the traffic way could enter Summit Street proper at about 40th Street, where the new warehouse and office building is located.

Quiet Week in Metals but Copper Picks Up

Copper has sold in much better June than for several weeks, and prices have taken a turn for the better; other metals, however, have been quiet, with lower prices for lead and tin. Zinc has had an unusually quiet market, but prices have held.

The tone of the copper market is perceptibly better. Again in the week ending Aug. 31, as in the two previous weeks, most of the large sellers have refused to quote below 13½ cents, delivered to usual Connecticut points, though business has been taken in certain directions as low as 13.05 cents. In fact, resale lots of spot copper have been sold in the New York district for as low as 12.95 cents cash. However, the cheaper offerings have become less in evidence and on Aug. 31 it was difficult to find anything under 13.20 cents deliv-

ered Connecticut, and as early as Aug. 29 some sellers got the full 13½ cents.

The week's trading in the lead market opened very feebly and consumers showed little or no interest; small lots were sold at prices ranging from 6.15 to 6.17 cents per pound f.o.b. St. Louis. On Aug. 30 the American Smelting & Refining Company again reduced its contract price: it will be remembered that this was fixed at 6.60 cents and Aug. 24. The present reduction brings the price down to 6.50 cents, New York. Corroding grades command a premium of \$2 to \$3 per ton over common lead.

The week ended Aug. 31 has been the quietest week of the summer for zinc, practically no sellers doing their normal volume of business. The price has fluctuated between 6.225 and 6.30 cents St. Louis. New York prices on Prime Western continue at the usual premium of 35 cents per 100 lb. over St. Louis.

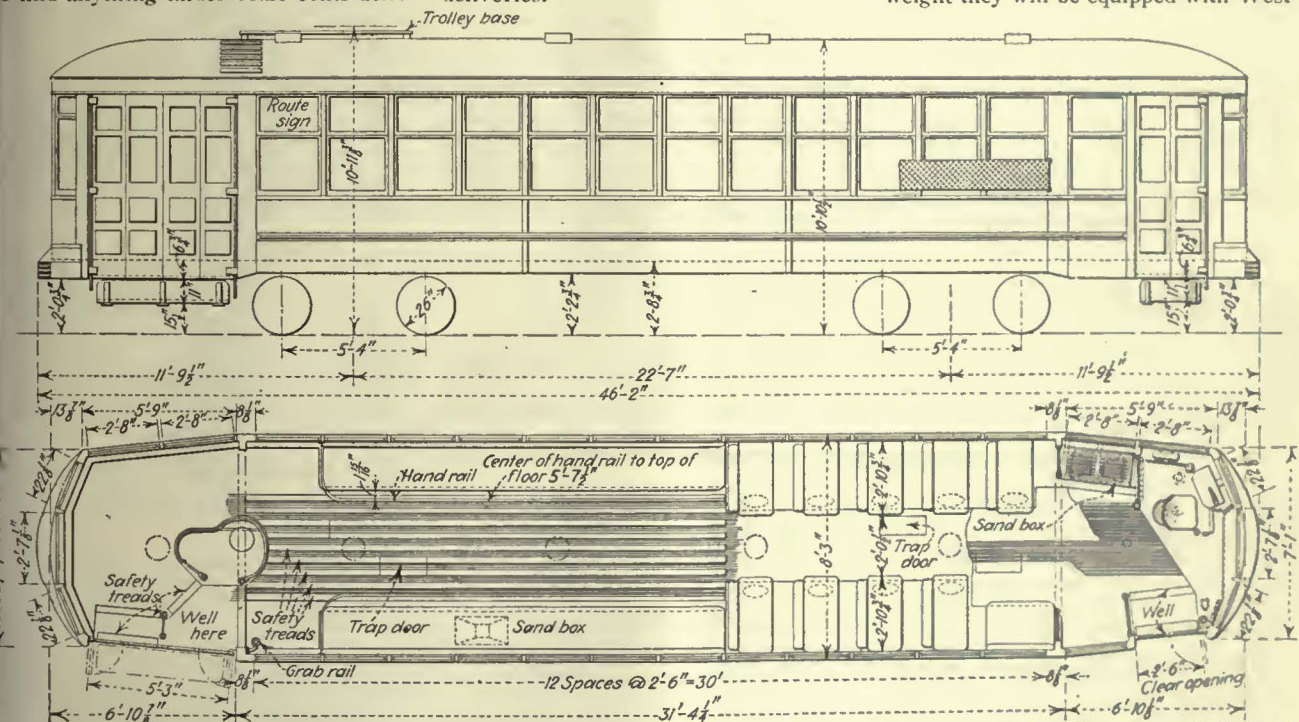
Only small fluctuations in the price of tin have occurred. Identical prices obtain for spot, September, and October tin, and there is a small premium amounting to one-quarter of a cent on November and half a cent on December deliveries.

50-Car Order for Montreal Tramways Placed June 14

As forecast in ELECTRIC RAILWAY JOURNAL for Feb. 19, 26 and March 12 an order for 50 two-man, city type, single-end cars has been placed by the Montreal Tramways, Montreal, Canada, with the Canadian Car & Foundry Co.

In announcing the signing of this contract, dated June 14, D. E. Blair, general manager of the tramways, states that the units are to be constructed along the general lines adopted for the 50 one-man cars built last year. "The length," writes Mr. Blair, "has been increased 5 ft. and the rear platform arranged for normal two-man operation. By using aluminum for side posts, girder plates, wainscoting and other trim, the weight of the cars will be no greater than that of the one-man cars, namely, 36,000 lb., complete with trucks and four 42 hp. motors on 26-in. wheels."

The units, each seating 44 passengers, will be painted the same standard green color as the other two-man cars now in service. Owing to their light weight they will be equipped with West-



Fifty units of this type are now being built for the Montreal Tramways by the Canadian Car & Foundry Company. Delivery is expected in September. Aluminum alloy will figure largely in their construction.

Number of units.....	50	Axes.....	4 in.	Roof material.....	Wood and canvas
Type of unit.....	Two-man, motor, passenger, city, single end, double truck	Car signal system.....	Faraday	Safety car devices, Doors interlock brake and line switch.....	Brass
Number of seats.....	44	Compressors.....	Westinghouse	Sash.....	Ottawa Car Manufacturing Company
Builder of car body, Canadian Car & Foundry Co. City and state.....	Montreal, Canada	Conduit.....	Metal	Seats.....	30 in.
Date of order.....	June 14, 1927	Control.....	K-35	Seat spacing.....	Rattan
Date of delivery.....	Sept. 30, 1927	Couplers.....	Bar	Seating material.....	Westinghouse
Weights:		Destination signs.....	Hunter	Slack adjusters.....	Folding
Car body.....	19,350 lb.	Door mechanism.....	National Pneumatic	Steps.....	Mason
Trucks.....	10,000 lb.	Doors.....	End, folding	Step treads.....	Keystone
Equipment.....	6,650 lb.	Fare boxes.....	Coleman	Trolley catcher.....	Nuttall U. S. 20
Total.....	36,000 lb.	Finish.....	Enamel	Trolley base.....	Ideal
Boiler centers.....	22 ft. 7 in.	Floor covering.....	Wood slat with Kass strips	Trolley wheels.....	Canadian Car & Foundry 790-F
Length over all.....	46 ft. 2 in.	Gears and pinions.....	Nuttall B.P. helical	Ventilators.....	Railway Utility
Length over body posts.....	31 ft. 4 in.	Glase.....	21 oz.	Wheels.....	Cast iron, diameter 26 in.
Truck wheelbase.....	5 ft. 4 in.	Hand brakes.....	Peacock staffless	Wheelguards.....	11-B
Width over all.....	8 ft. 3 in.	Heat-insulating material.....	Hair	Special devices.....	Heaters thermostatically controlled
Height, rail to trolley base.....	10 ft. 1 1/2 in.	Heaters.....	Electric		
Window post spacing.....	30 in.	Headlining.....	4-in. Haskelite		
Body.....	Semi-steel	Interior trim.....	Cherry		
Roof.....	Arch	Journal bearings.....	Plain		
Air brakes.....	Westinghouse variable load	Journal boxes.....	Cast iron		
Armature bearings.....	Plain	Lamp fixtures.....	Keystone compensating		
		Motors.....	Four Westinghouse 510-A-2, inside hung		
		Painting scheme.....	Green and cream		

Side posts, corner pillars, wainscoting, girder panels and miscellaneous body parts of aluminum alloy. Floor framing of steel. Interior finish, window sills and posts, etc. of cherry wood. Floor two-ply wood with tar felt between.

inghouse variable load brakes. Operation of doors will be interlocked with the line switch and air brakes.

Delay in placing the contract, as indicated in the JOURNAL'S issue of March 12, was occasioned by a desire on the part of the Montreal Tramways Commission to consider the advisability of designing a triplex car, also because of the commission's views on further orders for one-man operated units, to which it was in no way committed by reason of the cars of this type ordered last year.

Quincy Mayor Pilots New Trolley

During a recent trial run of one of the de luxe model cars purchased by the Eastern Massachusetts Street Railway, Boston, Mass., for operation on its Quincy, Mass., division, Mayor Thomas J. McGrath relieved the veteran motor-man operating the car, at the suggestion of John H. Hayes, local manager of the company. The party on the try-out run included several representatives of the company, the city and the Quincy Ledger.

The cars, seven of which are to be used on the Quincy division, are being built at a cost of \$15,000 apiece. Each will seat 44 persons. They are finished in mahogany and have dome floodlights and Spanish leather cushions.

ROLLING STOCK

SHORE LINE MOTOR COACH COMPANY, Michigan City, Ind., operating buses from Detroit to South Bend, where connection is made with electric trains of the Chicago, South Shore & South Bend Railroad, has received two White six-cylinder buses.

EASTERN MASSACHUSETTS STREET RAILWAY, Boston, Mass., has received four White buses, model 50-B.

LEAVENWORTH TRANSPORTATION COMPANY, Kansas City, Kan., has accepted six Mack city-type buses, 25-passenger capacity, 196-in. wheelbase, with four-cylinder motors.

BOSTON ELEVATED RAILWAY, Boston, Mass., has placed an order with the Taylor Electric Truck Company, Troy, N. Y., for ten type L. R. H. double trucks, 5-ft. 2-in. wheelbase and 26-in. wheels.

GRAND RAPIDS, GRAND HAVEN & MUSKEGON INTERURBAN COMPANY, Grand Rapids, Mich., announces that the American Car & Foundry Company will deliver six 30-passenger parlor car type buses on Aug. 25, as the first units in the company's plan to co-ordinate electric rail and bus service. The dual service will be effective Sept. 1.

COUNTY TRANSPORTATION COMPANY, bus-operating subsidiary of the New York, Westchester & Boston Railway, New York City, has accepted delivery on seven Mack 29-passenger city type buses, 225-in. wheelbase, with four-

"An' the Gobble'-uns-'ll Git You

if you don't watch your step in signing up for the big Parade at

Cleveland, Oct. 3-8

Those little gobble'uns, "Regret" or "No Space Left" will be a-chasin' you for the next twelve months. Or if you keep pulling off a sound business move you may get the railroad end of a porter-house steak.

Exhibit Now and Rejoice at Leisure

FREDDIE DELL CAN TELL YOU HOW

cylinder motors for operation in Westchester County. Twenty-five Macks are now in service.

TRACK AND LINE

HOLYOKE STREET RAILWAY, Holyoke, Mass., has completed the laying of new rails and the relocating of the track from the side to the center of the street for a total distance of 1 mile on Northampton Street. The work was in two sections, between Sergeant and Cherry Streets and between Hitchcock and Lawler Streets.

SAGINAW TRANSIT COMPANY, Saginaw, Mich., reports the reconstruction of tracks on South Michigan Avenue from the Michigan Central near Dearborn Street to Holmes Street as progressing rapidly. Service is being maintained by means of temporary track laid adjoining the curbing. The new work embodies the latest type of construction; that is, the placing of the steel rails on steel ties and completely imbedding them in solid concrete. It also involves the relaying of 3,400 ft. of track at an expense of \$33,000. The new rail weighs

METAL, COAL AND MATERIAL PRICES— F. O. B. REFINERY

Metals—New York	Aug. 30, 1927
Copper, electrolytic, cents per lb.	13.013
Copper wire, cents per lb.	15.25
Lead, cents per lb.	6.55
Zinc, cents per lb.	6.275
Tin, Straits, cents per lb.	63.50

Bituminous Coal, f.o.b. Mines	
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons.	\$4.325
Somerset mine run, Boston, net tons.	1.85
Pittsburgh mine run, Pittsburgh, net tons.	1.95
Franklin, Ill., screenings, Chicago, net tons Central, Ill., screenings, Chicago, net tons	†
Kansas screenings, Kansas City, net tons.	2.675
†Quotations withdrawn because of strike.	

Materials	
Rubber-covered wire, N. Y., No. 14, per 1,000 ft.	\$9.55
Weatherproof wire base, N. Y., cents per lb. 5.20-5.70	
Cement, Chicago net prices, without bags.	2.05
Linseed oil (5-bbl. lots), N. Y., cents per lb.	11.5
White lead in oil (100-lb. keg), N. Y., cents per lb.	13.75
Turpentine (bbl. lots), N. Y., cents per gal.	63.0

80 lb. to the yard and is 66 ft. long. Directly underneath the rail is an oak block that absorbs the vibration and noise. Thermit welding of the rail joints is one of the features of the rehabilitation program.

TRADE NOTES

HASKELITE MANUFACTURING CORPORATION, Chicago, announces that in the new Twin Coach designed by F. R. Fageol, Plymetyl is used for 75 per cent of the surfaces, while Haskelite is used for the floor.

WILLIAM E. BROWN, manager of the central station department, New York district of the General Electric Company, has been appointed New York district sales manager. Mr. Brown's headquarters will be at 120 Broadway, New York.

J. G. BRILL COMPANY, Philadelphia, has transferred W. M. Horsell to the Philadelphia plant to represent the company's electric railway division in the southeastern territory. Mr. Horsell was formerly sales representative for the G. C. Kuhlman Car Company in the central states serving this plant of the Brill Company since 1920.

MANGANESE STEEL FORGE COMPANY, Philadelphia, announces the opening of a new office at 1335 Old Colony Building, Chicago, Ill., in charge of W. H. Potter, formerly in the Philadelphia office.

A. H. FERRANDOU, formerly manager of motor coach sales for Dodge Brothers, has been appointed director of the motor coach division. Mr. Ferrandou's experience includes many years in the public utility business. He was an executive of the Washington Railway & Electric Company previous to joining Graham Brothers on June 1, 1925.

ADVERTISING LITERATURE

ACME STEEL COMPANY, Chicago, is mailing a folder describing Acme non-slip steel matting, which is used in machine shops and factories.

GOULD STORAGE BATTERY COMPANY, Inc., Depew, N. Y., has mailed out a bulletin describing the new Gould kathode storage battery.

LINCOLN ELECTRIC COMPANY, Cleveland, Ohio, has just issued a booklet on the "Stable Arc" welder, which outlines the theory of the use of arc welding in production manufacturing.

MARKET DATA BOOK COMPANY, Chicago, Ill., tells of the Market Data Book, and how advertising agencies use the book, in a folder recently issued by it.

COPPERWELD STEEL COMPANY, Rankin, Pa., has distributed a folder describing Copperweld ground rods and ground wire attachments.

OHMER FARE REGISTER COMPANY, Dayton, Ohio, has mailed an announcement of the opening of its Philadelphia sales and service branch.



One of the new cars of the Southern Public Utilities Company, Charlotte, N. C., which were built by the company



*In building its own
new steel cars—
Charlotte standardized on
“Peacock” Staffless Brakes*

Reg. U. S. Pat Off.

An important part of the specifications for six steel one-man, two-man cars just built in its own shops by the Southern Utilities Company, Charlotte, N. C., were the “Peacock” Staffless Brakes.

May we tell you of the many advantages which influenced this Company in standardizing on “Peacock” Brakes?



The new Charlotte cars are roomy and airy. They are arranged for operation by one man or two men

**National
Brake Company, Inc.**

890 Ellicott Square, Buffalo, N. Y.

Canadian Representative

Lyman Tube & Supply Co., Ltd., Montreal, Can.

What SUPERTWIST Adds to Goodyear Tires



One of the Goodyear-equipped fleet of the North Coast Transportation Company, Tacoma, Washington

You know what rugged strength and long life have always been built into Goodyear Pneumatic Bus Tires.

Now you may confidently expect even greater service from Goodyears in motorbus service, because Goodyear Pneumatic Bus Tires are now made with SUPERTWIST.

SUPERTWIST is the extra elastic, extra enduring new material specially developed by Goodyear for Goodyear balloon tires, motorbus and heavy duty cord tires.

It far outstretches ordinary cotton cord, and has a maximum flexing power that yields under impact, protecting the tire from rupture, stone bruise and other in-

juries. It thus insures virtually *double* the carcass life of the tire.

Other exclusive features of the Goodyear Pneumatic Tire construction for motorbus service are (1) the new Goodyear band-building method; (2) the new Goodyear breaker; (3) the new Goodyear bead—patent applied for, and (4) the famous All-Weather Tread.

These advantages you get only in Goodyear Pneumatic Bus Tires—the only motorbus tires made of SUPERTWIST.

They are real advantages, because they result in the utmost durability, tractive power, road safety, riding comfort and long, trouble-free mileage at low cost.

Goodyear Means Good Wear

GOODYEAR

101 YEARS OF MANUFACTURING EXPERIENCE

Cane Webbing may be ordered through any H-W sales office.



No. 327-M

FOR INTERURBAN NEEDS

THIS Heywood-Wakefield seat is designed for the modern type of interurban service where comfort is now so important. It has been selected for both new cars and for replacement use.

It has deep, double spring cushions shaped to allow more leg freedom. Mechanism rails are set in. The individual backs are properly pitched for comfort.

Our car seating experts will be glad to help you decide on the best seating equipment for your needs. This service is free through any H-W sales office.

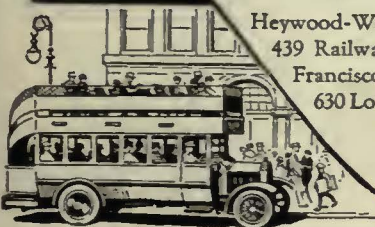
If you have not received a copy of our new Bus Seat Catalogue, write for it.



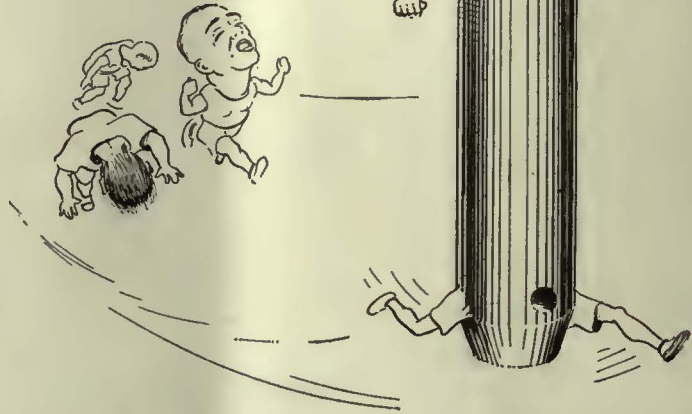
Heywood-Wakefield

REG. U.S. PAT. OFF.

Heywood-Wakefield Co., Wakefield, Mass.; 516 West 34th St., New York, N. Y.; 439 Railway Exchange Bldg., Chicago, Ill. H. G. Cook, Hobart Bldg., San Francisco, Cal. The G. F. Cotter Supply Co., Houston, Texas. F. N. Grigg, 630 Louisiana Ave., Washington, D. C. The Railway & Power Engineering Corp., 133 Eastern Ave., Toronto; Montreal; Winnipeg, Canada.



The stamina relay—



“Boyerized” outdistances three standard steel parts!



The McArthur
Turnbuckle

It is an unusual feat for one runner to outrun three runners in relays. Not so with car parts! *Boyerized Car Parts* are outdistancing three to four standard steel parts on the cars of hundreds of electric railways!

Economies such as *BOYERIZED PARTS* effect are reflected not only in actually lower maintenance costs, but in increased car hours, for cars are kept in service instead of in the shops. Brake rigging especially requires every ounce of the extra strength that *Boyerizing* gives.

Order a few *Boyerized Parts* for trial—
convince yourself that we're right in our claims.

Brake Pins
Brake Hangers
Brake Levers
Pedestal Gibs
Brake Fulcrum
Center Bearings
Side Bearings

Spring Post
Bushings
Spring Posts
Bolster and
Transom
Chafing Plates
Bronze Bearings

McArthur
Turnbuckles
Manganese Brake
Heads
Manganese Truck
Parts
Bushings

Bemis Car Truck Company

Electric Railway Supplies
Springfield, Mass.

Representatives:

Economy Electric Devices So., Old Colony Bldg., Chicago, Ill.
F. F. Bodler, 903 Monadnock Bldg., San Francisco, Cal.
W. F. McKenney, 54 First Street, Portland, Ore.
J. H. Denton, 1328 Broadway, New York City, N. Y.
A. W. Arlin, 519 Delta Bldg., Los Angeles, Cal.



Firestone Dealers

SAVE YOU MONEY

and SERVE YOU BETTER

Firestone's scientific study of bus operation — backed by 27 years of tire manufacturing experience—has made possible a bus tire that is cutting mileage costs.

Extra strength and flexibility are assured by the 10 plies of Gum-Dipped cord. The cords of the carcass are dipped in a rubber solution. By this process every fibre of every cord is saturated and insulated with rubber, adding strength and flexibility to the cords, minimizing internal friction and lengthening the life of the tire.

Gum-Dipping is especially important in Heavy Duty Bus Tires because of the friction generated by the flexing of a thick carcass. Extra layers of rubber between the plies make the tire more flexible. They also insure complete insulation against plies being squeezed



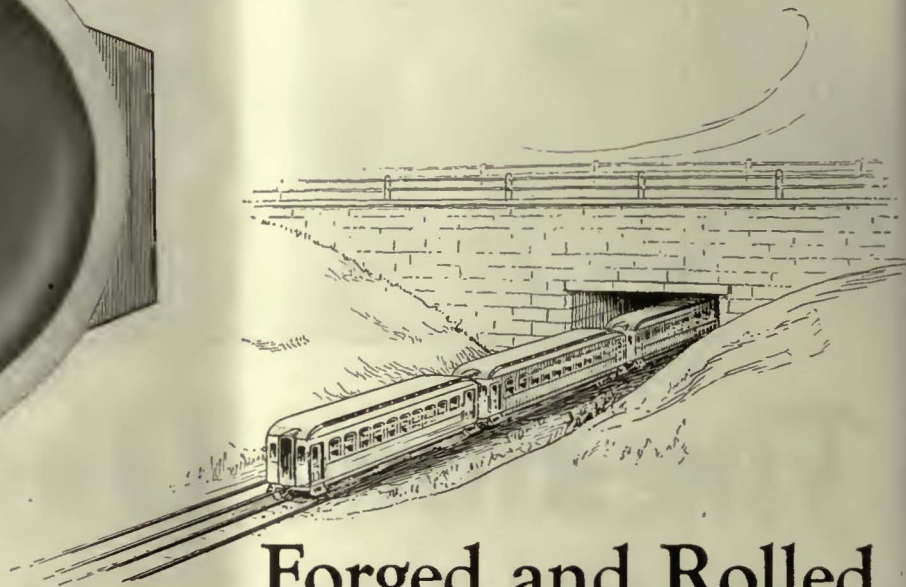
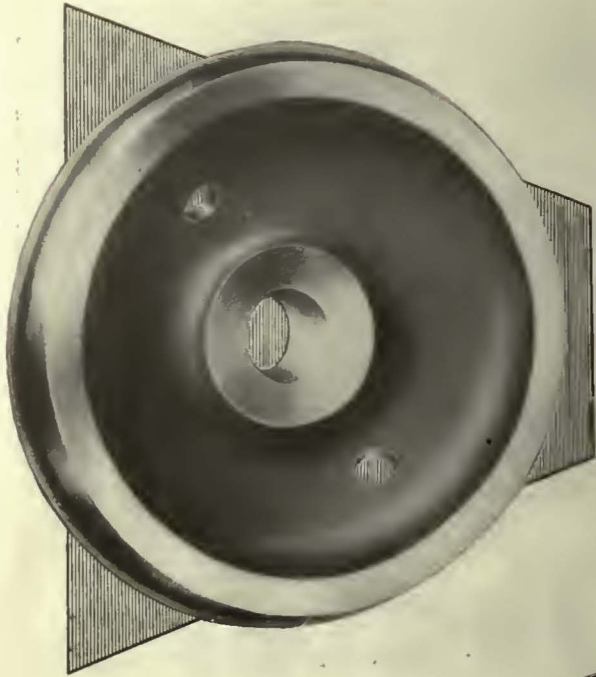
together and chafed as a result of the high air pressure required and the heavy loads carried.

In the scientifically designed Firestone Bus Tire Tread, the continuous rider strip at the center, where most of the weight and wear come, gives smooth rolling and long wear. The safety feature of the design is unexcelled, as it provides a greater number of angles and road gripping edges. The tread, tapering down to form sidewalls, protects against curb and rut wear.

With this quality product, it is natural that Firestone should also take the lead in providing special facilities for rendering convenient and complete local tire service to bus operators. See your Firestone Dealer today. He will save you money and serve you better.

MOST MILES PER DOLLAR

AMERICANS SHOULD PRODUCE THEIR OWN RUBBER . . . *Harvey Firestone*



Forged and Rolled for safety and maximum mileage

High speed electric railway service imposes an incessant demand upon car wheels for safety and maximum mileage.

Cambria wrought steel wheels are forged and rolled in order to insure safety and maximum mileage.

The forging process imparts strength, toughness and density to the metal—the rolling establishes a grained structure throughout the wheels, to prevent breakage and crystallization.

An investment in Cambria Wheels has the additional value of lowering maintenance and repair costs.

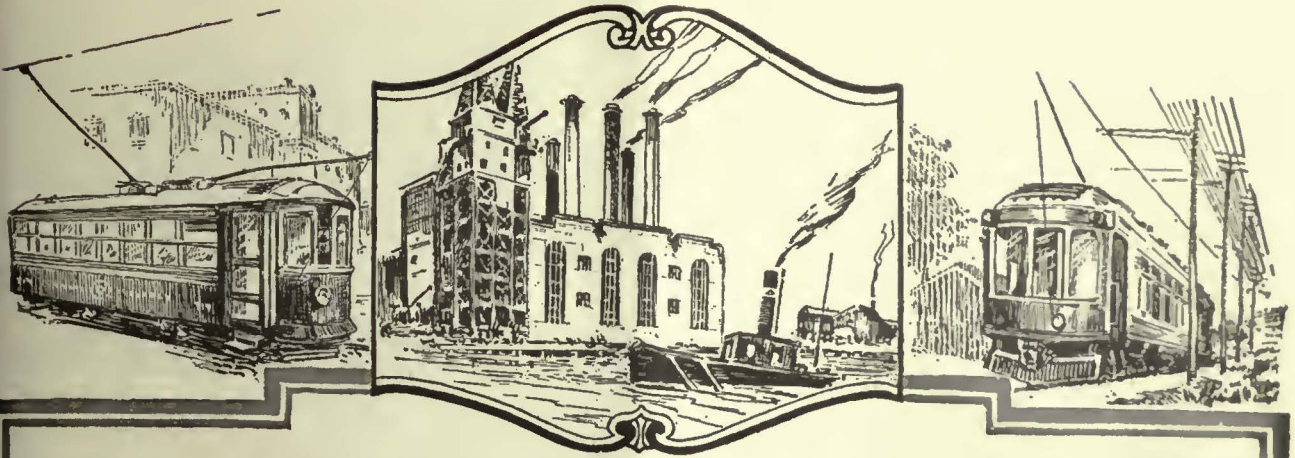
*Cambria forged steel Axles,
Cambria light weight Freight
Car Wheels, Standard
Freight Car, Passenger Car
and Locomotive Wheels
are manufactured in the
Cambria Plant of Bethlehem
Steel Company, Johnstown,
Pa.*

BETHLEHEM STEEL COMPANY
General Offices: BETHLEHEM, PA.

*DISTRICT OFFICES: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta,
Buffalo, Pittsburgh, Cleveland, Cincinnati, Detroit, Chicago, St. Louis, San Francisco
Los Angeles, Portland, Seattle*

*Bethlehem Steel Export Corporation 25 Broadway, New York City,
Sole Exporter of our Commercial Products.*

BETHLEHEM



Check up

Try to form a mental picture of the company which is selling you lubricants. Check items on blank below.

Yes	No
-----	----

1. Is it entirely dependable?

Yes	No
-----	----

8. Has it a fleet of motor vehicles for local delivery?

--	--

2. Has it a wide choice of crude?

--	--

9. Has it huge stocks of lubricants of all kinds on hand at all times all over the country?

--	--

3. Does it control every process of refining, handling and manufacture?

--	--

10. Are the oils of high grade, of constant quality, fully able to meet your varying requirements?

--	--

4. Has it adequate and efficient shipping facilities?

--	--

11. Can the seller supply all your lubricating needs, and also your burning oils?

--	--

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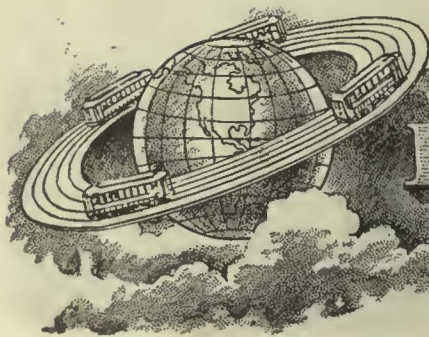
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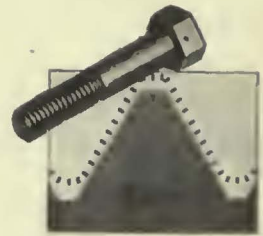
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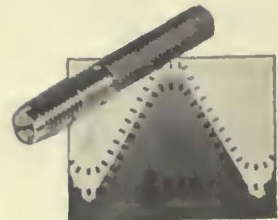
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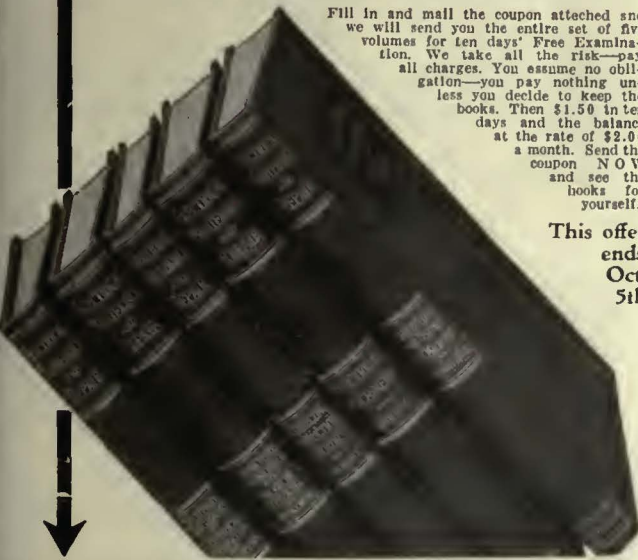
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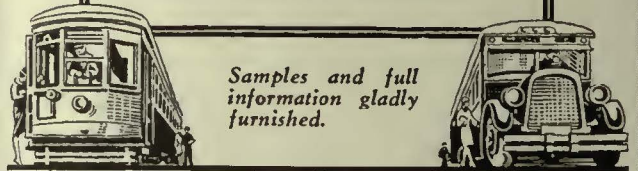
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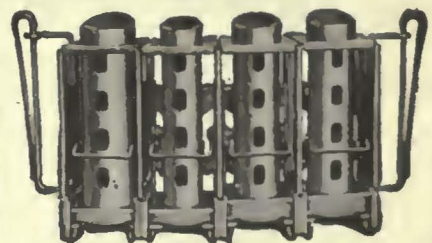
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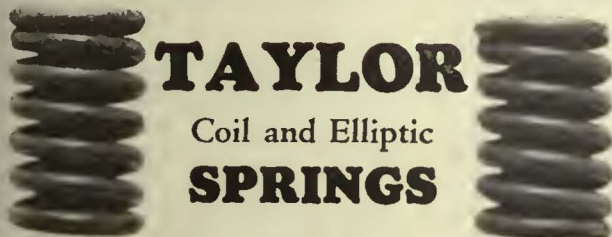
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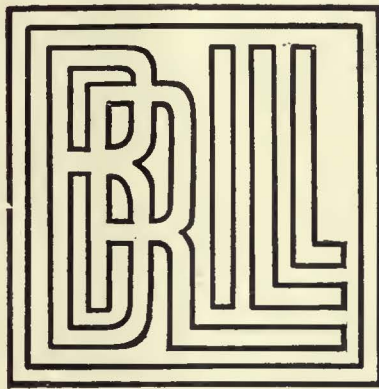
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By *H. A. Eckart*
Chief Assistant Engineer.

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