

ELECTRIC RAILWAY JOURNAL

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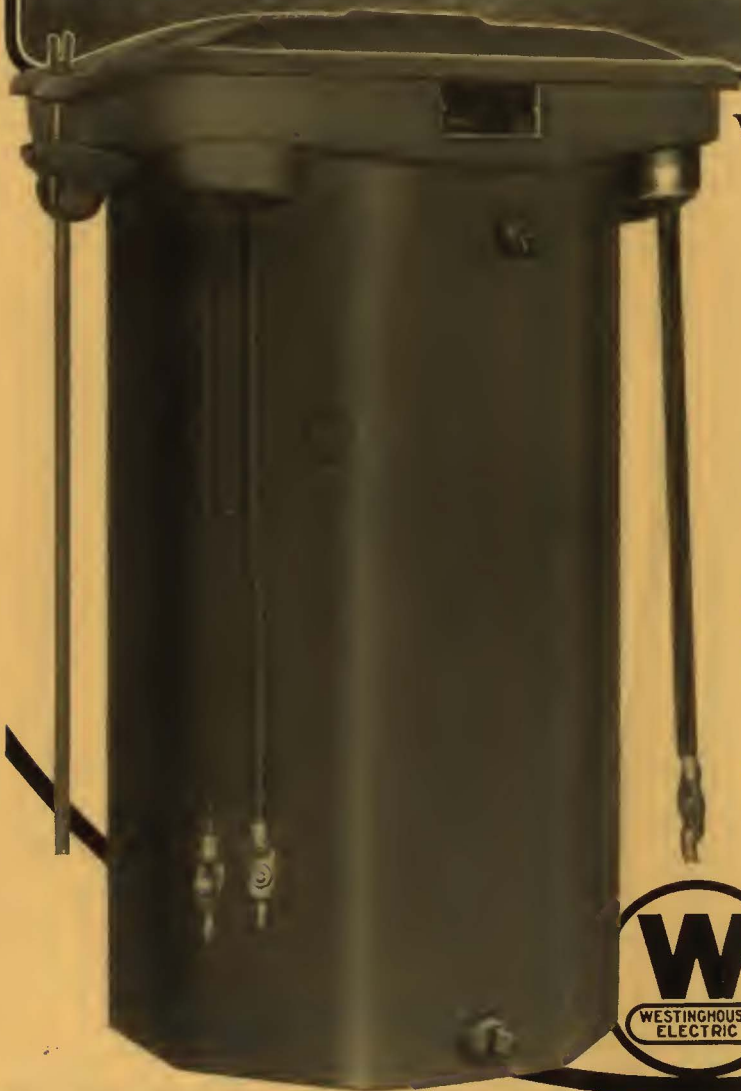
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1926

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No. 5

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"Neither Snow nor Rain nor Heat nor Night Interferes with Their Appointed Task"

A PROMINENT business firm in New York recently announced that its office would be closed during the last two weeks in August to allow everyone connected with the organization to take a vacation. In many other lines of work, there is a considerable cessation of work during the heated season.

Railroads are an exception to this rule. Their cars must be kept in operation, regardless of the temperature. Newspapers are another exception. Fifty-two times a year, on the appointed day each week, ELECTRIC RAILWAY JOURNAL is printed, bound and mailed to its subscribers, wherever they may be.

Herodotus, in speaking of the mails, said: "Neither snow nor rain nor heat nor night stays these couriers from the swift completion of their appointed rounds."

It is a pleasure for the editors of this paper to feel that the same can be said of their publication. Whether at his desk, or at the seashore, or in the mountains, enjoying a much needed rest, the subscriber to ELECTRIC RAILWAY JOURNAL need not feel that he will miss any important news of railway interest of the week. A corps of workers is gathering information of interest to him, putting it in readable form and sending it to him each week as fast as the mails will carry it. Neither snow nor rain nor heat nor night interferes with their appointed task.

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Change of Address—When change of address is ordered the new and the old address must be given, notice to be received at least ten days before the change takes place. Copyright, 1928, by McGraw-Hill Publishing Company, Inc. Published weekly. Entered as second-class matter, June 23, 1908, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Printed in U. S. A.

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THE new O-B Type LW Portable Resistance Welder for metallic arc welding operates at any line voltage from 400 to 600 volts. Four current switches provide correct current for all classes of welding, from lightest to heaviest. Design incorporates approved method of mounting resistance wires. Unit construction insures low maintenance. Operator is protected by remote line control switch—a real “safety first” feature. Frame is welded steel angle. Catalog No. 14969.



The TITON is an O-B copper metallic arc weld bond for rail head application. Its large, heavy steel offset terminals support the molten metal as deposited and protect the finished weld. The TITON is easily and quickly installed at low cost. Its large contact area insures a good strong weld, having excellent electrical conductivity and long life. Catalog No. 14841.



The AW-8 is a steel metallic arc weld bond for application to the rail head. Its terminal features make it easy to secure a strong beveled weld which gives complete satisfaction from both electrical and mechanical standpoints. Welders like it. Catalog No. 14069.



The AW-7 is an O-B steel metallic arc weld bond for use on the rail base. Its terminals are shaped for easy welding and show low electrical resistance. Used in paved streets and for miscellaneous special work and rail tap bonding. Catalog No. 14010-14027.

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TO HUNDREDS of users, the fact that O-B provides a complete Bonding Service is a matter of first importance.

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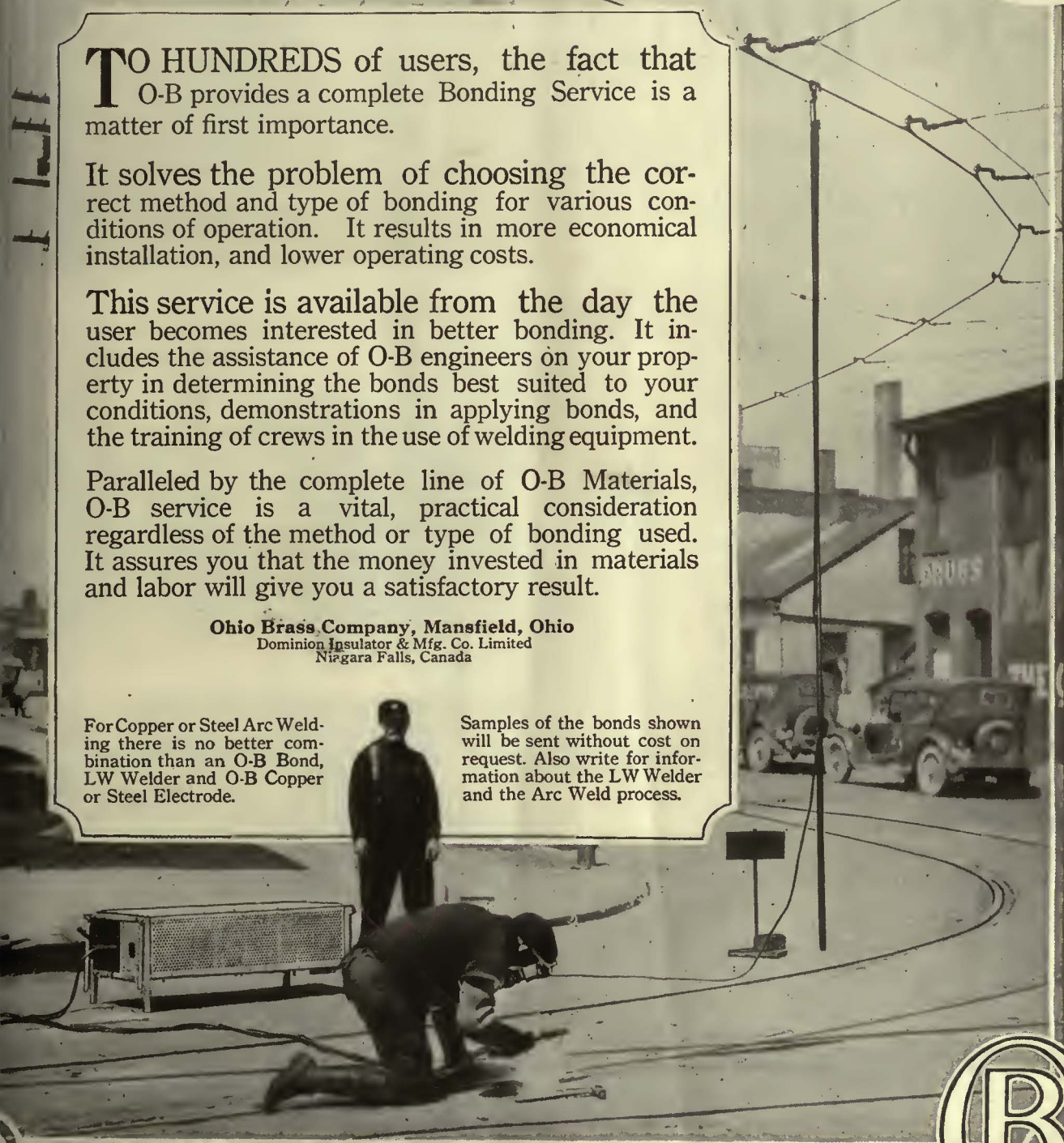
This service is available from the day the user becomes interested in better bonding. It includes the assistance of O-B engineers on your property in determining the bonds best suited to your conditions, demonstrations in applying bonds, and the training of crews in the use of welding equipment.

Paralleled by the complete line of O-B Materials, O-B service is a vital, practical consideration regardless of the method or type of bonding used. It assures you that the money invested in materials and labor will give you a satisfactory result.

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For Copper or Steel Arc Welding there is no better combination than an O-B Bond, LW Welder and O-B Copper or Steel Electrode.

Samples of the bonds shown will be sent without cost on request. Also write for information about the LW Welder and the Arc Weld process.



Ohio Brass Co.

114B

SAVING THE RAIL SAVES THE RAILWAY

An editorial worth re-reading:

In March, this paper editorially said:

“Noise Elimination Is an Asset in Public Relations. Noise is generally the earmark of wasted energy. It is more. It is wasted public relations. No amount of advertising or publicity can counteract the rattle of a car in bad order on a stretch of poor track.

A noted operator of public utilities once wisely said that the physical property of a railway was too much in evidence. A passenger comes in daily contact with two or more employees, pays out money several times a day, rides in several of the cars, and sees all of the others pass him on the line. He sees and is otherwise aware of the track, and possibly sees the car shop and a good part of the power distribution system along the route of his trip. * * *

With no immediate likelihood of being able to submerge the equipment and personnel so that they are out of sight and hearing, the next best thing that can be accomplished by railway operators is to make the equipment more pleasing to eyes and ears. So no effort should be spared to reduce the unpleasant noise of operation.

Much has been accomplished along these lines, but much more remains to be done. The automobile is a bogey to shoot at. Perhaps it can be bettered. Nothing is impossible with the combination of right thinking and a desire to win.”

Many right thinking railway men with the desire to win are using the noise eliminators shown on this page.

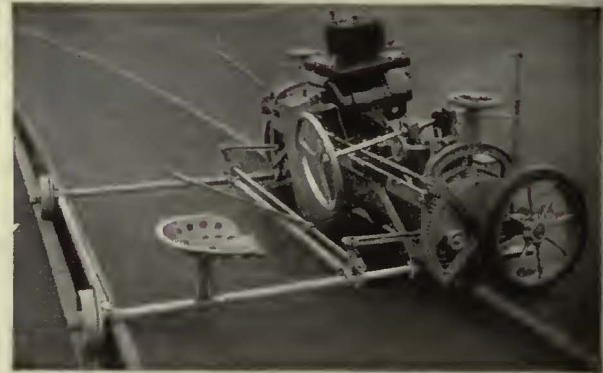
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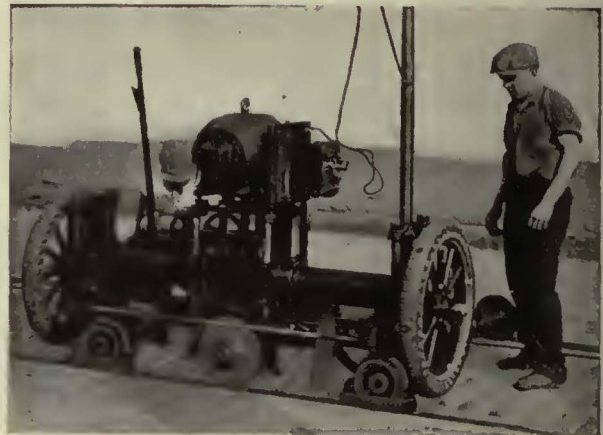
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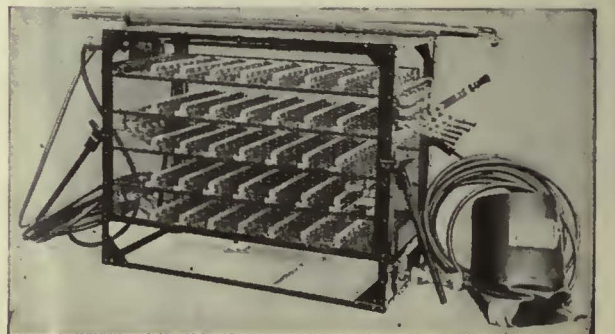
“Improved Atlas” Rail Grinder



“Imperial” Track Grinder



Reciprocating Track Grinder



“Ajax” Electric Arc Welder

SAVING THE RAIL SAVES THE RAILWAY

ESSCO BULLETIN

Devote this week
to improving —

Illumination!

Keep these always
in mind ————

*Safety
Publicity
Illumination
Convenience
Maintenance*

TO PROVIDE proper illumination is to both please and attract passengers—especially those daily riders who want to read while traveling to and from work.

The bright, well diffused light provided by Safety Car Lighting Fixtures fully meets just such requirements for railway cars and the Keystone-Ivanhoe Fixtures for Buses.

Full information gladly sent on request.

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KEYSTONE LIGHTING FIXTURES



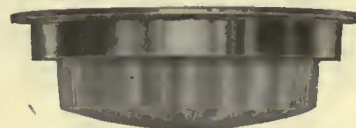
For Railway Cars

Designed with a special holding device, these "Safety" Car Lighting fixtures prevent damage from vibration or expansion and contraction. The reflector cannot drop, rattle or break.

MANUFACTURED to the
Keystone standard of
quality these Lighting Fixtures
are both ornamental and durable—a practical necessity in
the best equipped car or bus.



Pendant Type



Dome Type

For Buses

Keystone-Ivanhoe Fixtures are designed to meet the requirements of all types of buses. These fixtures are now used on better buses everywhere.



MAKE YOUR CARS A RUNNING ADVERTISEMENT

BACK UP your good-will messages by making the cars themselves reflect good-will. Flat wheels attract attention, but they draw no bouquets of public appreciation. Smooth quiet operation is a better earner of good-will.

Here Davis "One-Wear" Steel Wheels can help by reducing flat wheel troubles. Davis Wheels wear evenly, without requiring turning on the lathe and reduce "shell-outs", "slid-flats" and other pound producers.

The Davis "One-Wear" Steel Wheel is the modern wheel for the modern car.

AMERICAN STEEL FOUNDRIES

NEW YORK

CHICAGO

ST. LOUIS

With Twin Ties Any Type of Concrete Track Base can be—Saved— Salvaged—Used Over

ONE of the most generally accepted uses of Twin Ties is in the reconstruction of old track originally constructed with a concrete base.

Generally after the removal of the old paving and rail, a new rail lower than the old rail provides a clearance, into which the 3 5/16 in. deep Twin Tie and new rail fit, without any chipping of the old base. In other cases, the wood ties are removed and the cross members of the Twin Ties fitted into the old tie slots.

As each case has its special conditions, we prefer to prepare a detailed suggestion upon receipt of a description of the old construction.

The International Steel Tie Co., Cleveland



Renewal on old base—Bridge St., Oswego, N. Y. The Empire State Railroad Corporation

Steel Twin Tie Track

Renewable Track . . . Permanent Foundation



EXCLUSIVE MACK BUS FEATURES

MACK buses embody in their construction a number of features which are not found in any other. These features have been developed during twenty-six years of specializing in motor buses and trucks. They are based upon longer experience than that of any other American manufacturer. Each has a practical reason for being and has been proved out in the service of many thousands of users. All of these features are original with the Mack. Many are patented. (Page numbers refer to catalog.)

IN THE ENGINE

- CRANKSHAFT**—3-inch diameter, case-hardened and counterbalanced. (See page 15.)
- CYLINDERS**—Heat-treated, roller burnished and lapped. (See page 14.)
- CONNECTING RODS**—Tubular, machined all over. Cut from drop-forgings and heat-treated. (See page 14.)
- ENGINE SUSPENSION**—3-point suspension by steel beams. Rear main bearing through-bolted to rear support beam. (See page 13.)
- TIMING GEARS**—Case-hardened and ground. Cam-shaft gear drop-forged. (See page 15.)
- WATER PUMP**—Balanced type, bronze rotor. Stainless steel shaft. Single packing, greaseless. (See page 17.)
- CRANKCASE**—Heat-treated aluminum. Quick-removable inspection ports, unobstructed. (See page 16.)
- INTAKE MANIFOLD**—Compensating exhaust-heated vaporizer delivers dry gas to cylinders. (See page 16.)
- WATER DISTRIBUTION**—Water manifold cast integral with cylinder block, delivering cool water direct to exhaust valve jackets. (See page 17.)
- LUBRICATION**—Water-cooled oil reservoir, cast on front cylinder block. Oil double-strained and fed through cast-in leads. (See page 18.)
- RADIATOR**—Shock-Insulated support. Hand-operated shutters. (See page 17.)

IN THE CHASSIS

- SUSPENSION**—Mack rubber Shock Insulators, eliminating spring shackles and increasing ease of riding and length of chassis life. (See page 26.)
- DRIVE**—Dual Reduction Drive, with ground gears. (See pages 20 and 21.)
- REAR AXLE**—One-piece, drop-forged banjo type with yoke inclined at 45 degrees. True full-floating construction. (See page 21.) Independent accessibility to all rear-axle gears. (See page 22.)
- TRANSMISSION**—Interrupted splines on sliding gear shaft. (See page 20.) Gears ground on true generating principle. (See page 20.) Positive oil circulation. (See page 20.)
- DRIVESHAFT BRAKE**—Independently mounted between two bearings, two frame cross-members and two universals. (See page 26.)
- CLUTCH**—Rounded teeth on clutch drum to eliminate sticking of disks. (See page 19.)
- CONTROL**—Triggerless reverse latch on gear-shift lever. (See page 20.)
- STEERING**—Vibration-proof rubber steering wheel. Non-slip. (See page 29.) Rubber-cushioned steering column. (See page 31.) One-piece safety drag-link. (See page 28.)

Mack-Made Buses

- 25-Passenger City Type
- 29-Passenger City Type
- 25-Passenger Parlor Car
- 25-Passenger Suburban Type
- 29-Passenger Suburban Type
- 25-Passenger Gas-Electric
- 29-Passenger Gas-Electric

Pat. Off.

Only Quality determines Performance

In the bus industry where quality determines performance, and performance in turn determines future sales, the manufacturer cannot hope to become a factor in the field through the medium of mere high-sounding promises.

Due to its greater speed over the uneven surfaces of highways, a bus is actually subjected to more severe wracking strains than other transportation vehicles traveling the same roads. For this reason, each of its component parts, if it is to have a profitable life over a period of years, must not only have unusual safety factors built into them, but the material and workmanship must be of the highest grade obtainable regardless of cost. There is no profit in a one year vehicle of any kind.

Mack invites you to visit each of its three great factories located in Plainfield, N. J., New Brunswick, N. J., and Allentown, Pa. There one may see Mack bus chassis and bus bodies in every stage of manufacture, as well as the many special processes and features that are exclusively Mack.

Send for the Mack Bus Catalog No. 94. Read it. Study it. Then make a tour of the plants and compare the printed statements with the actual product in process of manufacture and you will know why Mack bus design and Mack bus quality determines Mack performance.

MACK TRUCKS, INC.

INTERNATIONAL MOTOR COMPANY
25 Broadway, New York City

One hundred and eight direct MACK factory branches operate under the titles of "MACK INTERNATIONAL MOTOR TRUCK CORPORATION," "MACK MOTOR TRUCK COMPANY," or "MACK TRUCKS OF CANADA, LTD."

The **Mack** Bus





Exterior and interior of one of Gary's new one-man-two-man cars, now in service on city and interurban work. Comfortable, upholstered seats for 46 passengers, linoleum covered floors and special lighting make these cars distinctly attractive. Vestibule cabinets conceal air piping. Bodies are mounted on Cummings No. 62 trucks, with four 35 h.p. motors. The total weight of car is 37,000 pounds.

GARY'S NEW CARS *replacing heavy type*

Are expected to build up increased patronage by reason of their attractive appearance and comfort. The great reduction in weight will also effect a saving in operating expenses. They replace two-man operated equipment.

CUMMINGS CAR AND COACH COMPANY

Successor to McGuire-Cummings Mfg. Co.

111 West Monroe Street

Chicago

Gas-Electric Motor Coaches

Light Weight City and Interurban Cars

Snow Sweepers and Plows

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It is difficult for a passenger to board a car while other passengers are leaving by the same exit door. In two-man cars, therefore, the general rule is "in at one end and out at the other." The National Pneumatic Automatic Treadle Exit Door has now made it possible to follow this same practice in the operation of a *one*-man car. All passengers enter at the front where the single operator can devote his full attention to collecting fares. They exit at the rear by stepping on a treadle plate set flush in the car platform. This automatically opens the exit door which closes when the last alighting passenger has left the step and at no time does this process call for effort or attention from the operator up in front. At all times, however, he has absolute control over the treadle exit door.



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General Works, Rahway, New Jersey

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American BROWN BOVERI

The World's largest steam



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Electric Locomotives—for any system of current, high or low tensions

Complete equipment for railway electrification

Rotary Converters

Motor Generators

Diesel-Electric Locomotives

Mining Locomotives

Switches, Controllers and all Auxiliary Equipment

Steam Turbo Generators for normal or high pressures and superheats

Automatic Regulators

Oil Switches

Condensers and Auxiliaries

Relays

Turbo Compressors and Blowers

Electric Furnaces

Induction Regulators

Ships

Diesel Driven

Turbine Driven

Electrical Driven

Structural Steel Fabrication

THE largest unit yet constructed for the generation of electric power was recently ordered for the Hell Gate Station of the United Electric Light & Power Company. This turbo-generator will be built by the American Brown Boveri Electric Corporation at its main plant in Camden, New Jersey.

The size and character of this unit presents for the consideration of American Utilities engineers an entirely new ratio between equipment costs and land and building costs, in the Kw. price of generating stations.

The United Electric Light & Power Company has always been recognized to be among the most progressive of America's electrical companies. Its management has faced and met electrical problems created through the growth of New York City, by the use of engineering talent of resource and vision.

AMERICAN

announces —

turbo-generator unit

Electrical and Mechanical Characteristics

Power output — 251,000 hp. at unity power factor, 188,250 kva., or 160,000 kw. at 85 per cent power factor.

Direct-connected excitors.

Compound unit — reaction type throughout.

Throttle pressure — 265 lb. per sq. inch.

Superheat — 200 deg. (present conditions at Hell Gate Station).

Maximum steam temperature — 750 deg. F.

Single-flow, high-pressure element operates at 1,800 r.p.m.

Double-flow, low-pressure element, operates at 1,200 r.p.m.

Total weight — 2,810,000 lb.

American Brown Boveri Electric Corporation

165 Broadway, New York, N. Y.

Camden, New Jersey

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BROWN BOVERI



The Selector Valve permits independent control of entrance and exit doors

Making Cars Safe and Making them Save

It is a Safety Car if equipped with our standard Safety Car Control Devices

Operating safety is increased and operating expense is decreased when operating responsibility is centralized in one man whose duties are safeguarded and simplified by complete protective and labor-saving devices which interlock car control, door opening, and brake manipulation.

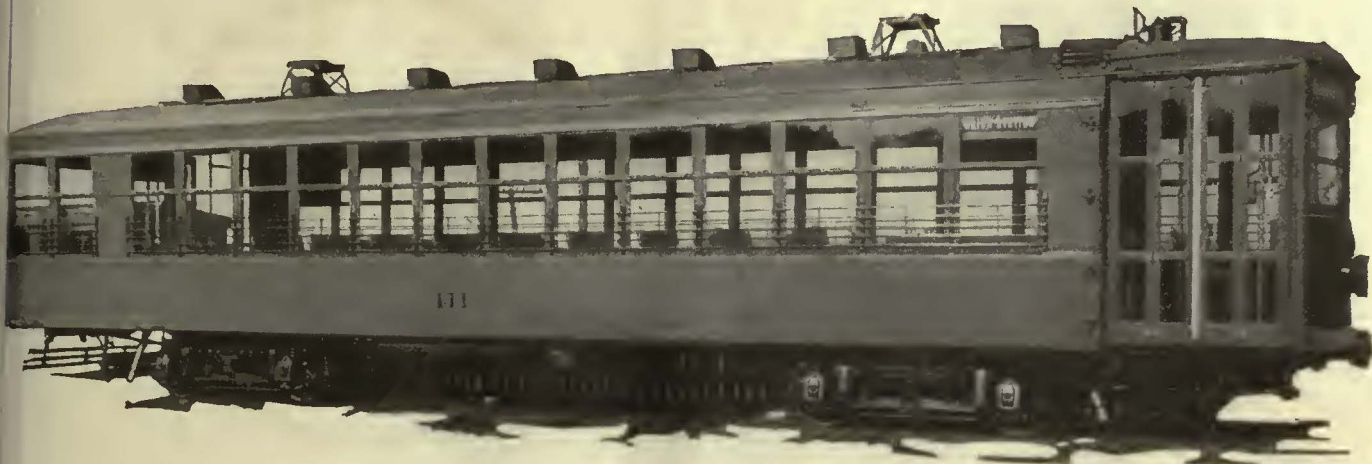
This is being demonstrated daily on more than 13,000 cars which have Safety Car Control Equipment.



SAFETY CAR DEVICES CO.
OF ST. LOUIS, MO.

Postal and Telegraphic Address:
WILMERDING, PA.

CHICAGO SAN FRANCISCO NEW YORK WASHINGTON PITTSBURGH



Tampa Electric—another user of Variable Load Brakes

The Tampa Electric Company has recently put into service seven modern light weight cars, which are equipped with Westinghouse Variable Load Brakes.

Here is still another traction property which is to realize the marked advantages of this most modern form of brake equipment for modern surface cars.



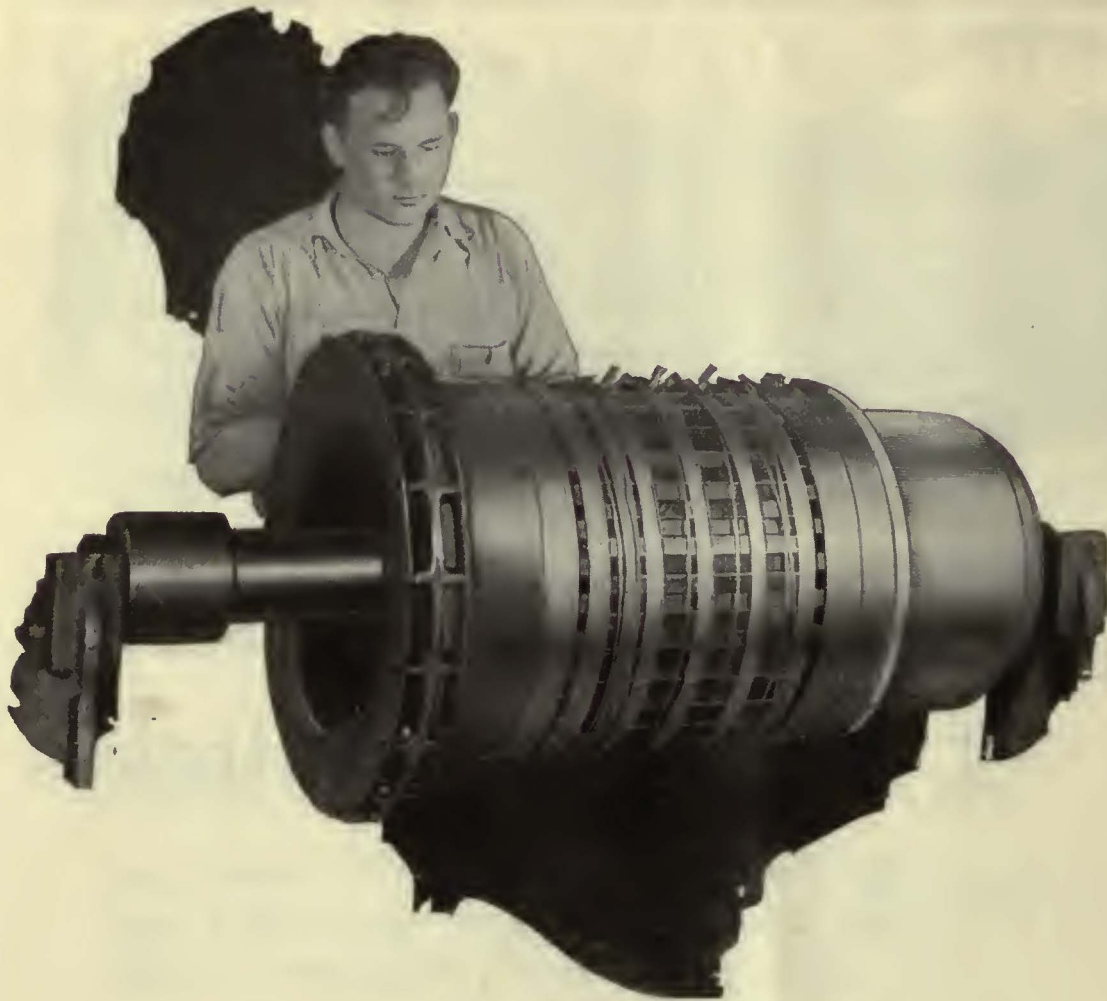
Information regarding Westinghouse Variable Load Brakes may be obtained upon application to our nearest district office—Ask for Descriptive Catalogue T-2045.

Westinghouse Variable Load Brakes provide for the same effectiveness of retardation throughout the entire range of car loading, thus assuring uniformly short stops which are reflected in greater safety and increased schedule speeds.

WESTINGHOUSE TRACTION BRAKE CO.

General Office and Works: WILMERDING, PA.

WESTINGHOUSE TRACTION BRAKES



Keep out "weak links"

Motor parts uniformly good are just as important in a motor that is being overhauled, as in a motor that is being built. The coils must be properly designed for the work; the insulation must be ample, of high quality and correctly fitted; all other parts and materials must be produced with full knowledge of their relationships to one another and to the whole motor assembly.

Insist on having General Electric parts, which necessarily meet these specifications. This Company's possession of complete data as to all the G-E Motors you have in operation, puts it in the position to furnish renewal parts of original-equipment quality—the only safe standard.



Every year more electric railway operators are learning by experience the economic advantages of keeping their G-E Car Equipment G-E throughout.



For
Original Equipment Quality

GENERAL ELECTRIC

Electric Railway Journal

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

Published by McGraw-Hill Publishing Company, Inc.

CHARLES GORDON, *Editor*

Volume 68

New York, Saturday, July 31, 1926

Number 5

Experience Proves Soundness of No-Parking Theory

THEORETICAL arguments showing how transportation conditions could be improved in congested streets by the restriction of automobile parking usually have fallen on deaf ears. Lately, however, the soundness of this theory has been proved beyond dispute in two widely separated cities. In Chicago the huge crowds attending the Eucharistic Congress were successfully handled by the existing local transportation agencies because parking had been completely eliminated in the congested districts. More recently, when the Interborough subway strike in New York City placed a heavy additional burden on the surface lines, the Police Department promulgated strict no-parking regulations to facilitate traffic movement. Remarkable success attended the execution of this plan. A million extra passengers a day were accommodated above ground without any serious difficulty.

Fifth Avenue, where traffic congestion has long been a serious problem, furnishes an excellent example of improvement. Vehicles now move in each direction in three lanes instead of two as used to be the case. Buses move in a column close to the curb instead of weaving in and out. It is no longer necessary to discharge passengers in the middle of the roadway because of the impossibility of drawing up to the sidewalk. The average speed of private automobiles is practically double what it was with parking.

Similar good results have been obtained on other streets. If this eminently sensible restriction of parking is continued after the termination of the strike, the considerable inconvenience occasioned by the curtailment of subway service will be more than made up for by the permanent improvement in surface transportation conditions.

Hope for the Industry Seen in Aggressive Effort of Competitors

SOME good in the active competition affecting practically all electric railways today is seen by Charles E. Thompson, vice-president of the Chicago, North Shore & Milwaukee Railroad. He sees encouragement in this competition because the competitor realizes the essentiality of transportation.

The electric railway manager and owner has not been aroused entirely from the lethargy brought on by the first appearance of that competition. The transition from a comfortable monopoly to a competitive industry has brought a change in managerial conception from inwardly watching the wheels go round to one of looking outwardly to see how the wheels of his own vehicles can serve the public better than the other fellow's.

In short, it means a change from the swivel chair to the street. And some are loath to make the change.

In his address before the Central Electric Railway Accountants' Association at Chicago, Mr. Thompson further said that "no one cares to bother about a business headed toward oblivion." Facts of the last months have shown that the industry is headed toward oblivion only in the minds of the halt and the blind. Forward-looking cities, such as Cleveland, Chicago, Milwaukee, Cincinnati, Grand Rapids, Pittsburgh, Youngstown and many others, have seen through the mist of the present day and have dared to take the step to recreate and put their properties on a parity with the modern conception of a transport system. Some have accomplished results and others are in the process.

In the light of such real accomplishments, Mr. Thompson's address strikes home as indicating the dividing line between the old and the new. Primarily it is not cars and track that make a railway—they are only the physical tools of the industry. The attitude back of them is the real thing that counts. Mental apathy is the fundamental barrier that blocks the way and prevents the acquisition of a directed energy so necessary to recreate our public transport systems.

If the actions of our competitors will accomplish only the thorough awakening of the industry and its owners, then the temporary losses in revenue can be transferred to the capital account of the new company as an asset of no mean value.

Old Car Bodies Make Poor Waiting Rooms

COMMENDABLE anxiety to save money sometimes leads railway managements to adopt practices of doubtful desirability. For example, it is not unusual to see an old car body being used as a passenger waiting room. In point of first cost, this is perhaps the cheapest form of protection that could be provided. But it is a "penny wise and pound foolish" policy.

Surveys have shown that more than a third of the electric railway cars now in service are over twenty years old. Since this is so, it is safe to say that a car which has been retired as obsolete is not good for much. Since the requirements for a transportation vehicle differ widely from those of a stationary shelter a new car would make a poor enough waiting room, but an old car is worse.

Attractive modern cars are operated with a view to encouraging more passengers to ride. It is utterly illogical at the same time to repel people by expecting them to use worn-out, decrepit, old car bodies as waiting rooms. If need exists for some sort of shelter or station it is far better and cheaper in the long run for

the railway to build an adequate structure designed for this particular purpose.

Besides the lack of suitability from the standpoint of design there are serious objections from a psychological standpoint to making such use of old rolling stock. When a car has become obsolete it should be removed permanently from sight. It should not be allowed to stand rotting and rusting on some siding to remind passers-by that its days of usefulness are over. That is too much like suggesting that the day of usefulness of the electric railway itself is over. No doubt it would be over, too, if it relied on obsolete cars to carry its passengers. But the industry as a whole has made real progress in improving its rolling stock. The less the public sees of the old cars, the more definite will be the impression of modernization.

Planting the Seed Where the Soil Is Richest

NAPOLEON owed much of his success as a military leader to the skill he employed in selecting the weak point in his adversary's defenses in which to drive an opening wedge. So today, in the campaign to stimulate car purchases by electric railways, it is well to determine at what point the most effective work can be accomplished in furthering the modernization program. It is not enough merely to say "buy new cars." Equally essential is the need for unification of car design, the simplification of car funding plans, and all such subjects dealing with the acquisition of rolling stock.

What would seem to be a promising point at which to start this entering wedge is the holding or management corporation, with its group of subsidiary railway properties and the important rôle which it plays in determining the buying policies of those companies. That there is fertile ground for work in this direction is indicated by the recent policy of one of these parent companies in ordering cars for several of its subsidiary properties. The cars were all built by one manufacturer, they were practically similar in general design and in specified equipment, yet the over-all dimensions on the cars for each of the properties varied by amounts not exceeding two or three inches. These variations, however slight, were sufficient to render impossible any attempt to standardize on the manufacture of these cars and the expense to the purchaser was accordingly increased very materially. It is possible, albeit not very probable, that these differences in dimensions were rendered essential by local operating conditions. The reason should indeed have been a substantial one to warrant departure from a standard specification, especially when the number of cars ordered for each property was small.

The A.E.R.A. special committee on essential features of modern cars has rendered its report. It goes without saying that in the adoption of its recommendations will lie the solution of many of the car purchasing ills which have beset the industry in the past. The advantage of strong leaders cannot be gainsaid, and if the holding companies and the management corporations take the initiative in the move to simplify car specifications they will have a strong influence in causing individual companies of the industry to fall into line. The issue is a crucial one and only a broad-minded and far-seeing attitude on the part of railway managements will assure an ultimately satisfactory outcome. It is time for the submersion of personal ego by individual com-

panies and executives and the working together of the whole for the good of all. As in 1776, "United we stand—divided we fall."

State Regulation of Highway Traffic Essentially Upheld

PUBLICATION in full in the legal reporters of the opinion of United States Supreme Court in the case of Frost et al. vs. Railroad Commission of the State of California, decided June 7, with the dissenting opinions, helps to a better understanding of the case. Thus, it shows that the Supreme Court did not declare that a state cannot require private carriers to take out certificates of convenience and necessity from the Public Service Commission or that the commission did not have power to regulate their rates. The criticism of the Supreme Court was directed against the attempt of the commission to enforce such regulation under the act as passed. This act was limited by its wording to "common carriers," which are words which have a very definite meaning in law. When, therefore, the Railroad Commission of California tried to regulate a private carrier under this law, the United States Supreme Court declared that it had exceeded its authority, saying: "A private carrier cannot be converted against his will into a common carrier by mere legislative command," nor can the state require a private carrier to give up his rights as such in order to use the highways. The United States Supreme Court does not say, however, that a law specifically covering private carriers, but in all other respects exactly like the present law, would be unconstitutional.

This fact is emphasized in the dissenting opinions filed at the same time. One was written by Justice Holmes and is concurred in by Justice Brandeis. The second is by Justice McReynolds. The former foresees a great deal of legislation by states for keeping streets reasonably clear for travel and sees nothing to prevent it from requiring every user of the street to take out a license. Justices Holmes and Brandeis differ principally from the majority opinion in finding nothing in the act which requires private carriers to become common carriers, but if there is such a requirement, they say, this clause could be declared invalid and the rest of the act allowed to stand. Justice McReynolds goes even farther, saying that if the California Supreme Court had simply approved the action of the Railroad Commission and had said nothing more, there would be little, if any, difficulty in finding adequate grounds for affirming its decision by the federal Supreme Court. He added that having built and paid for the roads, the State of California certainly has the general power of control over them, and if the state legislature had said that no intrastate carriers for hire except public ones should be permitted to operate over the state roads, it would have violated no federal law.

In other words, the conclusion reached from reading this decision is that all members of the court realize the growing necessity for greater regulation of street traffic by local authorities, and that the majority found fault with the wording, but not with the essence, of the act by which the state attempted to exercise this control.

One sometimes hears statements to the effect that the highways have been dedicated for public use and that laws on parking, speed regulation, varying rates of taxes for different classes of vehicles, etc., contravene some inalienable right of the citizens. It is sufficient

to say that no such view has been expressed in this last decision of the United States Supreme Court or in any other that can be recalled.

The "blind spot," or land of no jurisdiction, in the whole regulation of highways now is the case of the motor bus which does an exclusively interstate business. The trouble here, of course, is not with the courts but with Congress, because it has failed to act in this matter as yet. In the meantime, both federal and state courts have been defining more closely just what limitations may be placed by state legislatures on the activities of interstate motor buses. Briefly, these are some of them:

An interstate motor bus cannot do any intrastate business on any part of its route without the consent of the state concerned; that is to say, it cannot receive and discharge the same passenger or passengers for travel wholly within the boundaries of one state. The intrastate operator must also obey the local laws governing speed, safety and weight of his vehicles and must pay reasonable taxes on them. The word "reasonable" means presumably the taxes paid by like vehicles in intrastate business for like use of the road.

Some of the things which the individual state cannot do are as follows: It cannot withhold a license for a bus intended for purely interstate business because on parts of the route it is in competition with an existing route (Buck-Kuykendall case), and it cannot place upon an interstate private carrier the duties and liabilities of an intrastate common carrier (Michigan-Duke case). Where a common carrier does both an interstate and an intrastate business, the latter with the approval of the state, there is some question as to the possible extent of the latter control, but the power of a state to deal absolutely with its internal commerce is generally recognized except where such state action is clearly a burden or restriction upon the carrier's interstate business. Those wishing an extensive review of recent decisions on this general subject will find it in an opinion given by the New Hampshire Supreme Court on May 7 in the case of Hazelton vs. Interstate Bus Lines (133 Atlantic Rep., 451).

Possibilities Exist for

Getting the Summer Business

BACK some years ago the season of warm nights and warmer days induced people to take a trolley ride to cool off. Maybe there are a few such folks left, who would be tempted to partake of the pleasures of facing the breeze in a comfortable, safe and roomy vehicle, if they were reminded that the way was still open to them.

It can't quite be true that these folks have all gone for a dash in their flivvers. One thing that shows that summer business is still a big factor is the scramble for the upper seats on the double-deck buses. Such vehicles are no longer confined to Fifth Avenue in New York and Michigan Boulevard in Chicago, but they may be found in quite a number of cities of half a million population and even smaller. Buses are well adapted to taking care of the special summer routes. It may be desirable to run special Sunday and holiday routes to picnic grounds, the zoo and similar places to get the last bit of summer business. Extra dollars obtained in this way help to pay dividends.

In many cases it may be felt that the transportation business should normally drop off during the summer

with so many of the regular rush-hour riders on their vacations. Those who do not leave town will have more time to ride in the off-peak hours; and summer visitors should in some measure compensate for those who leave for recreation elsewhere. Posters and advertising may be used to good advantage to tell of the ways prepared by the railway to make the irritable summer days easier for those in town. Summer route buses may in some cases be run through the center of town so that they will be convenient and inviting.

While buses are the facilities needed for the special and occasional routes for which the company cannot afford to lay track, the street car has its possibilities for summer business. Band concerts and ball games are sources of off-peak traffic. It is well to advertise somebody else's business if it is going to help one's own. The people can be told just how to reach such gatherings by trolley, and in case of an especially big event the patrons may be given a pleasant surprise by running through cars from the heavier lines.

Special Care Needed in Long Run Chartered Bus Service

NEEED of great care in the operation of buses, especially in special and long run service, is emphasized again in the accident at Sparkill, N. Y., on July 22, when a chartered bus overturned, killing eleven passengers and injuring 33. The party was one of women and children returning to Brooklyn after an outing at Bear Mountain Park, and the cause apparently was too rapid descent of a hill, at the foot of which was a sharp curve. The evidence so far presented as to the detailed causes of the accident is somewhat confused, but it appears that the driver was not very well acquainted with the road and that the bus was not one originally designed for cross-country passenger service. It had a truck chassis built in 1918, on which a body capable of holding 40 passengers had later been placed. As electric railway companies are engaging extensively in bus operating, including chartered service, they should endeavor to heed any lessons which this accident may teach. This is the only good which can come out of the catastrophe.

Bus operation is an important part of the service which common carriers can give, but it demands great care in the selection and maintenance of equipment and in the training of operators. Whether these demands are in greater amount or proportion than in railway operation is beside the question just now. At least the operating problems are different, particularly in cross-country runs. Steep grades are apt to become slippery after a shower, sharp curves abound, and at any moment another user of the highway may pass directly in front of an oncoming bus.

That service can be given in these circumstances at fairly high speeds without serious liability of accident is being proved, of course, every day all over the country, but this is no reason for the neglect of great precautions, particularly in chartered service over unfamiliar routes. It is not every driver of an automobile that can be intrusted with the operation of a bus, nor should equipment unsuitable to the service be used. Responsible carriers will also gain if greater safeguards than now exist in many states are thrown around the service by the constituted authorities, these safeguards to include adequate responsibility for injuries caused.

Housing Facilities for Public Service Buses



THE view at the top shows the Lake Street garage, which is the largest operating station in the Essex division and houses 140 buses. It was built on the site of an open car storage yard. Four doorways give access to the street on three sides.

The oval shows the interior of the Sherman Avenue garage, which was originally built for industrial purposes. It has been rearranged to accommodate 128 buses.

The lower view shows the rear entrance of the Sherman Avenue garage, the second largest unit in the Essex division.



Public Service gas-electric buses handle heavy traffic on Broad Street, Newark. Two types of body are used—those built by the Yellow Truck & Coach Manufacturing Company and those built in the railway shops.

Public Service Standardizes Bus Equipment

Since the Delivery of 387 New Gas-Electrics More than 400 Vehicles of Older Types Have Been Retired from Service—At Present 843 Buses Are Operated on 99 Routes—Only Yellow Coaches, Whites and Macks Are Used

PURCHASE of 387 gas-electric buses by the Public Service Transportation Company, a subsidiary of the Public Service Railway, Newark, N. J., has made it possible to retire from service more than 400 vehicles of older types and to standardize on only four models. These are Yellow gas-electrics, Yellow mechanical drives, Whites and Macks. Standardization of equipment was one of the underlying reasons for the placing last December of an order for 333 gas-electrics, the largest single bus order on record. Later this was supplemented by an order for 54 additional vehicles of the same type. Delivery of these new buses has been completed and the obsolete vehicles formerly used have been scrapped.

Originally this company had more than 60 different types of buses. These had been bought during a period of several years, one at a time or in small groups from independent operators competing with the railway. It was a little more than two years ago that the company commenced bus operation on a large scale and many new buses, mostly Whites, Macks and Yellow Coaches with mechanical drive, were ordered from the manufacturers to replace the worn-out vehicles taken over from the independents. By this means a reduction in the number of types from 60 to 35 was effected. Recently 31 other types have been eliminated, so that there now remain

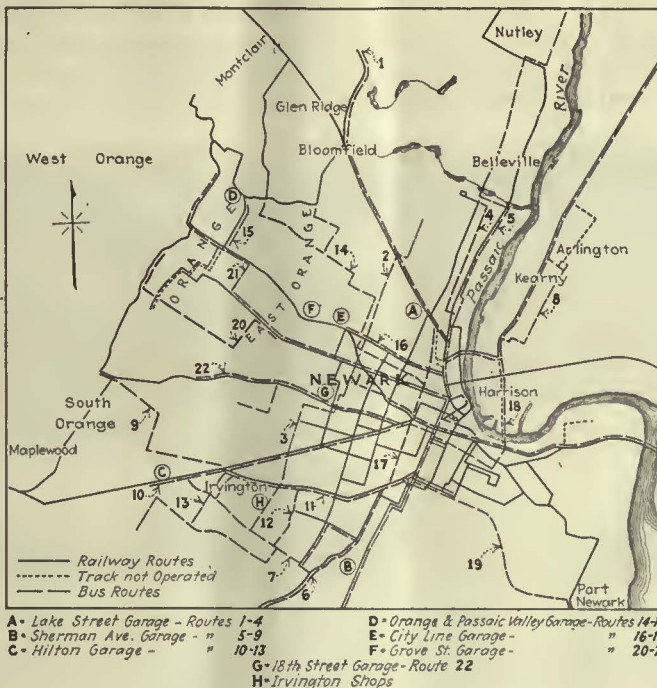
only four types in regular service. The number of each is shown in the following table:

RECAPITULATION OF BUS EQUIPMENT	
Type	Number
Yellow Coach, gas-electric.....	387
Yellow Coach, mechanical drive.....	102
White.....	229
Mack.....	231
Miscellaneous.....	22
Total.....	971

The 22 buses listed as miscellaneous are the result of the recent purchase of several existing lines. The equipment on these routes will be standardized as

quickly as possible. Present schedules call for the operation of 843 buses on 99 routes. These figures show a substantial increase over those of last fall as given in an article in *ELECTRIC RAILWAY JOURNAL*, Nov. 28. A total of 25 garages are used. The operation is distributed among the various garages in the six divisions of the company as shown in the table on page 176.

Acquisition of the 387 new gas-electric buses has made it possible to standardize the rolling stock by lines and also by garages. In Essex, the largest of the operating divisions, this has been carried out to a greater extent than in the other divisions. The two largest garages—Lake Street, from



Bus Service in Essex Division Is Given by 22 Lines Operating from Seven Garages



The Forward Part of the Benedlet Body Has Longitudinal Seats, Thus Providing Space for Passengers to Stand When Paying Fare, etc.

which four routes are operated, and Sherman Avenue, serving five lines—have been completely equipped with gas-electrics. Orange and Passaic Valley garage, one of the smaller units in Essex division, also has all gas-electrics. The third largest garage, Hilton, has standardized on Yellow mechanical-drive buses. Other garages in this division are equipped with Yellow mechanical-drive buses and Whites.

Outside of Essex division it has been found impracticable completely to standardize the equipment of the various garages. For example, in the Passaic division the largest garage is at Paterson, with twenty lines and 109 buses. Such a wide variety of operating conditions are encountered on these lines that it was not considered desirable to select a single type of bus for service on all of them. Equipment of the individual lines, however, has been standardized. Some routes have been equipped entirely with gas-electric buses, some with Yellow mechanical-drive buses and others with Whites. Mack buses are used extensively in the Central division.

The Southern division presents a situation somewhat similar to that of the Passaic division. Thirteen routes are operated from Newton Avenue garage, utilizing a

DISTRIBUTION BY DIVISIONS

Garage	Capacity	Routes	Buses
Essex Division (7)			
Lake Street	140	4	74
Sherman Avenue	110	5	65
Hilton	85	4	77
Orange & Passaic Valley	25	2	17
City Line	36	4	21
Grove Street	40	2	34
Eighteenth Street	26	1	28
Totals	462	22	316
Hudson Division (1)			
Union City	100	7	83
Passaic Division (3)			
Paterson	130	20	109
Lakeview	40	4	30
Great Notch	30	2	25
Totals	200	26	164
Central Division (5)			
Elizabeth	40	5	28
Plainfield	40	4	16
Rahway Avenue	35	3	14
New Brunswick	70	7	51
Manville	3	2	4
Totals	188	21	113
Southern (6)			
Newton Avenue	130	13	105
Gibbstown	8	1	6
Berlin	15	1	13
Grenlock }	20	1	15
Williamstown }			
Hainesport	6	1	4
Totals	179	17	143
Bergen Division (3)			
Rutherford	10	2	12
Hackensack	5	2	8
Edgewater	5	2	4
Totals	20	6	24
Grand total	1,149	99	843

total of 105 buses. Approximately one-quarter of these are of the new gas-electric type. In this division, however, the practice of standardizing the equipment by lines has not been followed as was done in the Passaic division. On the contrary, one or more of the gas-electrics has been assigned to nearly every line. Bus routes in the Southern division radiate from Camden to numerous outlying towns and this course was pursued in order to avoid criticism.

Bus operation in the Hudson division is conducted from the Union City garage, accommodating seven lines with 83 buses. Two of these lines, the Hillside and the Bergen routes, have been completely equipped with gas-electrics. In all divisions a total of 38 lines have been equipped wholly or in part with gas-electric buses.

Great progress has been made by the company during the past two years in providing adequate garage facilities for its buses. At first, spare room in the



Carefully Designed Roof Trusses Render Interior of Lake Street Garage Remarkably Fr...

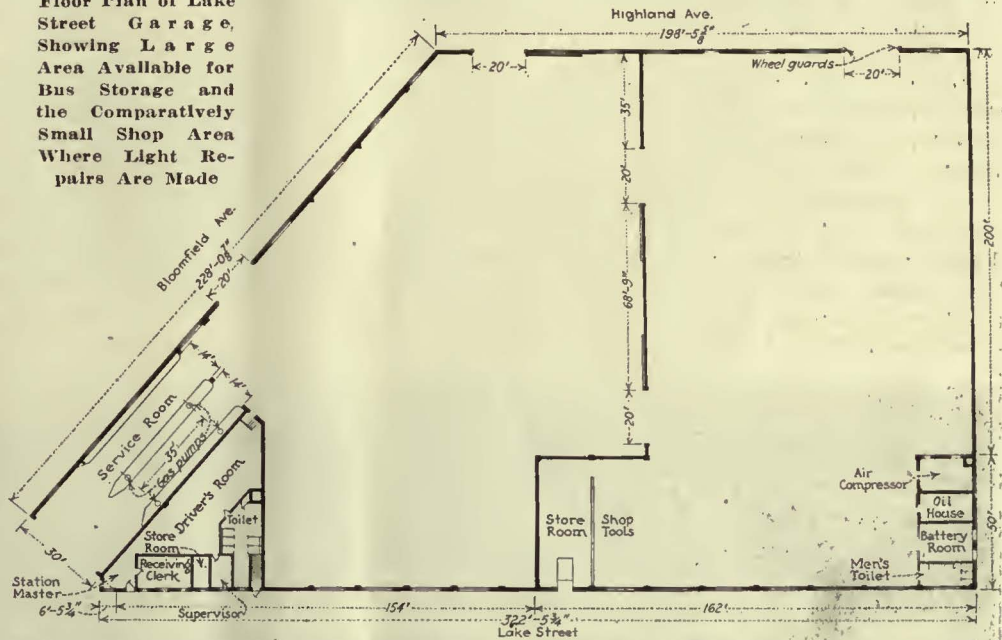
various carhouses was utilized to accommodate these vehicles. As the scope of bus operation was extended, however, it became necessary to provide more room, and a number of large garages were built or purchased.

Of these the largest is the Lake Street garage in Newark, with a capacity of 140 buses. This is a new structure built on the site of an old open car storage yard. The location is convenient to the four routes which are operated from it, one passing by the door and the three others being but a short distance away. An accompanying illustration shows the attractive exterior appearance of this building. Sherman Avenue garage, the second largest in Newark, is a large industrial building which has been converted for use as a garage. This is the case also at Paterson. At Hilton and Newton Avenues, on the other hand, garage space has been secured by reconstructing parts of existing carhouses.

At present the company is using a somewhat larger number of buildings for garage purposes than will be needed after the completion of certain new structures already planned. This contemplated reduction in number of garages will increase the benefit derived from standardization.

Considerable variety is encountered in the operating conditions on the various lines using the new buses. For example, in the Essex division the Bloomfield, Market Street and Summer Avenue lines operating from Lake Street garage, the North Newark, Weequahic, Lyons Avenue and Kearny lines operating from Sherman Avenue garage, and the Ampere line from Orange and Passaic Valley garage are all heavy traffic routes through closely built-up territory. To a considerable extent they parallel railway lines, and in these instances the gas-electric buses are performing a service similar to that of the street cars.

Floor Plan of Lake Street Garage, Showing Large Area Available for Bus Storage and the Comparatively Small Shop Area Where Light Repairs Are Made



Cross-Seats Occupy the Rear Half of the Body. Note the Emergency Door in the Center of the Back

On the other hand, gas-electrics are used on the Orange crosstown line, a suburban feeder route, where traffic is light. The reason for this, however, is to per-



From Columns. Gas-Electric Buses Are Standard Equipment for All Lines Housed Here



A Comparatively Flat Roof and Windows with Stationary Upper Sash Are Features of the Benedict Body Built in the Railway Shops

mit standardization of equipment at the O. & P. V. garage.

The routes selected for gas-electric operation in the Passaic division are generally similar to those already mentioned in Essex division. In the Central division gas-electric buses are used on long interurban routes, from New Brunswick to South Amboy and from New Brunswick to Perth Amboy. A similar use of these buses in interurban service occurs in the Hudson division on the route from Hackensack to Weehawken.

To a slight extent the distribution of new buses has been influenced by competitive conditions. Where independents have been operating on the same routes with the company buses frequently they have followed the practice of running a few seconds ahead of the Public Service vehicles to try to scoop up the greatest possible

number of passengers. By completely equipping such lines with the latest and the most attractive buses the company has been able to regain a great deal of this traffic.

COLOR HAS BEEN STANDARDIZED

Some time ago it was the general practice throughout New Jersey to have all the buses on each line painted a distinctive color. As most of these vehicles were owned by individuals with permits to operate only on one route no difficulty arose in connection with the transfer of a bus from one line to another. When the Public Service Transportation Company took over a large part of the operation, however, it was often found desirable to shift buses between routes. Moreover, the cost of painting various vehicles in different colors was con-



Buses and Cars of Public Service Railway Give Co-ordinated Transportation Service in Newark



By Utilizing Vacant Space for Parking Automobiles the Northern Texas Traction Company Induces Their Owners to Travel via Interurban to Fort Worth to Do Their Shopping

siderably in excess of that for painting the same vehicles a uniform color. The company, therefore adopted the policy of painting all its buses the same distinctive orange color which it had used for a number of years for the exterior of its cars. With the acquisition of the new gas-electrics and the retirement of 400 vehicles of older types the standardization of exterior color has been carried considerably further than ever before.

Identification of the route on which the bus is operating is now made by means of a large route number in place of the former distinctive route color. All buses have now been equipped with standard roller signs. These are divided into two parts. The left-hand side, as the prospective passenger faces an approaching bus, shows the route number. In the center is the name of the route in white letters on a black background. On the right in white on a red background is shown the destination of the particular trip. A similar sign of smaller dimensions has been placed on the side of the bus near the entrance door.

Standardization of bus bodies has also been carried out to a considerable extent. Bodies for some 200 of the latest order of gas-electrics were built in the Plank Road shops of the Public Service Railway, while the remainder were built by the Yellow Truck & Coach Manufacturing Company. Some points of difference exist between these two bodies, but they are generally similar. The seating arrangement follows the same general plan in all the buses recently purchased by this company. On both sides near the front are short longitudinal seats providing a space in which passengers can stand while paying fares or preparing to alight. Cross-seats are used in the rear part of the bus with short longitudinal seats over the wheel housings.

Free Parking Space Brings Business to Interurban

BY A. J. ROWE

Northern Texas Traction Company

FOR the purpose of inducing patrons who live some distance from the interurban line to use the service a large, attractive parking station has been arranged just opposite the Handley interurban station of the Northern Texas Traction Company. The town of Handley is 8 miles from Fort Worth's business district, but is practically a suburb of the city. A neat fence, flowers and shrubbery make this space attractive and its proximity to the station affords sufficient protection that patrons leave their automobiles with all confidence, either night or day.

Difficulty in finding parking space in the city and the convenience of driving to the interurban, leaving their automobiles in the railway parking space and going to town, have developed quite a lot of new business for the interurban line from the residence section of Handley and the rural section surrounding this town. The number of autoists taking advantage of the station is gradually increasing. From ten to twenty vehicles can be found there at all times of the day, as shown by the accompanying illustrations, which were taken about noontime during a normal day. The additional space is needed on large days and at night when some special event is in progress in the city.

The cost of preparing this parking space was very small and the upkeep amounts to practically nothing.

In addition to furnishing a place for patrons to park, the station has improved the looks of the property,



The Parking Space Is Adjacent to the Northern Texas Traction Company's Tracks, Making It Very Convenient

added to the appearance of the town, and in this way has had a splendid effect from a public relations standpoint.

Instruction Books for Bus Men

The Wisconsin Motor Bus Line Gives Information to Educate Employees in Selling Better Transportation

TWO attractive books have just been issued by the Wisconsin Motor Bus Line, a subsidiary of the Milwaukee Electric Railway & Light Company. These are entitled "instruction books" and are distinctive from rule books. One is directed to city bus operators and the other to city bus collectors. The intent of these books is to educate both new and old employees in the art of selling better transportation. The text is replete with excellent messages that should inspire all operators in the performance of a better service.

Under the caption of "Serving the Public" the book issued to the city bus collectors reads as follows:

Our company is engaged in selling a very special kind of service to the public. The most important part of the collector's job is to assist in providing this service and to make it satisfactory to the passengers.

In many respects operating a bus line is just like any other business. Every business is dependent upon its customers to keep it going. If people do not buy the place must close its doors. With the bus line the same holds true. If passengers do not ride we will not have sufficient money to meet our expenses and we cannot continue to operate buses. In order to insure ourselves a large patronage and a successful business we must do everything in our power to give satisfaction to our customers. First, we want to attract people; then, when they patronize our buses, we should make their ride so pleasant that they will ride again.

In performing your duties as collectors you deal with the public as a representative of the company. You stand in place of the company, supplying its service and transacting its business and meeting its customers. To the passengers you are the company. Bear this in mind. Many people, especially strangers, will never meet any other representative of our organization but you. Their opinion of us and the service we render, as well as their attitude toward us, depends upon you. If you present an untidy appearance, if your bus is not clean, if you are reckless, grouchy, discourteous, or disagreeable and smart, you will surely create an unfavorable impression. But if you are neat, and if your bus is clean; if you are careful, business-like, pleasant, courteous, the passengers will think favorably of our company.

The book then goes on to give similar and intimate comments on the questions of courtesy, information, making announcements, destination signs and general conduct, and later on tells of the routine which is to be followed in the station, when taking out buses, and at the end of each line. The various signals and the method of making them are explained to the operator. The book is replete with line drawings, showing the proper position for a collector and the different positions, such as when operating from the top deck and in the usual position on the lower platform. Traffic signals are described in the text, as well as in small line drawings.

Detailed instructions are given in regard to the inspection of buses before they are taken out of the garage; the collection of fares and transfers, the making of traffic checks, filling out the trip cards, making change on the refund slips. Detailed description is given relative to accident and road delays.

In the back of the book sets of examination questions are given, all of which the operators are supposed to be able to answer intelligently.

The bus operator's book follows a similar plan, except that the text has been entirely rewritten, being directed at the work of the operator rather than the collector. Detailed instructions are given in regard to starting the engines of the different types of buses that are used and the handling of the different types of equipment. Instructions on the shifting of gears and "double clutching" are given. Likewise, detailed instructions are given for every condition that may be met, such as speed, skidding, overhead obstructions, pulling away from the curb, turning corners, intersections, silent police, safety zones, crossing and following vehicles, pedestrians, road trouble and accidents. To illustrate the nature of the text the paragraph on skidding is quoted:

There is no rule against skidding, but there is against careless driving, and skidding is the result of careless driving. When a bus skids it is not under control. The only skid that is ever controlled is the one that never gets started. A bus being properly operated will not skid. To prevent skidding when on a slippery pavement put the bus in low gear and travel slowly. The only safe speed is one which will allow you to stop instantly without skidding. If the bus shows a tendency to slide, keep the front wheels turned in the direction of the skid.

On slippery streets always go up to the stop with the bus in gear, never throw off the clutch if there is any danger of skidding. Let up on the accelerator and use the engine as a brake.

The city bus operator's book likewise has a list of 142 questions, all of which the operators are supposed to answer intelligently.

While these books are supposed to supplement the rule book, it is of interest to note that they are written in an unusual language rather than in the stereotyped manner of the old style rule book.

Early Purchase of Weekly Passes Capitalized in Pittsburgh

COORDINATION in a new form has been illustrated in Pittsburgh, this time between two affiliated companies. Announcement has just been made in the *Transit Guest* as well as in the poster herewith reproduced that those

people who buy the weekly pass during the three days before they become effective will receive a coupon which is good for 50 cents toward the purchase of an electrical appliance.

This double-barreled merchandising stunt is commendable as it at one time advertises the transportation facilities and encourages the use of electrical appliances in the home. Purchasing of the pass before Monday morning is also encouraged. Usually

**THE
EARLY BIRD--
GETS THE COUPON**

**To Each Purchaser of a
WEEKLY PASS
on Fridays, Saturdays or Sundays
After JUNE 1, a Coupon Will Be
Given, Which Is Good for
50 CENTS**

**Cash Value Toward the Purchase
of an Electrical Appliance.
Not More Than Four Coupons May
Be Used Toward the Purchase of
the June Appliance, an American
Beauty Iron. June Coupons Will
Be Valid Until September 1, 1926.**

GAS AND ELECTRIC SHOPS
435 SIXTH AVENUE ALL BRANCH SHOPS

Pittsburgh Gives Premiums to Early Purchasers of Passes

the peak day on which purchases are made is Monday, and the peak hour is during the down trip that morning.

One Owner's Faith in the Trolley

A Major Factor in the Rehabilitation of the "Stream Line" Was the Inauguration of Improved Schedules to Give the Service Needed by the Communities Served—Headways Were Cut, with the Result that There Was a Material Increase in Patronage

THIRD ARTICLE



In Steubenville a High-Class Building Was Selected as the Location for the Waiting Room

CARRYING out the program of physical improvements on the Steubenville, East Liverpool & Beaver Valley Traction system referred to in detail in articles in this paper for June 26, page 1101, and July 3, page 15, made possible a material betterment in service. As regards the local lines, the following improvements were made:

On Oct. 25 of last year service over the main line between Midland and Wooster was put on a 30-minute headway by supplementing the interurban locals run hourly. On the same day, the local service between East Liverpool and Wellsville was increased from a 20-minute to a 15-minute headway while the running time was cut from 50 to 45 minutes. The over-all results indicate an increase in earnings, but the exact percentage cannot be given owing to the division of this business with interurban locals.

On Dec. 12 service on the La Belle route in Steubenville was doubled in going from twenty-minute to ten-minute headways. By January, the trolley revenue was more than 18 per cent ahead of the same period a year earlier and more than twice the earnings of the temporary motor-bus operation which preceded the reconstruction of this route. This line serves automobile-owning territory, which makes so prompt a response

gratifying indeed. The center-entrance cars on this route are being remodeled for one-man operation, as described in a previous article. The combination of lower costs and constantly rising patronage should soon make this route pay for its rehabilitation.

An interesting proof that the La Belle line's improved service has not yet sunk in thoroughly is the fact that during the first month of better headway the revenue from weekly passes comprised only 10 per cent of total revenue. On the other hand, the Fourth Street route in Steubenville, which has had a ten-minute headway for a long time, shows a 20 per cent revenue ratio from passes. The pass sales are stimulated, of course, when the buyer knows that the headway is short enough to make luncheon riding convenient and also short enough to make him prefer the trolley to the automobile during his hours of voluntary travel.

On Jan. 10 service on the Grand View line in East Liverpool, a route serving the best residential area, was increased by changing from a 24-minute to a 15-minute headway, with an extra tripper in the afternoon. The very first week showed 14.2 per cent more revenue. Comparison of like parts of 1926 and 1925 show that Jan. 1-9, 1926, was 1 per cent under, while Jan. 10-16 was 7.5 per cent over, or an actual better-

EAST LIVERPOOL TO PITTSBURGH Via P. & L. E. R. R. at Beaver (Eastern Standard Time)			
Car Leaves East Liverpool	Arrives Beaver	Train Leaves Beaver	Arrives Pittsburgh
a. m.	a. m.	a. m.	a. m.
6:20	6:15	*6:25	*7:00
7:10	7:05	6:35	7:15
8:05	8:00	8:05	8:45
9:05	9:00	9:10	10:00
10:05	10:00	10:10	11:00
11:05	11:00	11:10	12:00
12:05	12:00	12:10	1:00
1:05	1:00	1:10	2:00
2:05	2:00	2:10	3:00
3:05	3:00	3:10	4:00
4:05	4:00	4:10	5:00
5:05	5:00	5:10	6:00
6:05	6:00	6:10	7:00
7:05	7:00	7:10	8:00
8:05	8:00	8:10	9:00
9:05	9:00	9:10	10:00
10:05	10:00	10:10	11:00
11:05	11:00	11:10	12:00

Pittsburgh to East Liverpool			
Train Leaves Pittsburgh	Arrives Beaver	Car Leaves Beaver	Arrives East Liverpool
a. m.	a. m.	a. m.	a. m.
4:50	6:55	6:50	7:10
6:10	8:15	8:10	8:35
7:45	9:50	9:45	10:15
8:10	10:15	10:10	10:40
10:00	12:05	12:00	12:30
11:00	13:05	13:00	13:30
12:45	14:50	14:45	15:20
1:45	15:50	15:45	16:20
*2:05	*16:10	*16:05	*16:40
3:10	17:15	17:10	17:45
4:15	18:20	18:15	18:55
5:15	19:20	19:15	19:55
6:15	20:20	20:15	20:55
7:15	21:20	21:15	21:55
8:15	22:20	22:15	22:55
9:15	23:20	23:15	23:55
10:15	24:20	24:15	24:55
11:15	25:20	25:15	25:55

*Daily except Sunday. — Flyer.

The Steubenville, East Liverpool & Beaver
Valley Traction Co.
EAST LIVERPOOL, OHIO

Corrected to May 12th, 1926
(Subject to Change Without Notice)



CONNECTIONS

Columbus
Best connections with Pennsylvania Trains at Steubenville at 10:25 a.m.; 3:44 and 5:20 p.m.

Cleveland - Buffalo - Detroit
P. & L. E. R. R. at Beaver or Pennsylvania at Wellsville

Lisbon - Leetonia - Youngstown Salem - Canton
Y. & O. Railway every hour at East Liverpool

Wheeling and down river points
Wheeling Traction Company every half hour at Steubenville

Pittsburgh
See detailed schedules on back of Time Table

The "Stream Line" Idea Has Been Emphasized on the Time-Tables and Other Literature of the Company

ment of 8.5 per cent. Sales of weekly passes rose from 50 to 94 following the advent of better service and personal solicitation for business.

Service between East Liverpool and Chester was improved on Jan. 10 by going from fifteen-minute to ten-minute headways. So far this line has not responded as well as the others.

Also on Jan. 10 a 30-minute headway local service was added for a fifteen-minute run over main-line track passing through Toronto. The five week-day earnings had already attained about 15 cents per mile by Feb. 1, and it should not be long before this new service becomes self-sustaining.

Without going into further detail it may be stated that these changes are producing increasing benefits. For example, the seasonal decline of traffic was postponed to such a degree that April held level with December, January and February.

Perhaps the most interesting story relates to the interurban operation. Formerly, the standard service consisted of hourly cars which used two hours 45 minutes for the 43 miles between Beaver and Steubenville. On Feb. 18, 1925, there was instituted a limited car making only twelve stops for two round trips a day. This cut the running time to one hour 55 minutes between terminals. When the "Ceramic" started on Jan. 10, 1926, the time was cut to one hour 40 minutes, and now that the remaining road improvements have been completed the run is expected to be made in one hour 30 minutes. Meanwhile the running time of the locals has been cut from two hours 45 minutes to two hours 18 minutes.

The prompt response of the public to this improvement in speed alone has not only accelerated the rehabilitation of existing interurban cars, but has led the management to make plans for running limiteds every two hours instead of twice a day.

Summarizing the foregoing changes from the financial viewpoint, the following comes to light:

Revenue in the first ten months of 1925 was 10 per cent under the same period of 1924.

November and December, 1925, the first months of better service, ran even with similar months of 1924.

January, 1926, ran 6.2 per cent ahead of January, 1925. Thus within three months a loss of 10 per cent

has been changed to a gain of 6.2 per cent, an actual improvement of 16.2 per cent without the aid of materially better industrial conditions.

THE "CERAMIC" GETS THE CASH

The effect of the "Ceramic" on interurban revenues is worth separate examination. This car was placed on the line on Sunday, Jan. 10, of this year. As it is run eighteen hours a day instead of the twelve hours of the limited which preceded it, the following comparison has been reduced to an earnings-per-hour basis:

In the last eight days of the old car, the revenue per car-hour averaged \$6.61 and per car-mile 43 cents; while the "Ceramic" from Jan. 10 to Jan. 31 averaged \$11.42 per car-hour and 48 cents per car-mile. The relatively greater increase in revenue per car-hour is due to practical elimination of layovers.

The "Ceramic" would show still better on the bases of actual car-hours and car-miles if it were not being operated an additional six hours a day on leaner runs.

It is reasonable to assume that some of the "Ceramic" business was taken from other less attractive and slower cars. For all that, the net daily gain in interurban revenue is on the order of 9 per cent, comparing Jan. 2-9 against Jan. 10-31.

One of the significant facts about the operation of the "Ceramic" is not only the expected praise from the public for something faster, brighter and more comfortable, but the unexpected praise for the courtesy of the "Ceramic" crews. It would seem that finer cars make finer trainmen. The pride that the men feel in this rejuvenation is reflected in their bearing to the riding patrons.

To make the rank and file feel that jobs like the "Ceramic" are peculiarly their own, Mr. Wills did the unusual thing when the "Ceramic" made its trial run. Not a group of newspaper men and public officials were the first riders, but the very men whose craftsmanship had put the car together. The shopmen made the round trip between East Liverpool and Beaver, and next members of the office staff—including the volunteer embroiderers—had a ride to Steubenville.

It need hardly be mentioned that the advent of the



The East Liverpool Waiting Room. Attractive Electric Signs Are Used to Draw Business

cream-colored "Ceramic" was a sensation to the public. Even after two weeks of operation, the cry "Attaboy" from the younger male generation standing along the highway gave evidence that people were still taking favorable notice. The finest motor coach could not have received a heartier reception; yet the "Ceramic" is just an eighteen-year car made over!

Publicity for the "Ceramic" was not merely local. The news was deemed interesting enough to get good

outstanding problems. The second pamphlet dealt with state problems, while the third struck home with a study of the specific problems of the local railway.

Aside from this distribution of educational booklets, the canvasser has the advantage of being able to advise the people visited about increased service on their local routes, improved cars, faster service on the interurban, the advent of the "Ceramic," etc. The fact that the weekly pass gives so much possible value to a regular

		Rides north from zone beginning at station named																		Column B			
No. Zones Ridden		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Rides S. (A)	Rides N. (B)	(A+B) (C)	
North End of Ride (Read horizontally)	Cash com.	56	176	91	261	315	1491	29	1161	144	2	1			24	18	2		205	A- Total of figures in this space horizontally	3976	56	4032
Sas. Alley	Cash com.	81	100	136	81	361	2	252	39	1			2	1	2	3	23				1084	257	1341
Vanport	Cash com.	27	52	28	99	28	61	28	1						13		5				329	218	547
Workmens	Cash com.	27	31	59	1	16	4	2													174	476	616
Industry	Cash com.	143	335	82	164	23	3				2	2			12					(A) Rides south from zone beginning at station named	766	598	1364
Midland	Cash com.	1565	220	3175	473			6			20	9	2		88					(B) Rides north from zone ending at station named	5558	3910	9468
Smith's Ferry	Cash com.	121	369	46	19			10	14	2	18			7						(C) Total number rides originating or terminating in zone next south of station named	605	483	1088
State Line	Cash com.	**625	1159	191	63	218	103	454	459	28	22	1765								C = A + B	5087	5823	10910
Kountz	Cash com.	540	317	105	439	226	413	619	186	111	924										3880	2456	6336
Wellsville, S.	Cash com.	5	82	48	123	46	10	16	25	154											117	65	182
Irondale	Cash com.		261	272	123	1102	33	27	201												509	541	1050
Taggerts (N. limits of No. 12)	Cash com.	21	534	300	486	77	85	333													1019	250	1269
Rocky Side (S. Limits of No. 12)	Cash com.	56	781	678	86	65	530													* Includes 1197-74 franchise rides in Toronto	1836	1004	2840
Minors	Cash com.	361	771	404	241	1701	23													** 74 Franchise ride	147	61	208
Meyers St.	Cash com.	155	438	196	3380	55														Note:- Example for reading detail traffic figures.	2196	1323	3519
Toronto S.	Cash com.	35	178	1957	68															From the zone of which Taggerts is the north limit, read horizontally that there are	44	674	718
Country Club	Cash com.	87	1682																	21 1-zone, 534 2-zone, 300 3-zone, etc., riders in a southerly direction, and	4769	3928	8627
City Limits	Cash com.	**660																		from the same zone of which Rocky Side is the south limit, read diagonally that there are	62	143	205
Steuben. 6th.	Cash com.																			are 21 1-zone, 261 2-zone, 48 3-zone, etc., riders in the northerly direction.	2170	1309	3479
South end of ride read up diagonals	See note																				68	18	86
Total No. of all or Multizone rides. (add vertically)	Cash com.	6165	7486	7768	6039	3180	2745	1779	2074	476	959	1769	8	90	37	20	10	23	205	Total No. of Rides	1769	1040	2809
		1	122	750	300	30	122	81	1		12	5		13							660	13627	14287
																					174	174	

Analysis of Traffic on the Steubenville, East Liverpool & Beaver Valley Traction Company for the Period Sept. 25-Oct. 1, 1925, Shows the Total Number of Patrons Between All Zones During the Week

notices in the Pittsburgh papers, which are read by many a possible through customer.

Perhaps the most thought-provoking item is the statement of a local automobile dealer to a "Ceramic" conductor that: "If that's the kind of service you're going to give, I'm going to use it myself to save time and money."

HOUSE-TO-HOUSE CALLS TO CORRECT SERVICE DIFFICULTIES

Shortly after arrival, Mr. Wills took the radical step of determining the desires of the public through house-to-house canvassing. He employs one well-educated woman now for this work and may add one or two later as the need arises.

The first job of this caller was to leave a pamphlet on electric railways nationally considered, giving some idea of the extent of the industry and a review of its

rider and members of his family has also proved helpful to the canvasser because of her opportunity to appeal to the bargain instinct in humanity.

Following her canvass of Steubenville and East Liverpool homes this solicitor has begun to call on merchants and factory managers.

Through this canvasser the management is apprised as to why the public uses or does not use the service, and secures a good line on what improvements prospective riders desire in order to become customers. The novelty of having a railway come right up to their doors for patronage is most flattering to the public, and surely proves to them that the railway cannot be indifferent to their desires and that it cannot be making overmuch money at the fares and patronage prevailing.

The management also has secured liberal newspaper space for accounts of Mr. Wills' addresses before civic bodies, but in the last analysis it is the clerk and the

workman rather than the auto-owning and auto-using merchant who must be won over, too. Hence public relations work of this intimate kind deserves the importance it is receiving on this property.

FARES HAVE NOT RISEN IN PROPORTION TO COSTS

Like most other electric railways, this property has had "a sea of troubles" in seeking to secure fares that bore some livable relation to the depreciated dollar.

The first increase came at Chester in April, 1918, due to the good fortune, in this instance, that the East Liverpool-Chester route is subject to the Interstate Commerce Commission. The original through fare was 5 cents. It is now 10 cents to casuals, but semi-regular riders have practically a 7-cent fare through the purchase of fourteen tickets for \$1, while the weekly pass patrons enjoy the pre-war rate of 5 cents or less through the purchase of a \$1.25 pass and the doubling of their riding. A ride entirely within Chester may still be obtained for 5 cents cash.

In East Liverpool, the original 5-cent fare was increased in April, 1923, to 7 cents cash and four tickets for 25 cents. This fare covers a maximum unbroken ride of 6.67 miles along the main line between the State Line and Kountz. Transfer privileges are exchanged between the main line locals, Pleasant Heights, Grand View and River Road (bus) routes for 1 cent per transfer. Since the inauguration of the weekly pass July 6, 1925, \$1 has been charged for separate passes for each of these four routes and \$1.25 for a pass good on all of them. During March, 1926, the pass rate was cut to \$1, thereby eliminating four varieties and immediately increasing the attractiveness of the pass idea to the public by some 50 per cent.

Over the Toronto stretch of main line, the original franchise fare of 5 cents and thirteen tickets for 50 cents was succeeded in April, 1924, by a 7-cent cash fare, but regular riders can enjoy a 5-cent fare by buying twenty tickets for \$1.

In Steubenville, the local fare was increased from 5 cents cash and six tickets for 25 cents to 6 cents and twenty tickets for \$1 early in 1922; and in May, 1923, to 7 cents cash and 6½-cent ticket. Transfers are free. The \$1 weekly pass used in Steubenville is available on the two local lines, but not on the interurban.

Local film managers have helped pass sales by special concessions to passholders, realizing that passholders may bring others.

Higher fares on the interurban railway have been even harder to secure because of the varying viewpoints of two state commissions (Pennsylvania and Ohio) and local insistence on old franchise stipulations. While the rate is 5 cents per zone, the lengths of zone vary from 0.88 mile to 6.67 miles for the eighteen zones in the 43 miles between Beaver and Steubenville.

It would hardly be desirable to go into the changes in zones made since pre-war days, except to observe that two zones were added through splitting up extra long zones. One such burden was an 11-mile zone between the Pennsylvania-Ohio state line and Wellsville. An idea of the scant relief so far obtained may be gained from the knowledge that the pre-war rate between Steubenville and Beaver was 85 cents, and it is now only 95 cents.

In spite of all this, the company is going ahead with a vastly improved service in the faith that the commissions and the public will do what is right.

In compiling data to show the origin and destination of every ride taking place on the interurban lines the

company has developed an original method. The data sheet which is reproduced to accompany this article is typical of the system employed. Full information is given in this sheet as to rides in a southerly or northerly direction in any zone, the total number of rides originating and terminating in any zone, the length of ride taken from any zone (see example for reading detail traffic figures) and the actual number of rides of all classes from one zone to the total length of the system, including eighteen zones. It will be noted that the bulk of receipts are derived from rides up to and including eleven zones in length and that thereafter the number of rides taken is relatively small. Thus it has been possible for the company to rearrange its zoning system to increase the cash fares but to decrease the rates charged for the longer rides.

This has resulted in the establishment of a "leader" in the company's sales policy. In other words, high discount rates for long rides have been proffered to encourage more shopping in the larger towns, such as East Liverpool and Steubenville. This is a somewhat similar scheme to the practice adopted by many department stores of featuring one or more articles at especially attractive prices. The company stands to lose very little even though its regular patrons should avail themselves of this lower discount rate, for after all the receipts from the long-distance haulage constitute but a small share of the total gross income.

While the railway has made it a policy to co-operate with the merchants in the various communities served in the matter of stimulating interest in "Dollar Days" and other special occasion sales, the actual effect on receipts the year round from this sort of practice is not of a material character. No arrangement is entered into by the company unless the merchants' associations agree that it will be a permanent undertaking.

CHANGES IN UPKEEP ORGANIZATION GET INDIVIDUAL RESPONSIBILITY FROM SPECIALISTS

Greater specialization in upkeep has been introduced lately to assure better work and closer responsibility. There is now a signal and telephone specialist and a bridge specialist; also one welding and cutting specialist for each half of the system. These men are on a salary basis with no fixed hours. The amount of night and holiday leisure they enjoy is largely according to their skill in forestalling breakdowns.

The bridge specialist devotes his efforts to the inspection and upkeep of bridges, viaducts and related structures. No limit has been placed on his requirements for any materials needed to keep his structure both safe and presentable. It is appreciated that a rusty-looking bridge may be 100 per cent safe and yet look suspicious to the car rider.

The two utility men, who are welding and cutting specialists primarily, are each supplied with a Reo 2½-ton speed wagon for tools and materials. These men see that the work gangs are furnished necessary supplies, have tools properly ground or sharpened, etc. Their main work, however, is to supervise the track and return circuit conditions. To this end they are equipped with electric weld bond equipment and oxy-acetylene cutting torches. They are subject to call by gang foremen in case broken rails have to be cut off, missing bonds replaced, special work laid, new metal welded on to worn curves, or any other jobs calling for their specialized skill. On rainy days these men stay in the shops to make thermit compromise welds which are replacing bolted joints.



Inspecting the New Interurban Car at Stone Mountain, Ga.

Dedication of Interurban Cars in Georgia Is Civic Event

Many Prominent Citizens Are Present as the Georgia Railway & Power Company Inaugurates Its Improved Service—The Ten Cars Are Named for Prominent Figures in the State's History—The New Equipment Is the Last Word in Modern Design

DEVELOPING a notable demonstration of the good will existing between the Georgia Railway & Power Company and the public served by its two principal interurban lines, ten new cars recently put in operation on interurban lines near Atlanta were formally dedicated for the service in ceremonies held at the two terminal points, Marietta, Ga., and Stone Mountain, Ga., on June 24 and June 25 respectively.

City officials of the communities served by the two lines, including the mayors of the principal towns, members of the city councils, with members of the governing boards of the counties traversed and members of the state Legislature representing the counties, in addition to civic club officers, participated in the ceremonies and, speaking for their constituents and communities, paid warm tribute to the spirit of service shown by the company. They urged a continuance of friendly co-operation between the company and its patrons and solicited patronage for the company to enable it to continue the program of improvements it has inaugurated with the ten new type cars as one new feature.

Nearly 1,000 persons were in attendance at the ceremonies in the two towns, according to estimates of Atlanta newspaper representatives who reported the function, and many more gathered at the stations of

intermediate points along the line to greet the first of the new cars, carrying officials to the celebrations.

At the Marietta dedication, Mayor E. R. Hunt of Marietta officially accepted the new cars for his city, with Mayor Sims of Atlanta, Dr. M. B. Hodges, president of the Marietta Chamber of Commerce; Fred Morris of the Kenesaw Mountain Memorial Association and Charles Brown, Mayor pro tem and president of the Marietta Rotary Club, among other speakers, Mr. Brown presided. F. L. Butler, vice-president of the Georgia Railway & Power Company, presented the cars, stating that they formed a first step in a program of interurban transportation improvements.

At the Stone Mountain ceremonies, Mayor Scott Candler of Decatur, the largest municipality served by the Stone Mountain line; State Senator Carl N. Guess, of the senatorial district traversed by the interurban, and officials of Clarkston, Scottdale and other smaller stations were speakers, in addition to Mayor Sims of Atlanta and Mr. Butler. Senator Guess presided, opening the ceremonies with a verbal appreciation of the company's service in developing the northern section of Georgia.

The speakers all emphasized co-operation as the key to progress, signaling the improved interurban service as an evidence of the fruitfulness of friendly understand-

ing of mutual problems.

The Atlanta *Constitution*, commenting on the ceremonies, said, "Trolleying de luxe—! which means rapid and comfortable transportation and better interurban service. This is the new sport which will call to every resident living along the Marietta and Stone Mountain interurban lines, if the verdict of Mayor Walter A. Sims, members of City Council and others who on Thursday were guests of the Georgia Railway & Power Company aboard the first car the company ran on a 'trolley party' is sustained." Similarly favorable comments were made by other papers in the territory which the new cars will serve.

USE OF CARS

Five of the new cars will be used on the Stone Mountain line and the same number on the Marietta line. Eight other cars are being remodeled. It is intended to make use of this latter series of cars for rush-hour service on the Marietta line.

All the new cars are designated by name, the names and body striping being carried out in gold leaf on the sides of the cars. The names given the cars were selected by ballot of the passengers to memorialize citizens who had been outstanding in the development of the territory served by the two lines but are not now living.

The first car, used in both dedication ceremonies, is the "Peter Caldwell," named for the conductor who operated the first electric car of the Georgia Railway & Power Company on the Stone Mountain line and who served in that capacity for thirteen years until his retirement was forced by the ill health that led to his death last year.

Among the other prominent citizens of the territory whose memories were signally honored by having cars named after them were Joseph E. Brown, who was Georgia's Governor during the Civil War; Richard Peters, the "father of Atlanta's street railways"; Joel



View from the Front Side Door of the Control Equipment on One of the New Cars

Harris, who created the memorable character of "Uncle Remus," and A. Stephens Clay, for thirteen years a United States Senator from Georgia. The other men were equally noteworthy.

TECHNICAL DETAILS

The general design of the body is of the low-floor, two-step type with low arched roof and long straight lines predominating. The sides are of curved construction, being drawn in at the sills and roof line and gracefully curved to the vestibules at the platform door openings.

Both the front entrance and exit doors and the rear exit door are of the sliding type made of flexible panels hinged their entire length with continuous rod-type hinges. The steps are of the stationary type and are a permanent part of the platform underframing.

The corners of the body are finished with wide, substantial piers set off with round top double sash. As the cars are for single-end operation, the doors are located on the right-hand side only, and the left-hand sides of both platforms are fitted with raise sash. The cars are equipped for use in two-car operation, train doors being provided in the center of each vestibule end for this purpose.

The ends of the car are equipped with special wide, corrugated face, pressed steel bumpers, which add to the attractiveness and symmetry of the exterior and support the train door platform for permitting passage between cars.

CARS HAVE STEEL SUPERSTRUCTURES

The underframe and superstructure of the car are of steel with a curved plate extending from the sill to the rail, forming parallel girders for supporting the body. The roof and letterboard are of wood and are supported by the steel piers at the corners of the body. The window posts are of wood and extend from belt rail to letterboard, being fastened to belt rail, letterboard and roof carlines with bolts through aluminum brackets.

Details of Equipment of the New Georgia Interurban Car

Buider of body... Cincinnati Car Company	Curtain fixtures... Curtain Supply No. 90,	Motors..... Four GE-265-A, inside hung
Type of car..... Single-end, double-truck	pinch fixture, Rex rollers	Registers..... Ohmer
Interurban safety car for two-car	Curtain material..... Pantasote, grain	Safety devices..... Safety Car Devices Co.
train service	morocco, color No. 86	Sanders..... Ohio Brass, Form 2
Body..... All steel	Destination signs... Keystone JRR and ILR	Sash fixtures..... Dayton Wedge type
Interior trim..... Light mahogany	Door-operating mechanism..... National	Seats... Hale & Kilburn 900A, bucket type
Headlining..... Agasote	Pneumatic	Slack adjuster..... American automatic
Air brakes and compressors... Westinghouse	Energy-saving device..... Economy meter	Springs..... Brill Company
Car signal system..... Faraday	Fenders..... H-B wheelguards	Step treads..... Aluminum, Cincinnati Car
Car trimmings... Bronze oxidized, Dayton	Gears and pinions... General Electric A-1	Trolley retrievers..... Knutson 5-B
Center and side bearings..... Brill, center	Hand brakes..... Peacock staffless	Trolley base..... Ohio Brass, Form 4
bearings; Stuckl, side bearings	Heater equipment... Consolidated Car Heating	Trolley wheels..... Nuttall, 6 in. diameter
Control..... General Electric PC 5-K2	Headlights..... Ohio Brass SDH roof type	Trucks..... Brill 177-E-1
Couplers..... Tomlinson, Form 10, car,	Journal boxes..... Brill	Ventilators..... Nichols-Intern Company
air and electric	Lightning arresters..... General Electric	type C
	aluminum A-11	



View from the Smoking Compartment Looking Into the Main Passenger Compartment



The Train Door in the Rear of One of the Cars Is Here Shown

Wood sash is provided, the top sash being in single sections, set stationary, and the bottom sash arranged to raise.

The body of the car is divided into a front main passenger and rear smoking compartments. A partition, framed of cherry, separates the two compartments and is fitted with large sash on each side of the aisle above the seats.

Special efforts were taken to make the interior of the car as comfortable and attractive as possible. The seats are of the double-bucket stationary design with deep spring construction and loose spring pads for each passenger. They are upholstered in gray Spanish leather of a soft and pleasing appearance. Felt padded arm rests are installed on the window stooling at each cross-seat.

The floor is covered with gray linoleum under the seats and with an aisle strip of 1½-in. checker red and green rubber tiling. This checkered design is also carried out on the platforms.

The ceiling is made of Agasote headlining, enameled

light cream, and trimmed in two-window sections with neat cherry moldings. The interior finish is of fine grained genuine cherry in natural finish.

Parcel racks, suitable for small parcels, coats, etc., and of the continuous rod type, are located along each frieze panel the full length of each compartment, and enameled a cherry color to harmonize with the interior finish.

Each compartment is effectively illuminated by decorative ceiling fixtures with large hemispherical Alba shades, equally spaced along the center of the ceiling, and harmonizing wall bracket lights located at advantageous points in each compartment. The main ceiling circuit lights are equipped with compensated fixtures to prevent the darkening of the car in case a lamp burns out.

Electric marker and classification lights are permanently located in the letterboard above each vestibule wing sash and wired with a relay switch to both trolley and battery so that the warning lights will be burning whether the trolley current is on or off. One battery



Side View of the "Peter Caldwell," the First of the Cars to Be Dedicated

lamp with hemispherical shade and fixture is located in the center of the ceiling in each compartment to provide some illumination in case of loss of the trolley current.

For aiding passengers in boarding the car, an illuminated "Enter at Front" sign is located in the lower part of the right-hand vestibule sash and controlled through a pneumatic switch so the lights in the sign burn only when the brakes are applied. There are illuminated destination signs in the upper right-hand corner of the front dash and at the top of the right-hand rear vestibule sash.

Ohmer fare registers have been installed, and in order to keep the ceiling as free from fixtures as possible, the registering rod and cord are carried in brackets on the front of the left-hand parcel rack.

Twelve exhaust type ventilators with grills and reg-

the operator from his position on the front platform. When operating as a two-car train, the motorman is located on the front platform of the first car and the conductor may be stationed at either the front end of the rear car or the rear end of the front car. The motorman on the front end has control of the front entrance and exit door of the first car, and the conductor has control, from either platform, of the rear door of the first car, and both front and rear doors of the rear car. By use of the train doors, the conductor is enabled to pass from one car to the other for collection of fares, as may be required. The train doors are safeguarded against use by passengers through a lock, the key of which is in the possession of the conductor. In train use the conductor can leave the door unlocked so that it can be opened by a knob from the outside, thus facilitating his passage between the two



Senator Carl N. Guess, Who Presided at the Stone Mountain Exercises, Addressing an Interested Audience

isters in the ceiling are equally spaced in two rows along the roof. There is also one adjustable intake ventilator in the hood of both front and rear vestibules, insuring ample ventilation.

In order that the passengers may be kept comfortable in cold weather, sixteen electric panel-type heaters, automatically controlled, are installed, eight along each side wall in a specially designed truss plank for supporting the heaters and seats. This panel has a rounded, sanitary corner at the floor line.

The steel side walls of the car are insulated against heat and cold, and body noises are eliminated by the application of 1-in. compressed cork boards, cemented directly to the inside of the steel plates and covered on the inside with linoleum panels forming the wainscoting and enameled to harmonize with the interior finish. The bolsters, which are of the pressed steel box type, are also insulated against noise by being filled by a ground cork and cement preparation.

The cars are designed and equipped for one or two-car train operation and with a crew of one or two men. When operating as one-man single units, the passengers enter through the front entrance door and leave through the front or rear exit doors, which are under control of

car platforms. All doors, except train doors, are controlled by electro-pneumatic door engines, which interlock with the controller through the line breaker and

GENERAL DIMENSIONS OF THE GEORGIA RAILWAY & POWER INTERURBAN

Length over all	45 ft. 6 in.
Length over dashers	44 ft. 6 in.
Length over body	33 ft. 6 in.
Length of platforms over dashers	5 ft. 6 in.
Bumper projection	6 in.
Rail to top of trolley boards	10 ft. 8 1/2 in.
Rail to underside of sill	28 1/2 in.
Height floor to headlining	7 ft. 5 1/2 in.
Extreme width	8 ft. 4 in.
Width at side sill	7 ft. 8 in.
Rail to first step	15 in.
First step to platform	14 in.
Ramp in car floor	3 1/2 in.
Vestibule door opening—front	4 ft. 2 in.
Vestibule door opening—rear	2 ft. 4 in.
Partition door opening	22 in.
Truck centers	26 ft. 3 in.
Wheelbase	5 ft. 4 in.
Diameter of wheels	26 in.
Post centers	33 in.
Width of aisle	21 in.
Width of seats	36 in.
Seating capacity	51
Weights	
Electrical equipment	7,489 lb.
Air brakes	1,775 lb.
Trucks	10,160 lb.
Body	18,576 lb.
Total	38,000 lb.

door engine switches, so the doors cannot be opened while the train is in motion and the train cannot be started while the doors are open.

The car bodies are mounted on the latest design of light-weight interurban type trucks with 26-in. rolled steel wheels. Each car is equipped with four 35-hp. motors and controlled by light-weight multiple-unit control for single-end operation. Single-end straight air brakes of the variable load type, and complete with all emergency features, are installed, which assures efficient braking at all speeds and passenger loads.

Each end of the car is equipped with a radial coupler designed for making, automatically, all air and electric connections when the cars are coupled in trains, and a special switch for breaking all electrical connections when the cars are uncoupled.

The front end of each car is equipped with two headlights. There is a main, high-powered headlight on the roof, used for operation in the country, and a small headlight of the marker type in the bottom panel of the train door for city operation.

The exterior of the car is painted attractively with a pleasing combination of Flamingo red and light cream. The lower part of the body from the sill to the belt rail is red, and this color is carried entirely around the body and across the doors and vestibules, further enhancing the long, straight lines of the car. Piers, window posts, letterboard and upper half of the doors and vestibules are painted in light cream, and the roof, trolley boards, etc., are finished in golden brown. The running gear and trim beneath the car are black. The names on the side panels and the body striping are carried out in gold leaf, adding to the rich effect.

Fire Extinguisher Equipment Well Marked

PART of the car storage of the Beaver Valley Traction Company at New Brighton, Pa., is unheated and is not entirely fireproof. As shown in the illustration, fire buckets are hung on the wall, but to make their location readily seen a bright orange strip is



Fire Extinguisher Container Is Here Shown in Both Open and Closed Positions to Indicate Simplicity

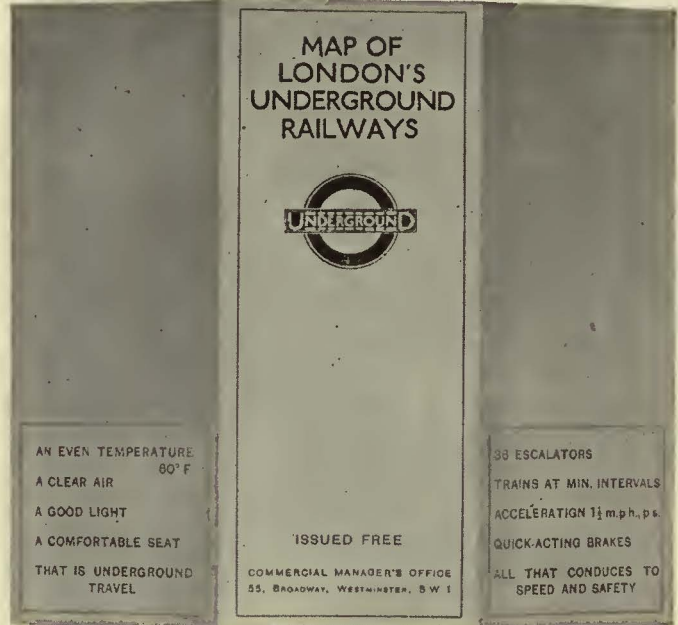
painted on the walls and run up to the roof so that, even though the tracks are filled with car equipment, a glance at the wall over the top of the car roofs will show quickly where the fire buckets and fire extinguishers are located.

To prevent freezing in the winter a lamp is kept burning in the bottom of the liquid fire extinguishers.

When the door is closed the light shows through a red bullseye. The illustration at the right has the door open to show the arrangement of the light with respect to the fire extinguisher and the simple method of installing the red bullseye.

London Underground Distributes Railway Map

DISTRIBUTION of a neat and attractive little folder map of the London Underground System was made to its patrons recently. This map is only 6 in. x 5 in. opened up and is but 5 in. x 2 in. when



London Underground System's Folder Map Also Carries Publicity and Is Small Enough to Be Slipped in One's Pocket

folded. It is mounted on vivid red linen and on the outside is printed information regarding the service, speed and safety of the underground system, as shown by the accompanying illustration. On the other side is a map showing all the lines on the system, each in a different color. The names of all stations are shown on the map in bold type which may be easily read.

Magnetic Brake Tested on Oiled Rails

PARTICULARS of some tests of the magnetic brake of the Buffalo & Erie Railway were published in the issue of this paper for July 17. On July 20 further tests of this brake were made on greasy rails. A section of straight track about 700 ft. in length was selected for the purpose, and the heads of both rails were coated with heavy car oil. A car with the magnetic brake was then run into this greased section at a speed of 45 m.p.h. and both magnetic and air brakes were applied. The car stopped in 470 ft.

A second test was made under just the same conditions except that only the air brakes were applied. The car in this case went through the 700 ft. of oiled track and was stopped on the dry track, 85 ft. beyond the oiled section.

The comparison was actually more favorable for the braking qualities of the magnetic brake than appears from the figures just published, because during the first test part of the oil on the rails had been removed by the action of the wheels and the rails had been sanded.

Maintenance Notes

Spray-Lacquered Signs in St. Louis Shops

QUICK drying has been found of particular advantage when painting signs used for car stops, loading zones, etc., by the United Railways in St. Louis, Mo. The metal disks, including the standards and bases, are sprayed with black Duco. The lettering is then applied by spraying white Duco through a template cut from thin aluminum. The quickness with which this lacquer dries avoids the difficulty of handling while wet and allows the signs to be placed in use as soon as completed. Whenever the signs become battered or otherwise begin to look badly they are brought in and reconditioned in a few hours time.

Old Axles Brought Back to Size by Welding

WHEN the wheel fits and journals of axles of the Dallas Railway, Dallas, Tex., become worn, due to several replacements of wheels, and long use of the axles, the axles are built up by gas welding new ma-

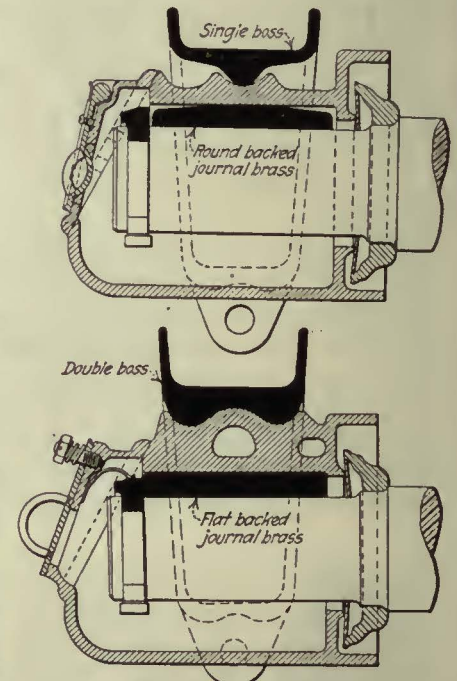
terial and re-turning the wheel fits to their original size. The accompanying illustration shows an operator installing this new material on one of the axles. The illustration also shows a convenient buggy used for moving armature shafts about the shop in places where cranes are not available. This buggy also holds the axle in a handy position for building up the ends.

Overcoming Nosing of Single-Truck Cars

CHANGES made in single-truck construction, in order to eliminate the rocking action which is common to short wheelbase single-truck cars, are described in a paper read before the meeting of the Managers' Section of the Municipal Tramways Association, at Edinburgh, Scotland, on May 27 by R. S. Pilcher, general manager Edinburgh Corporation Tramways & Motors.

The type of truck used by the Edinburgh Corporation (the municipal system) is the Peckham pendulum truck. This provides for a certain amount of movement between

the axle box and the truck frame. It was found that the movement became too free and that when oscillations had once started they were very liable to increase with the speed of the car. This truck is fitted with a single boss resting on the axle box which is used as a pendulum. The original construction is shown in the accompanying illustration. In the changed design a double boss was adopted with centers 3 in. apart. This had the effect of reducing the oscillating motion somewhat but did not eliminate it. The brass check



The Original Construction of the Peckham Pendulum Truck Is Shown at the Top. Below Is Shown the Journal Bearing and Boss Changes Which Remedied Truck Oscillation

plates were made a driving fit so that there was practically no play in the axle box. The most effective change, however, was to make the top of the journal box bearing flat instead of rounded. Manufacturers originally supplied the bearings rounded so as to provide for an easy movement, but it was found when this rounded portion was planed off and the bearing made quite flat that the motion was entirely stopped.

In addition to the changes as outlined, axle check-plates are kept tight and axle boxes are carefully inspected at regular overhauling periods.



Dallas Railway Builds Up Car Axles by Welding Process. Note the Handy Buggy Constructed Out of Pipes and Fittings

Maintaining Rapid Transit Cars



The Worn Aisle Is Filled In with Composition Flooring and Is Then Sprayed Red. New Type of Gas-Filled Lamps Are Installed

WHEN some of the cars of the New York, Westchester & Boston Railway which had been in service fifteen years required general repairs occasion was taken to make certain improvements and replace some of the equipment. The air-operated doors originally had a long-stroke type of door engine. This engine is now being replaced with the National Pneumatic Company's CS8 electric door engine, which is installed in the same location as the other one was; that is, back of the door pocket. This type of door en-

gine uses Westinghouse magnet valves, which are standard for the control equipment used on the cars. This reduces the number of spare valves which it is necessary to carry in stock.

Some of the steel doors of these cars were found to be rusted through. These are being replaced at the same time that the door engines are installed. The platforms were originally provided with rubber mats, which lasted on an average of about six months. Some trouble was also experienced when the mats were wet. In order to do away with the rubber mats the platforms are now being provided with Kass safety treads. The officials on the railway expect that these will last from eight to ten years.

These cars are provided with com-



Safety Treads Do Away with the Necessity for Rubber Mats on Platforms. A New Steel Door Has Been Installed

position flooring and the aisles have become somewhat worn, so it is necessary to renew these. This is done by replacing with Flexolith. After installation the entire floor is sprayed with a red floor paint. Some trouble has been experienced in keeping curtains clean. Due to the pattern used, these presented an unattractive appearance. In order to provide more satisfactory looking curtains the old ones are now being dyed black.

Advantage has also been taken of this general overhauling to increase the lighting efficiency inside the cars. Originally the lights used were of 56-watt capacity and the S19 bulb was used. These are being replaced by a 60-watt type A21 gas-filled bulb.

Effective Illumination for Shop Benches

BRIGHT illumination on workmen's shop benches, but without annoyance from direct rays of the lamp, is provided by mounting fixtures with proper reflectors directly on the benches in the shops of the Department of Street Railways, Detroit, Mich. The support for the



A New Type of Door Engine Is Being Installed in the Door Pocket



Efficient Bench Lighting as Provided in the Shops of the Department of Street Railways, Detroit

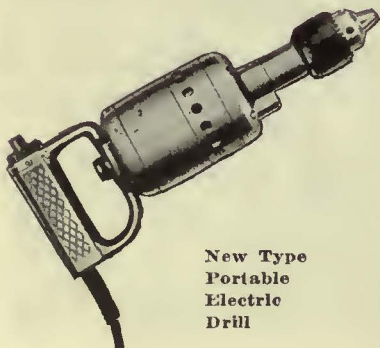
light and fixture consists of 3/4-in. conduit, which is bent with easy turns, so that the wiring can be carried inside without difficulty. A standard pipe flange serves for fas-

tening to the bench. The fixture is a Benjamin dome, No. 100, which is 15 in. in diameter, white enameled on the inside and green on the outside. A single 56-watt lamp is used.

New Equipment Available

Light-Weight, Center-Drive Electric Drill

AN EXCEPTIONALLY powerful portable electric drill built for continuous production work is being marketed by the Industrial Tool Corporation, New York, N. Y. Outstanding features of this tool are light weight and a center drive con-



New Type Portable Electric Drill

struction. This latter feature gives even balancing and results in more accurate work than similar type tools. This portable electric drill is furnished complete with a Jacobs three-jaw geared chuck and key for drill bits ranging in diameter from the smallest size to 3/8 in.

The tool is also supplied with 10 ft. of portable cord and an attachment plug. The cord leads into a convenient switch handle so that it is out of the way of the operator. The construction includes helical gears, an aluminum housing and handle, oil and grease lubrication, extra large thrust bearings and an air-cooled universal motor. The motor housing is especially designed to dissipate heat by a large fan which draws off any that might arise through continuous use of the drill. The power factor of the motor is con-

siderably in excess of that normally required with the largest drills.

The drill spindle is made up of special tool steel and the end-thrust is taken on a set of ball bearings. Reduction gears are cut from alloy tool steel carefully hardened and operate in a grease-type compartment.

Insulated Handle on Lamp Guard

IMPROVED construction of lamp guards made for use in electric railway shops, garages, etc., by the Crouse-Hinds Company, Syracuse, N. Y., provides a strong, light-weight unit. A handle added at the base is made of well-seasoned maple with Duco finish. This acts as an insulator between the wires and the work-



Improved Lamp Guard Showing Strain Relief Cord Clamp

man's hand. A cord clamp rests against a shoulder in the handle and takes any strain from the wire.

A lamp socket made of cold molded material is provided, which will not soften under the heat of the lamp. A few turns of a wing nut allow the hinged part of the guard to swing back, giving free access to the lamp. There are no detachable parts which might be lost when inserting or renewing a lamp, and when engaged all parts are securely locked together so that they cannot be disengaged accidentally.

The guards and half shades used in connection with these lamps are made of special cast aluminum alloy. This forms a rugged as well as a light-weight construction. The hook at the end of the guard is made of bronze and is arranged to swivel.

Association News & Discussions

The Auditor—Pilot of the Boat*

BY CHARLES E. THOMPSON
Vice-President Chicago, North Shore & Milwaukee Railroad

IN THE great organizations which must be built up to operate a railroad property successfully, the auditor might be termed the intelligence officer. Upon him the operating men must rely for the information which tells them whether they are operating the property successfully or otherwise. He is like a signal on the track. From his books and accounts he can give the necessary information as to whether there is a clear track ahead, or whether the red signal must be hung out to call a stop.

An auditor, to fill his position efficiently, must be absolutely impartial. He has before him constantly a picture of the financial operations of his company and he must take the facts and figures as they are and supply the information necessary to the management from those facts and figures. It is his business to keep expenses within the revenues, and this he must do regardless of whether that course is pleasing to other officers or not. If he neglects that most important of all duties it is not difficult to see that sooner or later the company will get into serious financial trouble.

The auditor probably is the most unpopular officer in an organization. He frequently has pressure brought to bear upon him to let this, that or the other expenditure get by. He cannot afford to do it, even though his refusal may be unpopular. He is the watchdog of a company's finances, and watchdogs are given to growling, even though they may not bite. That accounts for the unpopularity of the auditor with some other officers in an organization. It isn't the fault of the auditor; it's the job.

There is a good deal of misconception in a large organization about the duties of the auditor. Some imagine him as a bookkeeper who looks after the books and accounts of a company. But an auditor is not a bookkeeper, or rather I might say he is much more than a bookkeeper. If he is only a bookkeeper he is not likely to be an efficient auditor. The bookkeeper can put certain facts and figures in his books and they may be absolutely accurate and not mean much. The auditor must take those facts and figures, analyze and interpret them to the operating chiefs. He is the pilot of the boat and must be able to see ahead and guard against running on hidden rocks or shoals. If he is on to his job and does his duty fearlessly

and impartially he is quite likely to make some enemies.

You auditors and accountants have your fingers on the financial pulse of your companies, and sometimes I am inclined to think that you are apt to take too pessimistic a view of a situation. You are too apt at times to see only the cold figures, and because they do not look as rosy and as promising as you would like to see, you allow your vision to be contracted and obscured to future possibilities.

It is the business of the auditor to look ahead and anticipate, as well as to analyze a current situation. The electric railway industry in the last few years has proved itself to be one that has wonderful recuperative powers. It is true that within the last few years the industry has met some situations that looked rather gloomy to those who could see only the cold figures. To some it looked as if the sun never would shine again, but it did, in fact it never ceased to shine, although clouds may have obscured its light except to those who had strong vision.

I believe you men can see a brighter picture of our industry than you did at your last convention. I am quite sure you will be able to see a still brighter picture at your next gathering. Our industry as a whole is now facing the sharpest competition it ever has encountered. We should not feel discouraged over that situation. In fact,

as I look at it, it is a sign of encouragement. It is a sure indication that our competitors do not look upon our industry as a dying one. No one cares to bother about a business that is headed toward oblivion. It is when it is headed in the opposite direction, when its business is increasing by leaps and bounds, that its competitors grow alarmed and go after it.

The present fierce competition which many of our companies are facing is a healthy sign. It is putting us to the test. It is waking us up and putting us on our toes to get new business, and I am just as confident of the future of the electric railway industry as I am that the sun will rise tomorrow morning.

Welding and Cutting Exposition

THE fall meeting of the American Welding Society will be held in Buffalo on Nov. 17, 18 and 19. An international welding and cutting exposition will be held in connection with this meeting and will open Tuesday afternoon, Nov. 16.

The technical sessions include railroad welding apparatus, welding science in the engineering curriculum of universities, and welding in a gaseous atmosphere. The entertainment includes a trip to Niagara Falls, a view of the Falls from the American side, with an inspection trip through the Niagara Falls power house, a buffet supper on the Canadian side and a special illumination of the Falls. There will be the usual annual fall banquet, which is expected to be an outstanding success, and a meeting of the American Bureau of Welding, the board of directors and the welding wire specifications committee. Further details will be announced in an early issue of the JOURNAL.

How to Get to Pelham Bay Park

DIRECTIONS for reaching Pelham Bay Park, where the Metropolitan Section, A.E.R.A., will hold its second annual outing, Wednesday, Aug. 11, are given in a folder recently distributed to members. This park is at the northeasterly end of the Borough of the Bronx, New York City. It is reached by the Pelham Bay branch of the Interborough Rapid Transit subway system, which connects with the Lexington Avenue express service of the same company at 125th Street. The Pelham Bay branch connects also with the Westchester Avenue and Tremont Avenue lines of the Third Avenue Railway system.

To reach the park by automobile from New York City the route follows the Grand Concourse to Fordham Road and thence to Pelham Parkway, which leads directly to Pelham Bay Park.

COMING MEETINGS

OF

Electric Railway and Allied Associations

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

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

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

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

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

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

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

*Abstract of address before the Central Electric Railway Accountants Association, July 23-24, 1926, Drake Hotel, Chicago, Ill.

The News of the Industry

Eastern Massachusetts Arbitration Begun

Men Are Presenting Their Side of Case for an Increase in Pay—13-Cent Advance Asked

All the terms of employment between the Eastern Massachusetts Street Railway, Boston, Mass., and its blue uniform men who are affiliated with the Amalgamated Association have been submitted to arbitration. Public hearings were started during the week ended July 31 before a special board.

The arbitrators are Judge John C. Leggat of the Middlesex Probate Court, chairman, and James H. Vahey representing the men and Fred A. Cummings the company. Mr. Vahey and Mr. Cummings have served together on previous arbitration boards.

The men ask for an increase in the basic rate of wages from 61 cents to 74 cents an hour, maximum. Their present rate is 55½ cents an hour for the first three months, 58½ for the next nine months and 61 cents an hour thereafter; they ask for an increase to 70 cents, 72 cents and 74 cents respectively. In addition to this they want the differential in favor of the one-man car operators increased from the present rate of 5 cents to 10 cents. This would make the maximum rate 84 cents an hour for about 96 per cent of the men.

The company's counter proposition is that the present basic rate be reduced to 56 cents with the one-man car differential unchanged.

Further, the employees ask that their work-day be reduced from the present nine hours in eleven to a new schedule of eight hours in ten. They also want the overtime pay increase to time-and-a-half, it now being time-and-a-quarter. The company proposes a continuation of the present practices.

The men also want seniority rights restored. These were abolished in 1918 by the War Labor Board. The men also want ten minutes at the beginning of the day and twenty minutes at the close to prepare and put up the cars. This is opposed by the company.

The company also proposes a reduction in the allowance for meals from the present limit of 75 cents to a new limit of 60 cents.

James H. Vahey serves both as arbitrator and lawyer for the men. He addressed the board at the opening of the hearings on July 26 to the effect that the Eastern Massachusetts Street Railway is virtually an "open shop" road in that its employees are organized under the Amalgamated merely for the purpose of collective bargaining, and for sick and death benefits and pensions. He presented the men's contention that the company should pay such wages as a family of husband, wife and three children needs to be able to

live in health and reasonable comfort. In the pending case, however, he does not intend to offer evidence to support the proposition that such wages should be paid regardless of the financial condition of the company. This is an issue which has received much attention at former arbitration hearings. He cited the basic rates on some of the other roads, the Elevated paying 72½ with a 10-cent differential; Worcester and Springfield 68 cents with an 8-cent differential; New Bedford \$1.24 an hour.

The first witness for the men was Arthur Sturgis, who has figured as wage expert for street railway employees in most of the arbitration hearings with which Mr. Vahey has had official connection. He showed by tables that at least since 1912 the scale of wages has

been higher on the Boston Elevated than on the Eastern Massachusetts, and that the average difference for the whole period amounts to 6.79 cents. He presented another table which indicated that between Jan. 1 and June 1 of this year there have been 32 wage reductions and 420 wage increases throughout the country. In the twelve months ended June 1, 1926, there were 177 reductions and 847 wage increases. According to him the trend of wages has been steadily upward, and it has been even more marked during the first half of the present year. Another comparison made by Mr. Sturgis at the opening session contrasted the carmen's pay with that of the building trades mechanics, who, according to his statistics, receive \$1.46 to \$1.91 an hour.

Another Move in Kansas City Franchise Matter

Original Settlement Suggestion Has Been Withdrawn—Substitute Measure Appears in Interest of Successor Company to Kansas City Railways—Recent Moves Reviewed

ONE street railway franchise ordinance, extending the present grant for twelve years, passed out of existence in the City Council of Kansas City, Mo., on July 26. A similar extension to the Kansas City Public Service Company, with the added concession of a reduction in fares by selling fifteen tickets for \$1, appeared immediately.

The new ordinance is in the form of an amendment to the Jost franchise granted in June, 1914, to the Kansas City Railways. It was referred to the Council as a committee of the whole and public hearings will be held at once.

Councilman A. N. Gossett introduced the amendment. He said it was done with the full knowledge and consent of the new owners of the company and that, if passed, it would be acceptable.

Briefly the ordinance which was voted down provided:

A \$33,000,000 valuation.

A franchise to run 30 years.

The rate of fare based on service-at-cost, the maximum not to exceed 8 cents.

The elimination of the board of control and the five city members of the board of directors.

Beginning three years after the passage of the ordinance, the company to expend at least \$2,000,000 annually for improvements.

Extensions to system to be authorized by ordinance and accepted by the company to pave and maintain the paving between its tracks.

The company to pay an annual rental of \$16,800 for use of the Intercity Viaduct.

The new ordinance, introduced by Councilman Gossett, briefly provides:

A material reduction in fares for those who care to avail of it (fifteen tickets for \$1, which is at the rate of 6½ cents a fare), with a provision not in the present franchise that the methods and places of sale of such tickets shall be made convenient

to the public as the Council by ordinance may require.

That the owners shall operate one system, including general transfers for the legally two Kansas Cities—commercially one greater city.

That the company shall pave, and repair and maintain the paving, between and 18 in. outside of the tracks; this to be done speedily and as the Council may by ordinance require.

The city retains all the right it now has to apply for further reduction in rates and remedies to compel observance of other obligations and conditions of the franchise.

No fixed valuation.

The first franchise ordinance was opposed from the beginning. The new proposal will also be opposed by several members of the Council. Mayor Beach contends that he will favor no franchise ordinance until a low valuation has been set. The Mayor said:

Personally I do not think much of a new franchise at this time. I think the new company should take over the property and operate it for a time before asking anything of the city.

C. J. Bell, another Councilman, said:

I think something should be put in the ordinance that will absolutely fix the valuation, which, in my opinion, now is an exorbitant one.

Ira B. Burns, and at least one other member of the Council, concurred in this.

TERMS OF NEW ORDINANCE EXPLAINED

In presenting the new ordinance Mr. Gossett spoke of the necessity of a railway system and said an extension of time would enable the company to operate more economically and thereby would prove a benefit to the city in the possible reduction of fares in the future. He said the amendment provided no valuation, but bound the company to an agreement to operate under the new rates of fare, which he believed was

more binding than a fixed valuation which the State Public Service Commission could change.

Judge Henry L. McCune, another Councilman, explained after the meeting that, under the new city charter, a franchise ordinance can be passed by a majority vote instead of two-thirds, as formerly required. Within ten days, however, a notice signed by 100 registered voters, giving notice that a petition is to be circulated calling for a referendum vote, will hold the ordinance up for 40 days. In the meantime, if a petition signed by 10 per cent of the persons voting for Mayor at the last city election is filed with the Council, the measure must be submitted to the people for a vote.

William G. Woolfolk, president of the Kansas City Public Service Corporation, the successor to the Kansas City Railways, has declared a new franchise or an extension is necessary if the new company is to be soundly financed. Mr. Woolfolk said:

If we cannot get a longer term franchise we will be handicapped in financing the company. It is easier to get money on a long-term than on a short-term. The terms of financing, of course, will affect the operation of the company, and we are deeply interested in getting the company organized on a sound basis.

Strike Leaders at Indianapolis Guilty of Contempt

Jefferson Fade, former employee of the Indianapolis Street Railway, Indianapolis, Ind., was found guilty on July 29 of contempt of federal court. He is the eleventh person found guilty since operatives of the United States Department of Justice started their investigations in connection with union activities on the railway lines. The day previous John M. Parker and Robert B. Armstrong, vice-presidents of the Amalgamated Association and the organizers of that body in Indianapolis, were found guilty by the court after a trial which lasted virtually the entire day. Edgar Day, who was allowed a jury trial, also was found guilty. Judge Robert C. Baltzell was expected to sentence the entire eleven on the morning of July 30. In his few remarks during the trial of the two organizers he appeared particularly bitter in his statements concerning the general attitude of Parker. Parker is alleged to have made a speech at an organization meeting when the strike vote was called, after the issuance of the federal injunction, during which it is reported he said he had a whole bushel basket full of injunctions at home and had read more injunctions probably than Judge Baltzell himself, but none of them was worrying him. It is understood the attorneys will appeal the finding of the court. The entire eleven were in jail on July 30 awaiting sentence.

Judge Baltzell made it plain that he would stand for no violence on the part of strikers or sympathizers and would deal summarily with any violations of the injunction. He reiterated that the men had a right to organize and strike if they desired, but he would not stand for any vandalism. Only one case of serious disorder was reported this week to the police.



Strikers Follow Their Leaders to Interborough Headquarters

Strike on New York Subway "Declared Off"

Technically the strike of the motor-men and switchmen on the subway division of the Interborough Rapid Transit Company, New York, did not end until Thursday night. Once before the strike had been declared off by the men, but when on July 23 the workers marched to the Interborough yards at Lenox Avenue and 147th Street and asked to be taken back in a body, the company remained firm in its determination to treat with the men only as individuals. Consequently, nothing was left to the strikers but to march away again.

That evening, after a mass meeting, a clash occurred between the men and a squad of special Headquarters detectives, in which several of the strikers were injured, one very seriously. The strikers claim that the police made a brutal and entirely unprovoked assault, and they have made many appeals for retribution, the latest being contained in a letter to Governor Smith, in which the Chief Executive of the state is asked to investigate the New York Police Department and punish the men responsible for Friday's "outrage." At the present writing these appeals have brought no results.

On July 27 Edward P. Lavin, leader

of the strikers, issued a "call" to all employees of all transit companies for a general strike, to start Saturday, July 31. The fact that this summons met with very little response was the final blow to the strikers, for on Friday, July 30, it was officially announced that the strike was over. The company has agreed to take back all the men except the three leaders, concerning whom a special conference will be held.

Service on the Interborough was practically back to normal long before the men condescended to take public cognizance of the fact by formally declaring the strike at an end.

First I.C.C. Bus Hearing Held

The bus was hailed as an increasingly necessary supplement to the electric and steam railways, on the one hand, and condemned as an unregulated nuisance on the other, when the rail carriers, both electric and steam, had the first inning on July 27 at the opening in Chicago of the Interstate Commerce Commission's series of hearings to obtain data from which it may decide what position to take regarding the regulation of buses.

In his opening statement Commissioner John J. Esch, who presided, said that the purpose of this hearing



Men Wait in Vain to Be Taken Back en Masse

was "to lay before Congress the possible advisability of wise and appropriate legislation in regard to motor vehicles, and especially a uniform legislation like that governing the rail carriers, with the added necessity of avoiding some mistakes made in that direction through our experience there."

Among the first witnesses from the electric railway field were Charles L. Henry, receiver of the Indianapolis & Cincinnati Traction Company and a committee member of the American Electric Railway Association; G. K. Jeffries, general superintendent of the Terre Haute, Indianapolis & Eastern Traction Company, and J. W. Welsh, secretary of the A.E.R.A. Charles Chase, president of the Gary Railways and also of the Shore Line Motor Coach Company, said he believed there is a genuine demand for transportation by bus and that the railways should have the first chance to provide it. The chief offenders in cutting railroad revenue were the privately owned automobiles and not buses, according to P. S. Eustis, passenger traffic manager of the Chicago, Burlington & Quincy Railroad.

The rail men were given the first day of the three days which the Chicago hearing was scheduled to cover. The plans called for presentation of testimony by the motor transportation industry on the second and by the public on the third. The same schedule will be followed in each of the twelve other regional hearings. The matter will be concluded with a national hearing in Washington starting on Sept. 29.

One-Man Car Now in Public Favor in Milwaukee

After experiencing vigorous opposition on the part of the public to any plans to introduce one-man cars on its lines, the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., seems to have won over the public to the merits of the one-man car as an essential part of its transportation system.

This transition was strikingly exemplified at the hearing recently before the Railroad Commission to consider the proposal of the company for the partial operation of one-man cars on the Wells-Downer line, which runs through the east side "Gold Coast" district as well as the better class residential district on the west side. The hearing, called to give any objectors an opportunity to present their views, was marked by the absence of objection or complaint against the proposed plan. In consequence it is expected the commission will issue an order in favor of the company, which plans to place these cars in service on Oct. 1.

Under the new arrangement, which will make it possible for the company to increase the standard of service without additional cost, twenty one-man cars are to be added in place of some of the two-man cars now in use. Two-man cars taken off are to be rebuilt and converted into one-man cars.

The success of the company's one-man car policy is attributed largely to the constructive manner in which the

company endeavored gradually to overcome and win the public over to its side. An intensive newspaper advertising campaign consisting of good-will advertisements bearing the personal signature of S. B. Way, president, introduction and use of more modern and attractive one-man cars, short educational talks on the one-man car by trained conductors who boarded one-man cars at crowded points, were among the ideas which the company developed in removing the antipathy of the public toward the one-man cars.

Men on Public Service Answered

On July 28 the employees of the Public Service Railway, Newark, N. J., were informed that not only will the companies be unable to comply with the demand for increased wages but that financial conditions require that the men accept a wage reduction. This answer was given by M. R. Boylan, who said he had studied with particular care and attention the draft of a wage agreement setting forth terms and conditions of employment, offered for the acceptance of Public Service Railway, Public Service Railroad and Public Service Transportation Company. Mr. Boylan said in part:

The agreement provides for trainmen a flat increase in wages of 15 cents an hour; for other employees standardization of rates and an increase of 25 per cent, and, for all, changes in working conditions which would, if made effective, add further to the payrolls of the companies.

A conservative estimate of the aggregate cost of putting in effect the changes stipulated, on the basis of present operations, is more than \$3,000,000 a year.

Consideration of the affairs of the companies, their revenues, operating expenses and prospects of additional revenue make it clear that no part of the additional charge involved can be assumed.

As explained in a communication addressed to the members of your association on June 1, 1926, the increase in wages provided by the agreement which went into effect Oct. 1, 1923, resulted for the thirty-month period ending April 1, 1926, in the failure of Public Service Railway and Public Service Railroad to earn operating expenses and fixed charges by a total amount of \$1,797,744, and in the failure of Public Service Transportation Company to earn operating expenses by \$1,736,473. The total deficit, exclusive of the fixed charges of the transportation company, therefore, amounted for the period to \$3,534,217.

It is important to consider that this large deficit accrued in the face of all possible economies, and in spite of the fact that the combined system is being operated more efficiently than ever before in its history.

Economical and efficient operation has improved the financial condition of the companies, yet for the twelve months ending June 30, 1926, railway and railroad companies failed to earn operating expenses and fixed charges by \$146,349, and transportation companies by \$179,564.

In the face of these conditions, to increase the expenses by the more than \$3,000,000 required to meet the terms of the wage agreement submitted by your board, or by any other sum of money, would be to incur an obligation which the companies have no ways of meeting and would result in disaster ruinous to all interested—public, employees and company.

The wage increase of Oct. 1, 1923, was granted in the belief that the additional expenses involved could be absorbed through economies in operation. Experience has proved, however, that such savings were insufficient for this purpose, that there is no possibility of effecting further economies in any substantial amount, and that a return to the wages in effect before Oct. 1, 1923, is necessary.

Careful consideration of all conditions affecting wages has been given by Public Service companies. The results were embodied in my communication of June 1. For the reasons therein cited, we are compelled to stand upon the conclusions as to the terms of the new agreement contained in

that communication, and I am accordingly returning to your board the form submitted to me July 22, 1926.

William Wepner, chairman of the joint conference board of the Amalgamated Association at Newark, N. J., had previously informed Mr. Boylan that the wage proposal made by the company had been submitted to the nine locals, composed of employees of the companies affected, and that as a result of their deliberations a form of agreement had been drawn up which embodied the ideas of the board and the members of the association as to the rate of pay and working conditions which should be adopted.

This proposal by the men called for an increase over present rates of pay and certain changes in working conditions which are considered to be in the interest of the men. Mr. Wepner said the men are "in no position to dispute the statement as to company finances, but they believe that the wages and conditions they ask for are reasonable and should be accepted."

Jitneys in Detroit Die Hard

After winning a fourth respite the jitneys were still operating in the streets of Detroit, Mich., on July 21 while their battle was being fought in the Circuit Court. The hearing on a motion by the city for the dissolution of the injunction granted the jitney drivers a week previous was postponed to July 21, but Judge Dingeman warned that no further postponement would be granted.

As a result of a writ of error, ordering the jitney case to the United States Supreme Court, jitneys are permitted to continue using Detroit streets. Representatives of the drivers' associations say city officials have adopted a policy of harassing jitney drivers by giving them tickets for every conceivable kind of traffic violation.

Word was received in Detroit on July 26 that Chief Justice Bird of the Michigan Supreme Court had signed a restraining order placing the status of the jitneys back on the plane established by the injunction issued by Judge Hunt in December, 1923, forbidding the city to eject the jitneys.

The attorney for the jitney men obtained the U. S. Supreme Court writ on the basis that the state court's ruling violated constitutional rights contained in the Fifth and Fourteenth Constitutional Amendments, one relating to the rights of property and the other concerning class legislation. It was Attorney Barnard's contention that ejection of the jitneys under the present ordinance constituted class legislation inasmuch as buses are permitted to operate.

The latest order of the Michigan Supreme Court restrains any further interference with the operation of the jitneys pending final determination of the federal court appeal. The order also makes void all actions now in court, including the decision which was to have been rendered by Circuit Judge Dingeman.

The moves are coming thick and fast and the status of the case has changed rapidly, but the city is apparently determined that the jitneys must go.

Newspaper Co-operation in Cincinnati

"Enquirer" Says that with the Public's Co-operation Local Service Can Be Greatly Improved

Cincinnati's street car service can be made the equal of that of any other city in the country. This is the proud proclamation of the Cincinnati *Enquirer*, but that paper sees that result attainable only through co-operation between the railway company and the people.

In this respect the *Enquirer* indorsed heartily remarks made recently by Hudson Biery, director of public relations of the Cincinnati Street Railway, in an address before the Co-operation Club. Under the heading "The Sovereign Rider," Mr. Biery was quoted to this effect:

The car rider of Cincinnati controls the street railway. He has the right to see that the service is efficiently managed, to see that it is self-sustaining and that a reasonable rate of fare is maintained. Everything in connection with the street railway, he said, is controlled by the city; that it is really the car riders' railway.

Destructive competition, which reduces street railway earnings and increases the rate of fare, is your problem.

And then, in a remarkable example of what a newspaper can do toward extending co-operation in connection with a transportation problem, the *Enquirer* said:

This is true. The public can demand, exact, control, compel. Most important, it can co-operate with the street car company. The street car company desires this co-operation. An intelligent understanding of the entire situation with reference to the management and conduct of street car service, by the citizens, will go far toward insuring satisfactory service and satisfactory and equitable fare rates.

The management, stockholders and employees of the company are as surely public servants as are officials elected to conduct the affairs of the city, state and nation. They work for wages. They are the representatives of the people. The city government is their high superior, and the citizen car rider is sovereign over all.

Cincinnati's street car service, through co-operation between the car company and the people, can be made the equal of any in the country.

So much for the indorsement of the newspaper. Mr. Biery said many things other than those that have been quoted that are of interest. Here are some of them:

The street railway return on investment has been limited by the city, the capitalization has been definitely fixed by the city, the rate of fare automatically goes up or down with the cost of the service, and our whole operation is controlled by the city. It is really the car riders' railway. Even if you do not ride the cars you have a direct interest in adequate transportation and the elimination of traffic congestion.

Destructive competition, which reduces street railway earnings and increases the rate of fare, is your problem. It is up to you to see that the street car rider gets a square deal wherever and whenever the interests of his transportation system are involved. We are not asking for help or sympathy; we are only asking the citizens for an intelligent understanding of the whole situation, and in bringing about this understanding organizations like yours can be of great help.

The new department of public relations, which I have the honor to direct, is the car rider's department within the company, and tries to view his problem from his standpoint. We are trying to acquaint him with his rights and help him get the service he wants. Part of our job is to "sell" to the people of Cincinnati their own transportation system and the new franchise. The new franchise is simply a working contract protecting the interests of the street car riders against the rest of the city at large. The management, the employees and the stockholders under the service-at-

cost plan are the workmen for providing the service. They are allowed wages just as the policeman and the fireman, and in both cases your representative, the city government, is boss.

We expect to use many methods in bringing these facts home to the public. We are not trying to "press agent" the street railway, but when the newspapers want the facts we see that they get them. All of the papers are very fair about this. We are not going to talk a lot about improvements in the service until the improvements are made, but we are going to talk about the new franchise as the foundation for what can be done. When the people realize what they have in this new franchise we won't have to advertise the street railway. The car riders will do it themselves.

Wage Arbitration at Memphis Concluded

Final arguments in the wage arbitration between the Memphis Street Railway, Memphis, Tenn., and the carmen's union were submitted before the board of arbitrators on Saturday morning, July 24. While the time of the probable receipt of the decision cannot be forecast, reasonable haste is expected, inasmuch as the scale determined upon will be effective as of April 1, 1926.

E. W. Ford, vice-president of the railway, represented the company in stating its case. Judge D. B. Puryear argued the claims of the carmen.

On March 31, 1926, the contract between the company and trainmen expired. Negotiations between the two developed a new contract effective April 1, on which all points were agreed except a new wage scale. This point was submitted to arbitration with the understanding that the award made should become effective on April 1, along with other terms of the contract.

The wage scale under the former contract, in force for about two years, provided pay of 45 cents, 50 cents and 55 cents an hour for men employed one year, two years and three years or more, respectively. Approximately 74 per cent of the men, company records show, receive the maximum of the scale.

In the new contract the union asked for a scale increasing the former one about 12½ cents an hour. The company opposed the increase.

The members of the board of arbitrators are ex-Gov. M. R. Patterson, judge of the Circuit Court; Lovick P. Miles, attorney, representing the company, and A. B. Galloway, attorney, representing the union.

Charges of Mayor of Buffalo Answered

Following the hearing by the New York State Public Service Commission on the complaint of Mayor Frank X. Schwab, Buffalo, against the use of one-man cars by the International Railway, alleged inadequate service and the failure of the company to comply with the order of the commission to make repairs to its tracks, Bernard J. Yungbluth, president of the International, asked the state board to investigate the company's needs for more revenue to make improvements.

Mr. Yungbluth's statement says that the city's case alleging inadequate service and dangerous trolley operation "has collapsed so utterly as not to warrant a reply," and adds that the company is compelled to request an increase in fares because of the city's

insistence that it spent more money for track repairs and other improvements to its system in Buffalo. The company asks the commission to close its case upon the evidence offered by the city and says that taking of additional testimony would be merely a waste of time.

Frank C. Perkins, commissioner of public affairs, has asked for an investigation into the expenses of the International Railway from 1919 to 1925. He says the claim set up by Mitten Management, Inc., which operates the local traction system and the company's interurban lines and buses, that it is without funds to proceed with necessary improvements ordered by the commission and is in need of a higher fare, is not based on fact.

Bondholders' Committee Pretends to See Receivership Ahead

Foreclosure and a receivership impend for the Chicago Surface Lines. This was the forecast made in a letter sent out on July 22 to the holders of first mortgage bonds of the Chicago Railways by the protective committee.

The letter indicates that the committee is convinced that a receivership is inevitable upon expiration of the franchises next February. The 10,000 bondholders are urged to unite in depositing their securities with the committee in order to hasten foreclosure proceedings and reorganization plans at that time. The committee intimated that it held scant hope for a successful agreement being reached with the city for a new franchise before the expiration of the present term.

A somewhat more encouraging development in the solution of the city's transportation problems was indicated on July 23, when definite promise of the co-operation of surface and elevated lines officials was obtained by Mayor William E. Dever in a secret conference with Samuel Insull, chairman of the Rapid Transit Board; Henry A. Blair, president of the Chicago Surface Lines; Britton I. Budd, president of the Rapid Transit Company, and various bankers representing Surface Lines security holders.

Just what took place at the meeting could not be ascertained, but every one involved appeared to be satisfied with the results. The chief point of difference between the several factions at the present time is over the question of enabling legislation. The company officials have previously expressed the belief that it is futile for the City Council to continue with the work of framing a new traction ordinance until some sort of enabling legislation is obtained from the Legislature, especially pertaining to the "home rule" and unified operation features of the draft. The city opposes this program, but agrees with the companies that a franchise period longer than twenty years is desirable.

The railway officials and bankers are expected to confer among themselves within the next few days to find a suitable method for working with the city. They will then be asked to sit with the local transportation committee of the City Council in negotiating a new franchise.

Rochester Lines' Gain Continues with 8-Cent Fare

Continued gain in revenues of the New York State Railways, Rochester Lines, under an 8-cent fare is shown in the report of Railways Commissioner Charles R. Barnes to the Common Council for the quarter ended April 30.

The fare determining balance account deficit dropped from \$311,655 to \$249,305, but is still more than \$400,000 from the point where a lower fare would be possible under the service-at-cost contract.

Fares in Rochester were increased 1 cent on Jan. 1. The report just made is the only one showing operations for a complete quarter under the increased fare as the previous report gave figures only for January under the new rate.

The report for the quarter ended April 30 showed a surplus of \$71,511 from trolley operations and a deficit of \$9,151 from bus and trackless trolley operations, making a net surplus of \$62,359. Total number of passengers carried was 23,654,426.

Where Commissioner Barnes' report showed a deficit from bus operation, James F. Hamilton, president of the company, declared that the report charged transfer passengers as total loss as far as the buses were concerned, and if a credit were made the buses and trackless trolleys would show a surplus.

Date Advanced for Electrification in New York City

Extensions of time under the law passed in 1921 requiring electrification of railroads in New York City have been granted by the Public Service Commission to the New York Central Railroad, Long Island Railroad and the Bush Terminal Company. The petition of the New York Dock Company, which operates the Fulton, Baltic and Atlantic terminals in Brooklyn, was denied. In denying its application Chairman Prendergast commented as follows:

"There has been no effort to comply with the requirements of the statutes nor is there any promise that if an extension of time should be granted there would be a future attempt at compliance, all of which indicate the finding that sufficient reasons do not exist for the extension under the present circumstances."

The extensions granted the New York Central apply independently to the various divisions, some running to 1927 and others to July 1, 1930. These extensions were given without prejudice to further extensions on application filed on or before the dates set by the present action.

In the case of the Long Island Railroad, extensions were made until Jan. 1, 1931, to complete electrification. The company submitted evidence to show that it has a definite \$3,000,000 program for the current year and like programs for subsequent years, the total cost for electrification being estimated at \$13,000,000.

The Bush Terminal Company, operating piers and terminals on the Brooklyn waterfront between Second Avenue and 31st Street, the Pier Head line and 39th Street, and tracks on 41st Street

and First Avenue, principally on private property, also received an extension until Jan. 1, 1931. This company plans to install certain temporary overhead power construction to test the feasibility of handling cars from floats by means of electric locomotives.

First I. C. Electric Train Run July 21

As a sequel to many years of agitation and preparation, the first electric train in the Illinois Central Railroad's suburban passenger service started from the Randolph Street terminal in Chicago at 10:25 a.m. on July 21, 70 years to the day from the date commuters service was started on this line.

The pioneer electric train consisted of four cars, two motor cars and two trailers, and was filled with regular passengers and a large delegation of railroad officials and newspaper men.

For the time being only three electric trains a day will be operated in each direction between Randolph Street and Sixty-seventh Street. This schedule will gradually be extended, however, until it embraces all the regular suburban routes. Before Sept. 1 it is probable that the last steam locomotive will have been withdrawn from commuters' service, according to J. J. Pelley, vice-president in charge of operations. The old steam schedules will be adhered to until that time.

All of the 260 new cars have been delivered and tested.

On Aug. 7, the date complete electric operation will be started on the South Chicago branch, 116 south side civic and business organizations will join in a mammoth celebration. A tableau depicting the progress of transportation will be held in Grant Park stadium. Covered wagons, high bicycles, hansom cabs, surreys, stanhopes and even the Indian "travois" will be included in the display.

Both Factions Submit Chicago Wage Dispute to Arbitration

Elevated trainmen, taking the initiative in opening negotiations for the higher wages which have been asked by both surface lines and elevated employees in Chicago, agreed at a conference with Rapid Transit officials on July 23 to draw up an arbitration policy, but indicated that they are willing to arbitrate only the request for a wage increase of 5 cents an hour and insurance provisions. The company contended that its counter-proposal of a reduction of 5 cents an hour in wages and changes in working rules should receive equal consideration in the hearings.

At the close, on July 22, of the second conference within the last two weeks between operatives and executives of the Chicago Surface Lines, it was announced that no conclusion had been reached. Demands similar to those made by the elevated men have been presented by the Surface Lines' employees. The company has answered with a proposal for a reduction of 5 cents an hour. The date for a third meeting has not yet been fixed.

Two Cincinnati Arbitrators Chosen

Appointment of arbitrators to fix the wages of employees of the Cincinnati Street Railway, Cincinnati, Ohio, for the next two years has been announced. Attorney James H. Vahey, Boston, is the choice of the employees, through their organization, the Amalgamated Association. The arbitrator to represent the company is Walter A. Knight, Cincinnati attorney. These two will select a third arbitrator. The employees are still working under the terms of the two-year agreement which expired on June 30. The maximum wages under that agreement were 53 cents an hour for conductors and motormen of two-men cars, 60 cents for one-man car operators and 57 cents for bus drivers. The men asked for an increase of 12 cents an hour and the railway offered an increase of 1 cent an hour every six months for two years. No agreement was reached and the matter went to arbitration.

Fort Dodge Equipment Dismantled

Local railway service in Fort Dodge, Iowa, is a thing of the past. C. G. Crooks, president of the Fort Dodge, Des Moines & Southern, announced that dismantling of the city's idle railway equipment would be started at once.

As previously stated in the *ELECTRIC RAILWAY JOURNAL*, the street car service was discontinued Nov. 14, 1925, due to failure to meet operating expenses. Tracks and overhead were left intact, however, and since then have been standing idle. Buses will take the place of the cars.

The local railway has been in operation under the direction of the Fort Dodge, Des Moines & Southern road for the past twenty years. For ten years prior to that it was operated by local residents.

The system was started in 1896 by local capital and flourished for many years despite the fact that there was only one car in operation, running over a stretch of twelve blocks.

Baltimore Considers Rerouting Cars

The Maryland Public Service Commission has set Aug. 3 as the date for holding the first of a series of public hearings to consider the rerouting of street cars of the United Railways & Electric Company, Baltimore. The changes in routes were recommended by the Baltimore Traffic Survey Commission. The survey body divided the lines which it recommended changed into six groups, the first of which will be considered at the opening hearing. The lines involved in this group are Gilmore Street-Guilford Avenue, Linden Avenue, York and Frederick Roads, Towson and Catonsville, Wilkins Avenue, Back and Middle Rivers, Sparrows Point and Bay Shore and Federal Street-Washington Boulevard. Individuals and organizations interested in the proposed changes will be permitted to express their views at the hearings, which will be announced by notices in all the cars.

Fare Hearings in New York State Postponed

To allow the city authorities further time for checking up the New York State Railways' statements, Public Service Commissioner Lunn on July 23 adjourned from July 27 to Aug. 3 at Albany the pending hearing on the petition of the railway for increased fares in the city of Rome.

The hearing on the application for an increase of fares of the United Traction Company, Albany, in the Capitol district cities has been adjourned from July 27 to Aug. 10.

News Notes

Fare Hearing Deferred.—The hearing on the application of the Fresno Traction Company, Fresno, Cal., for an increase in its fares was postponed by the California Railroad Commission from June 1 to Sept. 28. The company previously had alleged that it had an operating loss of \$4,056 during 1925 as the result of its first year's operation under its resettlement franchise.

Rate Increase Suspended.—The 15 per cent increase in passenger commutation rates proposed in a petition filed with the Illinois Commerce Commission on June 15 by the Chicago, Aurora & Elgin Railroad, Aurora, Ill., and referred to in ELECTRIC RAILWAY JOURNAL for June 26, has been suspended until Nov. 12. In the meantime arguments will be heard by the commission for the new tariff, which, if allowed, would approximate that now in force on several steam lines that serve the same suburban territory.

Fare Suit Up on Appeal.—The suit of Daniel J. Furey to compel the Philadelphia Rapid Transit Company, Philadelphia, Pa., to pay the city \$57,900,000, alleged to have been collected in excess fares since the abandonment of the 5-cent fare some years ago has reached the Supreme Court. The petitioner claims the company has an obligation to charge only a 5-cent fare under its contract with the city entered into in 1907. The suit is a taxpayer's action. The case was dismissed by the United States District Court recently.

Conference on New Franchise in Wheeling.—After approving the report of the franchise committee the City Council of Wheeling, W. Va., recently authorized the members of the committee to confer with officials of the Wheeling Traction Company in an effort to have one general franchise drawn up. The franchise will relieve the company of all street paving obligations other than the maintenance of the base.

Parking Prohibited on Main Thoroughfare.—The St. Louis Board of Aldermen passed a bill on June 25 forbidding all parking of automobiles and other vehicles on Grand Boulevard, the chief north and south thoroughfare between Laclede Avenue and Page Boulevard. The measure now goes to Mayor Miller for his signature. The elimination of parking on this

street will greatly relieve traffic congestion and result in a speeding up of the Grand Boulevard street cars.

Higher Fares Asked in Michigan.—Through the proposal of W. J. Hodgkins, vice-president and general manager, the Lake Superior District Power Company has presented to the City Commission of Ironwood, Mich., a plan whereby the city is to join the company in petitioning the Michigan Public Utilities Commission for higher fares and relief from paving costs. In his communication to the city, Mr. Hodgkins warns that railway service will no longer be furnished in Ironwood if the city should refuse this request. The company recently submitted a proposal to the people of Ironwood to increase its fares from 5 to 8 cents and at the general election on June 24 the proposal failed by nearly 300 votes to receive the necessary two-thirds approval required under the city charter.

City Service Needs One-Man Cars.—The practice which the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., has been following in accepting passengers for transportation between points within Watertown on its interurban cars has been discontinued and one-man car service, operating on a half-hour schedule, has been installed instead to meet the demand for city service. A 5-cent fare is charged. The cars used on the new rapid transit line between Milwaukee and Watertown are so arranged that it is impossible to operate them from either end. Consequently they are unsatisfactory for city service.

Railway Co-operates in Freight Movement.—The Springfield Street Railway, Springfield, Mass., is co-operating with the Freight Container Service Company, a newly formed subsidiary of the D. S. Woodberry Company, in a plan by which the Freight Container service is employed for the moving of freight to and from the trolley terminals, the same service being given at the Boston end, making a door-to-door service. Another departure from the trolley freight system hitherto in vogue is that the system involves the use of flat cars, each equipped with rails for five steel-and-wood containers, built for quick loading and unloading at terminals. Rates are so fixed as to compete with the motor trucks.

South Shore Line Extends New Service.—The completion of the second step in the rehabilitation program of the Chicago, South Shore & South Bend Railroad was accomplished on July 20, when the railroad's new steel motor passenger cars were placed in service between Michigan City and Gary. The next step will be the operation of the new cars from Kensington to South Bend within a week or ten days and the final step, the operation through to Randolph Street, Chicago, will be carried out early in August.

Baltimore Company Buys Private Line.—Negotiations are under way by which the United Railways & Electric Company, Baltimore, Md., will acquire a privately owned electric line which operates to Franklinton, Hillsdale, Windsor Heights and several other small communities. The line is owned by the Lorraine Cemetery Railway and

is slightly more than 1 mile in length. It crosses the boundary of the city, but only a small part of it is outside the city limits. In the past the line has been operated by the United under a lease. Because it was a privately owned line and went out of the city it was necessary to charge an additional fare, making a double fare for the patrons to reach the downtown section of Baltimore. As soon as it is taken over, however, a one-fare system will be put into effect.

Insurance for Five Hundred Men.—The Chicago, Aurora & Elgin Railroad has entered into an agreement with its employees whereby each has an opportunity of taking out life insurance, together with dismemberment indemnity, on the group insurance plan. The contract has been placed with the Sun Life Insurance Company of Canada through its Chicago, Ill., offices. The policy total of \$500,000 covers approximately 500 employees of the railroad.

Half Fare for Boston Children.—The Boston Elevated Railway, Boston, Mass., announces that in July and August, and until Sept. 6, it will carry children under fourteen at half fare, or 5 cents, over all the lines.

Kankakee Line Granted Fare Increase.—A permanent order authorizing the Kankakee Electric Railway, Kankakee, Ill., to increase its cash rates from the 6-cent basis on which it has been operating for many years, to 7 cents was issued recently by the Illinois Commerce Commission. The company is further allowed to sell eight tickets for 50 cents. Shortly after applying to the commission several months ago, the company sought to adopt the new schedule, but an order from the commission suspended the 7-cent fare before it had been long in force. The permanent order was entered later.

Paving Charges May Be Modified.—The Board of Aldermen of Pittsfield, Mass., voted on June 14 to abate paving assessments, amounting to \$43,000, charged to the Berkshire Street Railway in 1919 and 1921.

For the Sightseer.—The 1926 edition of the booklet "Vancouver, as seen by means of the British Columbia Electric Railway Lines" is off the press. It contains full details of sightseeing trips about the city and up the Fraser Valley by railway and motor coach. Copies are mailed gratis on request.

Suggests Street Improvement.—A suggestion that the tracks on Olive Street in St. Louis, Mo., when that thoroughfare is widened from 60 to 100 ft. between Twelfth Boulevard and Channing Avenue be placed in a neutral zone from which other vehicles would be prohibited has been made to Director of Streets and Sewers Brooks by officials of the St. Louis Public Service Company, which will soon take over the United Railways. It was further suggested that if this is done the number of car stops between Grand Boulevard and Twelfth Boulevard be reduced from 21 to eight. It is estimated that this plan will cut the running time, will result in greater safety through segregation of vehicular traffic, a saving to the car rider of the cost of paving between the tracks, reduction in car noises and increase in comfort.

Recent Bus Developments

Railway's Rights Protected in Massachusetts

Certificates for three bus lines have been granted to the Service Bus Company of Revere, Mass., by the Public Utilities Commissioners. The line from Revere Beach to North Revere, passing over part of Park Avenue, has been operated for a time under temporary certificate, and Alphonso Roberto, head of the Service Bus lines, has run free buses on this route while waiting the decision of the commission. The other routes are from Point of Pines to Orient Heights, and from Revere Beach to Glendale Square, Everett. Because of protests by the Eastern Massachusetts Street Railway, all three permits carry definite limitations as to what part of the routes are open for receiving and discharging passengers.

Albany-Schenectady Service Sanctioned Over Railway Protest

The Public Service Commission on July 23 granted to William G. Schultze a certificate for the operation of a bus line between the Plaza in Albany, via Central Avenue, the Wolf, Wolf-Shaker and Consaul roads to Schenectady with a terminal at the Erie Boulevard in that city. Mr. Schultze cannot carry passengers in Albany in competition with the United Traction Company or in Schenectady in competition with the Schenectady Railway. His petition for operation was opposed by the Schenectady Railway and the New York Central Railroad.

Trackless Trolley to Go at Petersburg

The City Council of Petersburg, Va., has requested the Virginia Electric & Power Company to extend its Halifax Street car line to Butterworth's bridge. If the company complies, the entire length of Halifax Street will be covered by the car line.

The removal of the trackless trolley on Sycamore Street, Petersburg, extending to Wilcox Lake, is also proposed. The use of buses is suggested from Walnut Hill through Colonial Heights. This would give better service than is had at present, especially to those living in Colonial Heights.

Removal of the only "trollibus" system operating in Virginia would mean the end of an interesting experiment. About five years ago the trollibus was demonstrated for a week in Richmond. During that period several thousand persons rode free in the vehicle, which operated from Robinson Street west for a distance of several blocks. The Virginia Railway & Power Company, now the Virginia Electric & Power Company, applied for the establishment of several trollibus routes, but the proposal was not looked upon with favor by the city. Petersburg, near by, was,

however, in need of additional transit facilities and a system of trackless trolleys was installed there by a company separately organized but understood to be under the auspices of the Virginia Electric & Power Company.

More Talk of Independent Motor Bus Service in Des Moines

Officers of the Capital City Motor Coach Company, Des Moines, Ia., have announced positively that they will apply to the City Council for permission to operate a bus system in Des Moines. They have indicated that their proposal would be put up to the Council by Aug. 1.

As a forerunner of the announcement they brought a large Fageol bus to Des Moines and hauled councilmen over the routes which they propose to establish. They also promised 10-cent fares and a special weekly ticket good for an unlimited number of rides. The service the officers of the company say it is proposed to install would compete with the railway lines of the Des Moines City Railway.

Observations on One Year's Bus Operation in Kansas City

The first anniversary of the starting of bus service by the Kansas City Railways in Kansas City, Mo., was celebrated on July 20. The Leeds route was the first to be placed in operation. All of the other routes were started on schedule within the next three months in the following order: Blue Valley Route, Aug. 19; South Troost Route, Aug. 19; Northeast Route, Aug. 19; 39th Street Route, Sept. 21; Warwick Route, Oct. 19; Armour-Paseo Route, Oct. 20; Linwood-Benton Route, Nov. 4; Country Club Express, Nov. 4. The Argentine bus line in Kansas City, Kan., was placed in service a year ago last January.

Since the first bus started on its schedule a year ago the combined bus routes in Kansas City show a deficit of \$206,474, inclusive of the interest of the investment. The total earnings of all routes to July 20 was \$462,465.

Despite the difficulties of bus operation in Kansas City the company is believed to be operating as cheaply as any bus line in other cities. In probably no other city are grades found as severe as those in Kansas City. No line there has a grade less than 5 per cent, while some of the grades are as great as 13 per cent.

From observation and by comparing the railway receipts with the receipts of a similar period last year it would seem that about 60 per cent of the revenue of the buses represents that much loss to the railway lines.

Since May 1, however, the ten bus lines of the Kansas City Railways have shown a big increase in patronage, according to Senator Francis M. Wilson,

one of the receivers. Use of the buses as chartered cars for parties, picnics and drives over the boulevards has increased, too.

Demands for buses by large parties usually come at night after the rush hours. It is a profitable section of the transportation business, and the receivers have exerted much effort toward attaining it.

Conventions, societies, clubs and other organizations have found it convenient to use buses for special trips. And this demand is growing rapidly as more organizations become familiar with the custom. The receivers frequently are called on to furnish buses to meet trains at the Union Station to give brief visitors a view of Kansas City by groups.

The charge is \$7.50 an hour for single-deck buses, with special arrangements where intervals of waiting are desired.

Excursions by Bus Prove Popular

Last month the traffic department of the Interstate Public Service Company, Indianapolis, Ind., put into operation a number of personally conducted buses carrying summer excursionists to various points of scenic interest in Indiana. As indicated previously in the *ELECTRIC RAILWAY JOURNAL* the first trip was made from Indianapolis to Brown County, which is famed throughout the country for its rugged scenery and primitive background. The Interstate is using for these excursions some of its new de luxe buses. On June 20 the second excursion was run from Indianapolis to the Shades of Death, a beautiful spot in eastern Indiana. Similar excursions were scheduled for July 11 from Indianapolis to the noted Turkey Run, State Park in Parke County, and on July 25 to McCormick's Creek Canyon, another park which the state is beautifying. On Aug. 8 the Interstate will run one of the bus excursions to Clifty Falls, near Madison.

Rights of Blue Goose Line Expanded

The Blue Goose Motor Coach Line, subsidiary of the East St. Louis & Suburban Railway, and operation between St. Louis, Mo., and Belleville, Ill., has been authorized by the Illinois Commerce Commission to do an intrastate as well as interstate business between its terminals. The new arrangement went into effect on Sunday, July 18.

Heretofore the buses were not permitted to make any stops to pick up passengers along the route. Originally the line was run in opposition to the East St. Louis & Suburban Railway, which opposed all efforts to obtain a certificate of convenience and necessity from the state commission and required the bus company to confine its operations to a strictly interstate business.

The new route of the buses is from St. Louis via the Eads Bridge to Broadway, East St. Louis, east to Main Street, north to Missouri Avenue, east to Eighteenth Street, north to Illinois Avenue, east to 26th Street, north to State Street and thence east on State Street to Belleville. The Belleville terminal is on Court House Square.

Co-ordinated Service for Menominee

An attempt will be made by the Menominee & Marinette Light & Traction Company to sell the people of Marinette and Menominee, Mich., on the numerous advantages of co-ordinated railway and bus service, in line with its policy to bring its transportation system up to the highest degree of efficiency. To do this, a 21-passenger bus has been purchased for use on an experimental basis on various lines in Marinette and Menominee. The company expects in this way to learn under actual conditions the value of using buses with street cars in the Twin Cities. Bus fares will be the same as on the street cars with transfer privileges to both lines. On the sentiment of patrons will depend future action by the company with respect to its efforts to improve its service.

Additional Buses in Omaha.—The Omaha & Council Bluffs Street Railway, Omaha, Neb., has added three buses to its present fleet. Each seats 21 passengers, a capacity which Manager Leussler finds to be most flexible and economical. So far the company has been using buses as feeders to reach out for new business in sections of the city now being developed.

Another Bus Line for Tampa.—The Tampa Electric Company, Tampa, Fla., recently received permission from the City Commission to operate a bus line from down-town Tampa to the new Uceta shops. Buses will run every twenty minutes during the heavy traffic hours and every half hour during the rest of the day.

Milwaukee to Have Bus Stop Signs.—In compliance with an ordinance recently passed by the Common Council affecting city operation of buses, the Milwaukee Electric Railway & Light Company, Milwaukee, Wis., has agreed to install about 546 "Bus Stop" signs at all corners where the company buses halt to receive or discharge passengers. These metal signs will be mounted on 8-ft. steel posts. The lettering is in chrome yellow on a coach green background.

Unconvinced About Substitution.—A survey recently made at Staunton, Va., of conditions affecting bus service there has left the Shenandoah Traction Company unconvinced of the desirability of replacing or supplementing its trolley system with buses. The City Council, on the other hand, has expressed approval of the establishment of a bus system at Staunton. It has been determined to offer the railway the first chance at the franchise for bus service, in order to protect it from competition.

Extension of Kansas City Line.—With the paving on Troost Avenue from 63d Street to the city limits at 79th Street practically completed, the Kansas City Railways, Kansas City, Mo., will extend its Troost Avenue bus service to the southern city limits about Aug. 1. The line is now operating from 63d Street, where the paving now ends, to 55th Street, connecting with the South Troost car line at that point.

Financial and Corporate

Financial Status Sound

Toronto Transportation Commission Reports Decrease in Passenger Revenue Not Serious

The gross income of the Toronto Transportation Commission, Toronto, Canada, which operates the local railway and bus lines there, for the year ended Dec. 31, 1925, was \$11,626,659, or a decrease of \$83,037 compared with 1924. This fact was disclosed in the annual statement of the commission. The surplus as of Dec. 31, 1925, after making certain adjustments and adding the surplus for the year 1925, was \$310,314.

The revenue account shows that the decrease in passenger traffic which was experienced in 1924 continued during most of 1925. The decrease in the number of revenue passengers carried in 1925, compared with the number in 1924, was 4,423,773, the number in 1925 being 180,779,925. This decrease is attributed mainly to the continuance of quiet business conditions and, secondarily, to the increasing use of private automobiles. The report states, however, that there is some encouragement to be derived from the fact that the monthly losses were much less severe in the summer of 1925 and were practically eliminated in the latter months of the year.

The expenses of operation of the commission for the year 1925, including the cost of electric current, maintenance, repairs, administration and taxes, but exclusive of the expenses of operation of the motor coach services, amounted to \$7,292,298. This total compares with \$7,788,564 in 1924, or a reduction in operating expenses of nearly \$500,000.

The necessity for operating economies, according to the statement, is obvious from a glance at the revenue table. Compared with 1924, not only was there a decrease of \$264,796 in the passenger earnings in 1925, but there was an increase of \$348,318 in the debt charges, that is the interest and sinking fund payments on the outstanding debentures. These large annual increases in debt charges, which have been due to sinking fund payments becoming effective gradually, will not continue beyond 1926.

The net income of the commission available for fixed charges and surplus was \$4,239,087, after deducting operating expenses. The report says that the "amounts appropriated from this sum for operating reserves are all reasonable and are the minimum that should be set aside to protect the investment." It was necessary to increase the appropriation for the reserve for replacements because of additions to the property and particularly because of the additional capital invested in motor coaches.

The amount appropriated for the reserve for workmen's compensation and public liability has been reduced from \$240,000 in 1924 to \$126,968 in 1925. The record of accidents on the system has been such as to justify this reduction. From Sept. 1, 1921, when the commission assumed control of the system, to the date of the report, the street cars, buses and coaches of the commission have traveled 126,500,000 miles and carried 1,320,000,000 passengers, and not one passenger has been fatally injured.

The commission was successful in still further increasing its earnings from other sources, the income amounting to nearly \$50,000 more than for the year 1924. A new source of earnings was also developed during the year with the start of special motor coach transportation. This service includes sightseeing trips, the rental or chartering of motor coaches to private parties, coach transportation to the racetracks and to the Canadian National Exhibition, transportation of school children and a regular scheduled service to the "Hill" district, all of which is conducted as a separate enterprise and distinct from the street railway and bus system. The expenses of operation of motor coaches totaled \$95,271 and this sum included all organization and development expenses in connection with starting this branch of the transportation service.

The total earnings from motor coaches were sufficient to pay all oper-

COMPARATIVE STATEMENT OF EARNINGS OF TORONTO TRANSPORTATION COMMISSION

	1925	1924
Income:		
Passenger earnings:		
Railway and bus transportation.....	\$11,157,893	\$11,422,689
Motor coach transportation.....	132,008
Income from aundry other sources.....	336,757	287,005
Gross income.....	\$11,626,658	\$11,709,695
Expenditure:		
Cost of electric current, including operation and maintenance of substations.....	\$1,108,942	\$1,108,889
Expenses of operation, maintenance, repairs, administration and taxes, including accrued charges	6,183,356	6,679,674
Expenses of operation:		
Motor coaches.....	95,271
Total expenditure....	\$7,387,570	\$7,788,563
Net income available for fixed charges....	\$4,239,087	\$3,921,131
Fixed charges:		
Interest, less interest on idle funds.....	\$2,207,819	\$2,242,237
Reserves on capital account:		
Redemption of debenture debt.....	873,883	491,148
Reserve for replacements.....	909,352	794,550
Reserves on operating account:		
Reserve for unredeemed tickets.....	18,000
Reserve for workmen's compensation and public liability.....	126,968	240,000
Reserve for contingencies.....	50,000	30,000
Reserve for doubtful debts.....	13,000	16,008
Organization expenses.....
Total fixed charges and reserves.....	\$4,181,024	\$3,831,944
Net income carried to surplus	\$58,063	\$89,187

ating expenses and fully to meet all fixed charges on the capital invested in motor coaches, the garage and other equipment used in this service and return a small surplus. From May, when operation started, to December the earnings were \$132,008.

General Manager Harvey, in his report, makes the distinction between the motor bus and motor coach services operated by the commission. Motor buses are operated as a part of the universal fare transportation system, with free transfers issued between the street cars and the buses, the latter being painted the same color as the street cars. The motor coaches are better-equipped vehicles and are painted a distinctive gray. They are operated in special transportation services for which special rates are charged. He states that the chartered coach business has been entirely satisfactory. The volume of business secured greatly exceeded that expected. The financial results of the motor coach services as a whole were satisfactory, "notwithstanding the Hill coach route experiment."

Track extensions built in 1925 were 7.931 miles and track removed 2.901 miles, so that net addition to trackage in 1925 was 5.030 miles. Several important constructions were included in this mileage. The only important addition to the buildings of the commission was the construction of a garage on the Davenport Road frontage of the Hillcrest property. No passenger street cars or electric service cars were secured in 1925. During the past year 21 coaches were added to the service.

In conclusion, Mr. Harvey states that an examination of the balance sheet

and other financial statements indicate clearly that the financial condition of the commission is fundamentally sound. The year's decrease in passenger revenue, though disappointing, is not of serious consequence. Traffic has been increasing for the past few months and there are indications of improvement in general business conditions.

He refers to the sound field of usefulness for the bus in interurban transportation, where its use has increased rapidly in the Toronto district. In his opinion the situation in respect to traffic congestion has not altered during the past year except that such congestion has increased, to the further inconvenience and expense of the vast majority of the users of the roadway allowance. The congestion is particularly acute in the downtown district. The commission intends to try to secure the co-operation of large employers and owners of amusement places toward improving the service by adopting "staggered hours."

Community Traction Loss \$20,000 in June

A deficit of \$20,199, resulted from operation of the Community Traction Company, Toledo, Ohio, during June. Although there was a decrease in passenger business as compared with the previous month a slight gain was shown over the same month last year. Revenue passengers for June totaled 3,912,600, or an average of 130,420 a day. Passenger revenue was \$274,569, or an increase of \$4,279 over the same month in 1925. Loss of revenue from interurban track rentals and additional car

mileage resulted in slightly higher operating ratio and a lower net result. The operating ratio in June, 1926, was 74.54 per cent, compared with 71.66 per cent for the similar month last year.

Well-Known Engineer Made Receiver of Minnesota Interurban

In connection with a suit to foreclose the bonds of the Minneapolis, Anoka & Cuyuna Range Railway in the District Court of the United States, Judge John B. Sandborn has issued an order appointing Edward P. Burch, Minneapolis, receiver for the road, to take effect immediately. The railway runs between Minneapolis and Anoka, 18 miles. It is engaged very largely in freight service. There are also eight passenger trains a day between the two cities.

The road and equipment have a book value of \$672,000, against which there are \$380,000 of mortgage bonds. The capital stock is owned very largely by the Bratnober family of Minneapolis and St. Paul.

Revenues have decreased from about \$156,000 in 1920 to about \$94,000 in 1925, due largely to a decrease in the passenger transportation. The carload freight business, hauled by 50-ton electric locomotives, has increased.

The receiver will not make important changes in operation, but he has under consideration the lease of flat cars to increase the freight service and the overhauling of cars to attract passenger traffic.

Mr. Burch has maintained an engineering office in Minneapolis for 25 years, and during the last five years has been valuation engineer and a director of the Minneapolis, Northfield & Southern Railway. He was electrical engineer for the Twin City Rapid Transit Company's system during its initial construction period.

Conspectus of Indexes for July, 1926

Compiled for Publication in This Paper by
ALBERT S. RICHEY
Electric Railway Engineer, Worcester, Mass.

	Latest	Month Ago	Year Ago	Since War	
				High	Low
Street Railway Fares*	July 1926 1913 = 4.84 7.36	June 1926 7.37	July 1925 7.27	June 1926 7.37	May 1923 6.88
Electric Railway Materials*	July 1926 1913 = 100 154.1	June 1926 154.4	July 1925 152.6	Sept. 1920 247.5	Oct. 1924 148.5
Electric Railway Wages*	July 1926 1913 = 100 225.7	June 1926 225.5	July 1925 222.5	Sept. 1920 232.0	March 1923 206.8
Am. Elec. Ry. Aasn. Construction Cost (Elec. Ry.) 1913 = 100	July 1926 203.2	June 1926 201.9	July 1925 200.1	July 1920 236.4	May 1922 167.4
Eng. News-Record Construction Cost (General) 1913 = 100	July 1926 207.8	June 1926 204.8	July 1925 204.6	June 1920 273.8	Mar. 1922 162.0
U. S. Bur. Lab. Stat. Wholesale Commodities 1913 = 100	June 1926 152.3	May 1926 151.7	June 1925 157.4	May 1920 246.7	Jan. 1922 138.3
Bradstreet Wholesale Commodities 1913 = 9.21	July 1926 12.74	June 1926 12.80	July 1925 13.85	Feb. 1920 20.87	June 1921 10.62
U. S. Bur. Lab. Stat. Retail Food 1913 = 100	July 1926 159.7	June 1926 161.1	July 1925 155.0	July 1920 219.2	Mar. 1922 138.7
Nat. Ind. Conf. Bd. Cost of Living 1914 = 100	June 1926 167.0	May 1926 167.8	June 1925 166.9	July 1920 204.5	Aug. 1922 154.5
Steel Unfilled Orders (Million Tons) 1913 = 5.91	June 30 1926 3.479	May 31 1926 3.649	June 30 1925 3.719	July 31 1920 11.118	July 31 1924 3.187
Bank Clearings Outside N. Y. City (Billions)	June 1926 18.93	May 1926 18.17	June 1925 18.36	June 1925 20.47	Oct. 1922 10.65
Business Failures Number Liabilities (Millions)	June 1926 1574	May 1926 1610	June 1925 1377	Jan. 1924 2231	Aug. 1925 1353

*The three in 'ex numbers marked with an asterisk are computed by Mr. Richey, as follows: Fares index is average street railway fare in all United States cities with a population of 50,000 or over except New York City, and weighted according to population. Street Railway Materials index is relative average price of materials (including fuel) used in street railway operation and maintenance, weighted according to average use of such materials. Wages index is relative average maximum hourly wage of motormen, conductors and operators on 137 of the largest street and interurban railways operated in the United States, weighted according to the number of such men employed on these roads. Previously the wage index applied to 144 railways. The change is due to dropping some roads where the number of trainmen has been reduced to a total of less than 100.

Income of Brooklyn City Road Holds Up Well

The Brooklyn City Railroad, Brooklyn, N. Y., reports a net income for the twelve months ended June 30 of \$1,422,736, compared with \$1,432,308 for the same period last year. The preliminary income statement follows:

	Twelve Months Ended	
	June 30, 1926	June 30, 1925
Passenger revenue	\$11,399,374	\$11,363,281
Other revenue	371,399	402,339
Operating expenses and taxes	9,731,812	9,826,870
Income deductions	616,225	506,442
Net corporate income	1,422,736	1,432,308

Disposal of \$120,000 in Interest Puzzles San Francisco Municipal

More than \$120,000 in interest has been earned by the San Francisco Municipal Railway, San Francisco, Cal., from funds deposited in banks during the past ten years, and the money has been credited to the municipality's general fund instead of the railroad operating revenue fund. This fact is stated in a report made to the Board of Public Works by Fred Boeken, superintendent of the city lines. Mr. Boeken contended

that the money earned by the city road should be deposited to the credit of the utility and will do much to reduce the so-called "book deficit." President Timothy A. Reardon of the Board of Works stated that the Board of Supervisors will be asked to enact legislation providing for the change in financing.

Details of California Financing Announced

During the twelve months ended June 30, 1926, the California Railroad Commission passed upon applications filed by public utilities and common carriers operating in California involving the issue of \$271,024,507 of stock, bonds, notes and equipment trust certificates, as compared with \$197,412,807 for the preceding twelve-month period ended June 30, 1925, the increase amounting to \$73,611,699.

The securities passed upon during the two periods were disposed of as follows:

	Year Ended June 30, 1925	Year Ended June 30, 1926
Granted.....	\$175,795,119	\$262,463,149
Denied.....	19,900,400	274,960
Dismissed.....	1,717,288	8,286,398
Total.....	\$197,412,807	\$271,024,507

The securities were authorized to be issued by the various classes of utilities and carriers as follows:

Class	Year Ended June 30, 1925	Year Ended June 30, 1926
Steam railroads.....	\$4,023,150	\$658,000
Electric railways.....	3,515,496	4,362,461
Gas and elec. companies..	116,684,856	241,314,100
Water companies.....	7,339,346	5,046,782
Telephone and telegraph companies.....	41,982,306	1,947,913
Warehousing.....	668,700	1,259,320
Carriers by water.....	193,000	2,891,000
Automotive carriers.....	1,388,264	4,983,572
Totals.....	\$175,795,119	\$262,463,149

Providence Merger Plans Maturing

The tentative plan for a merger of the Narragansett Electric Lighting Company and the United Electric Railways, Providence, R. I., under the charter of the United Electric Power Company as provided for at the last session of the General Assembly involves the formation of a new Rhode Island corporation and the purchase of the assets of Narragansett Electric by the United Electric Power Company. The new corporation would act as a holding company for the United Electric Railways and United Electric Power. The United Electric Power Company may purchase the properties of the Narragansett Electric.

Receiver Named for Michigan Interurban

The Grand Rapids Trust Company, Grand Rapids, Mich., was appointed receiver of the Grand Rapids, Grand Haven & Muskegon Railway on July 29 by Federal Judge Clarence W. Sessions. This action is the result of a petition of the Guaranty Trust Company, New York, trustee, alleging that the interurban has failed to pay the principal of \$1,500,000 on a bond issued due on

July 1, 1926, and \$75,000 bond interest due on Jan. 1, 1926.

The Grand Rapids, Grand Haven & Muskegon Railway was constructed by Westinghouse, Church, Kerr & Company, New York. It was placed in service in 1902. The United Light & Railways Company acquired the property in 1912 and in 1925 it passed into control of the present owners, among them some of the officers of the company. According to a bill in the federal court the deficit in 1924 was \$20,000, in 1925 \$80,000 and for the first six months of this year \$30,000.

Road at Hornell Sold Under Foreclosure

After 30 years of operation the Hornell Traction Company, Hornell, N. Y., has suspended service on its city and Hornell-Canisteo lines. On July 15 the railway was sold in a mortgage foreclosure action to Raymond E. Page, receiver, who held the mortgage and is the promoter of the bus lines. He bid \$14,600 and thereby became sole owner. The mortgage was for \$150,000.

The rails will be torn up and junked and the rolling stock sold.

Buses started operation immediately, both in the city and on the Hornell-Canisteo line. Practically the same schedule as maintained by the street cars was put in operation. Fifteen-minute service will be given in the city and half-hour service to Canisteo, a nearby suburb. The city buses are of 29-passenger capacity and the interurbans carry 35 fares.

Declaration of Abandonment at Chautauqua Approved

How is Chautauqua going to solve its transit problem this summer with an influx of 40,000 or 50,000 institute students swelling the usual population of about 1,000 people? The solution probably lies in the hope that with the inheritance of the Chautauqua Traction Company's transportation routes, the West Ridge Transportation Company and the Jamestown Street Railway will, with the aid of the Board of Education and the institute officials, be able to find a way out of the difficulty and avert serious congestion. Buses of the West Ridge company have been carrying the 144 school children living in this area, since the school board signed a contract with the company on March 15.

For 23 years the Chautauqua Traction Company has been meeting the situation and serving the increased carriage of passengers of the summer months in an adequate way. But on March 22, as mentioned in ELECTRIC RAILWAY JOURNAL for April 3, a petition for the declaration of abandonment of service for 22 miles of trackage between the towns of Mayville and Ashville was approved by the Public Service Commission. Reasons for the dissolution as approved by the commission are presented in the accompanying table and a brief résumé of the traction company's unfortunate financial history. The losses incurred are shown by comparison of the statements for years from 1919 to 1925. This statement does not take into consideration interest on

fixed charges or return on the capital invested.

Year	Operating Revenues	Operating Expenses	Taxes	Loss
1919.....	\$154,647	\$158,906	\$10,716	\$14,974
1920.....	182,132	197,742	11,330	26,939
1921.....	212,120	214,669	13,891	16,440
1922.....	180,361	187,701	15,113	22,454
1923.....	151,681	198,224	16,648	63,190
1924.....	150,802	181,761	17,701	48,660
1925.....	115,076	147,064	17,395	49,383

"From the time of its incorporation in 1904 to 1918 the Chautauqua Traction Company earned its operating expenses. Since 1909, however, it failed to earn its operating expenses, taxes and fixed charges. Except in the summer months, the traffic has not been sufficient to warrant continued operation. With the improved highways and the increased use of automobiles, discontinuance of the line seemed inevitable," was the opinion of the commission. The rather free use of passes was also taken into consideration.

However great the need, a company cannot operate without sufficient funds. The case having been weighed carefully, with particular consideration given to the facts stated, the Public Service Commission has approved the declaration of abandonment.

Market Street Reports \$448,464 Net Earnings for Six Months

The Market Street Railway, San Francisco, Cal., reports net earnings of \$448,464 for the six months ended June 30, 1926. The statement follows:

Operating revenues.....	\$4,882,501
Operating expenses.....	3,688,114
Net revenue.....	1,194,387
Taxes.....	305,000
Operating income.....	889,387
Non-operating income.....	28,440
Gross income.....	917,827
Deductions.....	469,362
*Net income.....	\$448,464
*Prior to deducting federal income tax.	

Applies to Abandon Amsterdam Line.—A further hearing was held on July 13 before the Public Service Commission in Albany on the application of the Fonda, Johnstown & Gloversville Railroad, Gloversville, N. Y., to abandon a portion of its railway in Amsterdam. At the hearing the petitioner presented proof showing the amount of traffic over the section of the line proposed to be abandoned and the revenues from the line for a period of years. The abandonment was opposed by the corporation counsel of Amsterdam. Decision by the commission was reserved.

Profit for Oklahoma Railway in June.—Receivers of the Oklahoma Railway, Oklahoma City, Okla., announce that receipts for June wiped out the deficit faced by that company for more than a year. As the summer months usually prove the dulllest period of the year the receivers are much encouraged and June figures are believed to justify the hope that the coming fall and winter receipts will show the company permanently out of the "red." The increased business is believed to result from decreased use of private automobiles by citizens.

Personal Items

S. H. Serena Now with Staten Island Lines

Samuel H. Serena has been appointed general superintendent of the Richmond Light & Railroad Company, also the New Jersey & Staten Island Ferry Company at Staten Island, New York. This property is controlled by the J. G. White Management Corporation, New York.

Mr. Serena entered electric railway work in May, 1899, as a trainman with the New York & Queens County Railway, Long Island City, advancing to inspector, dispatcher and chief dispatcher. In December, 1907, the year the Public Service Commission was created in New York State, he became connected with the commission in the transit bureau.

There Mr. Serena remained until Aug. 1, 1909, when he was appointed superintendent of transportation of the New York & Queens County Railway. This system, one of the large ones in Greater New York, serves most of the Borough of Queens and operates 300 cars daily. While he was superintendent of the Queens lines Mr. Serena and Charles S. Banghart, now vice-president and general manager of the Staten Island Edison Corporation, the Richmond Light & Railroad Company and the Staten Island and New Jersey Ferry Company, operated the first cars through the Queensboro tunnel and also over the Queensboro Bridge. Mr. Banghart, who at the time was general superintendent of the Queens Lines, acted as motorman and Mr. Serena as conductor when city, borough and railway officials made the first inspection trips.

Mr. Serena became superintendent of railways with the East Penn Electric Company on Jan. 15, 1923, with headquarters at Pottsville, Pa., operating interurban and city lines in the anthracite coal regions. This property was controlled by the J. G. White Company until early last year, when it was sold to the Pennsylvania Power & Light Company.

George Wood has been made an assistant secretary of the New York Transit Commission effective Aug. 1. At the present time Mr. Wood is a reporter and political correspondent on the New York *World*. He has been a newspaper man since 1908. In 1906 Mr. Wood was confidential secretary to William J. Conners, chairman of the Democratic state committee. The following year he became associated with Lieut.-Gov. Lewis Stuyvesant Chanler, as confidential messenger. He went to the New York *Herald* as correspondent in 1908 and served until 1913. Representative Woodson R. Oglesby, Democrat, of the Bronx-Westchester district, named Mr. Wood as his secretary in 1913, and he served in this capacity until 1915, when he went with the

Evening Sun. Mr. Wood was with the American Expeditionary Forces during the period of the World War. At the conclusion of his service in the army he became Albany correspondent of the *Globe*. Later he joined the staff of the *World*.

New Aurora Manager

J. W. Gunderson, Recently Appointed Operating Head of Illinois Road, Rose from Ranks

From conductor to general manager in 25 years is the record friends of John W. Gunderson point to in congratulating the Elgin division superintendent of the Aurora, Elgin & Fox River Electric Company, Aurora, Ill., upon his appointment as general manager of the traction system.

Mr. Gunderson's appointment, made



J. W. Gunderson

by B. E. Walsh, operating vice-president of the organization managing the traction, gas and electric light and power interests of Col. Ira C. Copley of Aurora, was announced by John F. Egolf, Aurora, general manager of the company, who resigned recently to accept a position as assistant to the vice-president of the Chicago Rapid Transit Company. Mr. Gunderson will retain his residence in Elgin, but his offices will be in Aurora.

In October, 1901, Mr. Gunderson entered railway work during the construction of the Elgin third-rail line. Subsequently he worked as a conductor on the third-rail, then dispatcher and, lastly, Wells Street yardmaster. On April 1, 1906, he went to Elgin as division superintendent of the local traction system and for the past twenty years, until his elevation to the general managership, he has held that position. During his work in Elgin the Park Street line and the Wing Park link were constructed and the headways on the various street lines were cut.

Sixteen of the intimate friends of Mr. Gunderson and Mr. Egolf feted the two officials recently with a chicken dinner

and informal program at the Addison Inn. Impromptu remarks complimentary to both guests were delivered by all present, with Edward N. Herbster acting as master of ceremonies.

In his new position Mr. Gunderson will be over more than 400 employees of the Fox River Valley Traction system, besides having general charge of the various departments of the company, including the auditing, shops, maintenance, operation, and service. The traction system includes 67 miles of street and interurban railway lines in Elgin, Aurora, and between the two points, also the Elgin-Carpentersville line and the Aurora-Yorkville line.

Mason B. Starring has resigned the presidency of Market Street Railway, San Francisco, Cal. No successor has been appointed. Halford Erickson and William Abbott have been elected to the board and have been named vice-presidents, in addition to Mr. Erickson becoming general counsel and Mr. Abbott secretary.

Obituary

H. C. Moser

Herbert C. Moser, general manager of the Chicago Motor Coach Company and formerly superintendent of transportation of the Fifth Avenue Coach Company, New York, died at Johns Hopkins Hospital, Baltimore, on July 23. Mr. Moser had not been in the best of health for some time and went to Baltimore to have a complete diagnosis and survey made. The direct cause of death is understood to have been heart trouble.

The passing of Mr. Moser removes a man who has been identified with both rail and bus operations throughout his entire career. He entered the employ of the old Metropolitan Street Railway system of New York City in the late '90s as a register boy on the Fourteenth Street crosstown line. He later became chief clerk in the office of Mr. Delaney, general superintendent of transportation. He was in the electric railway field for about fifteen years before joining the Fifth Avenue Coach Company in 1912 as superintendent of transportation. He continued with that company until March, 1923, when he left to take charge of the transportation department of the then recently organized Chicago Motor Coach Company. His elevation to the rank of general manager of the latter company followed soon afterward.

Entering the field of bus operation at its virtual inception as he did, Mr. Moser became a widely recognized authority on this form of transportation. He is credited with having prepared the first bus operating time-table in this country.

Thomas F. Keefe, division manager for the Wisconsin Light & Power Company at Beloit, died suddenly on July 5 after an attack of heart disease. Mr. Keefe was 50 years of age. He had been manager of the Beloit plant for a year.

"Don't Wait for Passengers," Says John G. Barry— "Go After Them"

Vice-President of General Electric Company Presents a Convincing Analysis of the Electric Railway Outlook and Suggests Practical Ways to Improve the Business

AN INTERVIEW

By Charles Gordon

ONLY a few steps are necessary to put street car operation on a profitable basis and to improve its position as a transportation tool. Better looking cars of light weight and equipped with modern apparatus can at one time be made the means of attracting increased patronage and reducing operating and maintenance costs. If in addition these cars are manned by men who have been adequately trained in the idea of selling their service to their patrons, as have the men on Mr. Budd's line between Chicago and Milwaukee, there is little need for concern about the future of electric railway transportation.

"In the smaller cities automobile competition can be met by an increased number of small, attractive, light-weight cars operated by one man, in place of old and heavy equipment, which in addition to its high operating and maintenance cost is awkward looking and unattractive to passengers."

This, briefly, was the view of the electric railway situation expressed to me by J. G. Barry, vice-president in charge of sales of the General Electric Company. I talked with him in his office in Schenectady, and although he carries the responsibility for directing the sales activity of this huge organization, he was unhurried and willing to discuss at length the condition of the industry through which he has risen literally from the ranks to his present position of responsibility. Although I knew that even as I questioned him many matters of importance were awaiting his attention, I found him willing to discuss the transportation situation at length and apparently glad to listen to my views as well as to express his own.

ONE WHO GETS THINGS DONE

Right there seems to lie one of the secrets of Barry's success. He is one of those rare individuals who never seem to be hurried. He always seems to have time to dig to the bottom of a subject—and incidentally he doesn't lose any time or mince any words in getting there. Along with that rare quality goes another. Throughout the enormous organization of which he is a part he has a reputation for getting things done! That apparent ability to pick up any job turned over to him and see it through to completion accounts in a large measure for his steady rise from a modest job in the production department of the Lynn works in 1890 to his present position of vice-president in charge of sales.



J. G. Barry

Mr. Barry talked on the basis of a long and intimate acquaintance with the electric railway industry. By far the greatest part of his time with the General Electric has been spent in the railway department. Two years after he joined the company, at the age of 20 in 1890, he was transferred to the railway department in the Boston office. From that time until he was made a vice-president in 1922 his primary interest was in the electric railways. By 1897 he had become assistant manager of that department and ten years later, in 1907, he became manager. For another period of ten years he continued his railway activity and then in 1917, in addition to maintaining his direct interest in the railway department, he was made general sales manager of the company. It was not until he became a vice-president in 1922 that he relinquished active supervision of railway development.

Back in his early days with the production department at Lynn Mr. Barry's chief duty was to look after the repair of armatures and other motor parts that were sent in by operating railway companies. In those days the railways were just in the process of changing to electric propulsion and had not become equipped to make their own repairs. For that reason "burned out" armatures were sent back to the manufacturer for such work. This old s.r.g. equipment kept John Barry busy, and besides initiating him into the electric railway business, gave him a contact with the work of maintenance

forces which he has never forgotten.

Although he approached the general subject of our discussion from a manufacturing and merchandising standpoint, he nevertheless quickly reflected that early familiarity and experience with the maintenance man's viewpoint and problems. I asked Mr. Barry about financing replacements of old-fashioned, heavy and obsolete equipment.

"In most cases the equipment trust method offers the means of acquiring new equipment, and the opportunities for savings in operation and maintenance make it possible on many properties to finance new cars by this method on terms that practically enable them to pay for themselves out of the savings effected.

"Right here, however, the railways can do a great deal to reduce the cost of new equipment. There has been a tendency to over-refinement by operating companies in specifying special requirements, sometimes in comparatively minor details of equipment design or dimensions. Of course the manufacturers have tried to meet such demands on the part of their customers. In some cases, even after standards have been adopted by official committees of engineers working through the American Electric Railway Engineering Association, individual companies have frequently insisted on certain changes, sometimes comparatively minor in their nature. The result invariably has been seriously to increase the cost and price, to say nothing of the delays in deliveries that have resulted.

CAUSE OF WASTE NOT REALIZED

"Sometimes the operating man does not quite realize the serious consequences of seemingly minor changes in the design or the dimensions of a motor part to meet his particular ideas of good practice. Detailed engineering instructions must be prepared by the manufacturer to cover the change from his standard design. Drawings must then be changed, and frequently special patterns or dies have to be made. All this must be absorbed in the manufacturing cost, if the manufacturer is to stay in business.

"What about reducing the number of sizes and types of cars and motors that must be manufactured at present," I asked.

"There again you have a condition that increases the cost and therefore the price of cars and parts," replied Mr. Barry promptly. "Consequently, the net result is to make more difficult the problem of providing modern equip-

ment, since the cost is higher than it would be if the number of types or sizes manufactured could be reduced. We believe that the large number of different types, sizes and varieties of cars, trucks and electrical equipment now desired by operating companies could be substantially reduced if careful attention were given to the elimination of special demands in such equipment, so as to permit manufacture on a quantity production basis."

At this point Mr. Barry warmed up to his subject and questions on my part were unnecessary. His thoughts were expressed in that simple, straight from the shoulder manner that is characteristic of the man. I interrupted once or twice to make sure I had grasped his point. But as he continued to express his ideas I was impressed by the directness with which he probed to the heart of the electric railway situation, pointing out how and why we have fallen behind the stream of industrial progress which goes steadily forward.

INDUSTRY MAY PROFIT BY EXAMPLE

Mr. Barry is not a railway operator, but he knows marketing and he knows selling. He knows how to adapt a product to the demands of customers, and that is just what the electric railway industry must learn. Railway operating executives are manufacturers of transportation and they must sell their product to the traveling public. Until only recently that was unnecessary, since there was no other choice, and the primary objective was to furnish transportation to those who came for it. Since electric railways have awakened to the need for selling their service, some operators have experienced considerable difficulty in acquiring a true sales viewpoint, including appreciation of the importance of adapting the product to make it salable.

As I listened to Mr. Barry I wished that every electric railway operator might have the opportunity of hearing so simple and direct an analysis of the industry's merchandising shortcomings. I visualized a comparison between an antiquated electric railway and an out-of-date merchant—a merchant who at one time enjoyed a monopoly of his product, but who with the coming of competition contents himself with an appeal to his former customers to patronize the old reliable dealer, instead of revamping his stock in trade, sprucing up his store and then going after the business on a modern basis.

"There is nothing fundamentally the matter with the street car," said Mr. Barry. "It is encountering competition of a high quality product at a much higher price, and has not been adapted to meet the new conditions. Most of the trouble due to falling off of passengers has been due, first, to the novelty of the automobile and, second, to the failure on the part of operators to improve the character of their service to meet the higher standard of popular transportation demand. This has moved forward along with the general advance in the standard of living. Although the electric railways are giving more transportation than ever before for a given cost, and are still

the most economical and efficient agency for moving large numbers of people between their homes and places of business, they encounter a popular taste in transportation that has grown beyond the character of service which they give with existing equipment.

"Today's transportation problem is not exclusive with the street car. There is no question involved of the relative advantages of cars and buses. That is working itself out rapidly to the point where the proper place of the bus is becoming better understood. The problem is as acute in the case of steam railroads as it is in purely local transportation. The struggle is not between any two forms of common-carrier vehicles, but is between all common-carrier agencies and the individually owned automobile. The question at issue is whether various forms of common-carrier transportation can be made sufficiently attractive to compete with the much higher cost of the more convenient and flexible private car.

"I feel strongly that adequate rehabilitation of electric railways and intensive merchandising of their service will put them on an attractive earning basis. The results accomplished by the Insull properties in the Chicago district are ample testimony to the effectiveness of this procedure. A greater uniformity in the size and type of equipment requirements would result in lower cost, better delivery and accelerated development by manufacturers. I feel confident that the electric railway industry has passed the peak of its troubles and is definitely headed toward improvement. Traffic congestion and parking difficulties are limiting the advantages of the automobile. It now remains only for electric railways to take advantage of the situation by forging ahead on a program of improving their equipment and service with a view toward winning patronage and rates of fare adequate to put their operations on a profitable basis."

Important Consolidation of Effort in European Distribution

Offices of the American Locomotive Company, the American Car & Foundry Company and the Railway Steel Spring Company in the leading capitals of Europe have been consolidated, according to F. F. Fitzpatrick, president of the American Locomotive Company, who recently returned from a tour of the Continent. The move is expected to bring about the increased efficiency and

economy held to be necessary for the proper European distribution of American manufactured products.

Commenting upon the need for efficiency in European distribution of American goods, Mr. Fitzpatrick said:

If American industry is to compete seriously in the European market the utmost economy in operation is essential. Under the leadership of W. H. Woodin, president of the American Car & Foundry Company and also chairman of the board of directors of the American Locomotive Company, the three companies have been brought into the closest co-operation.

Twenty-fifth Anniversary of Electric Locomotives

In order to handle its rapidly increasing traffic, the St. Louis & Belleville Electric Railway has obtained a new 80-ton electric locomotive to assist two similar 50-ton locomotives which have rounded out a quarter century of service. The railway operates an electric line between Belleville and East St. Louis, the principal commodity being coal. Since February, 1925, it has been hauling all the coal used in the superpower plant at Cahokia, on the east bank of the Mississippi at East St. Louis.

The new locomotive is the swivel-truck type, of General Electric manufacture. It is equipped with four GE-69 railway motors and type M control. The equipment is housed under sloping cabs at each end, and power is taken through pole trolleys. The motors are geared for a maximum speed of 33 m.p.h., with a continuous rating of 16,300 lb. tractive effort when operating at 16.7 m.p.h.

The shipment of this locomotive recalls the fact that two General Electric locomotives on this railway recently celebrated their 25th anniversary, having been placed in service early in 1901. Although the service has been exceptionally severe, they are still functioning successfully, the repairs during the entire period being limited to the installation of new CP-30 compressors, new trolley bases and lightning arresters. The original GE-55 motors and type L3 controllers are still giving good service. Records previous to 1910 are not available, but for the sixteen years since then, 1910 to 1925 inclusive, the accounts show a total of more than 15,500,000 tons of coal handled at a total maintenance cost of \$37,700 for the two locomotives. This is an average of approximately \$1,180 per locomotive per year over the entire period.



New Locomotive Which Joins Two Veterans of 25 Years' Service

Manufactures and the Markets

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

Copper Buying Is Active— No Trace of Panic Seen

Level-headed observers are practically agreed that nothing more serious than a possible temporary shortage of certain copper shapes confronts the copper industry at the present moment. During the past two weeks there has been a certain amount of scarehead agitation over the alleged possibility that prices would ascend to unwarranted heights as a result of serious shortages of stocks at the refineries. It is true that prices continue to increase in strength, but not to any extent which would justify the predictions made by certain of the trading gentry.

Readers of the *Wall Street Journal* were recently advised, in an article entitled "Copper Industry Faces Shortage," to contract for their requirements as far ahead as they can foresee them. The writer then continued with the statement that this policy would inevitably result in higher prices for the metal. *Engineering and Mining Journal*, in the issue for July 24, pointed out that any such stampede on the part of copper buyers would only result in hoisting the prices to a point from which it would have to take a severe tumble, with harm to all concerned with the copper industry. It then went on to state: "Consumption is going to increase steadily and production will be increased to meet it; that the price level of copper will improve moderately is not unlikely. It is to be hoped that this comes about in orderly fashion."

Present indications are that the tendencies toward a disastrous rise in prices have failed to develop into anything more tangible. Buying is active, but is based upon sound economic needs, rather than upon a panicky fear that the supply of raw material and of finished shapes is endangered.

Head of Westinghouse International Is Honored

A signal honor was accorded to Loyall A. Osborne, president of the Westinghouse Electric International Company, recently when he was elected chairman of the National Industrial Conference Board at the tenth annual meeting of that organization in New York City. In accepting this office Mr. Osborne assumed the chairmanship of the body whose members are the delegates of 27 national and state industrial organizations and four government departments, comprising more than 50,000 manufacturing concerns employing a total of more than 7,000,000 men and women. The board maintains a large staff of economists, statisticians and engineers who are continually investigating domestic and foreign problems of economic-industrial interest, and

since its organization in 1916 has issued 115 research and 45 special reports and many monographs on subjects of timely and practical interest. Mr. Osborne succeeds Frederick P. Fish, of Fish, Richardson & Neave, Boston, Mass., as chairman of the conference board.

Motor Transportation in Industry and Public Service Discussed

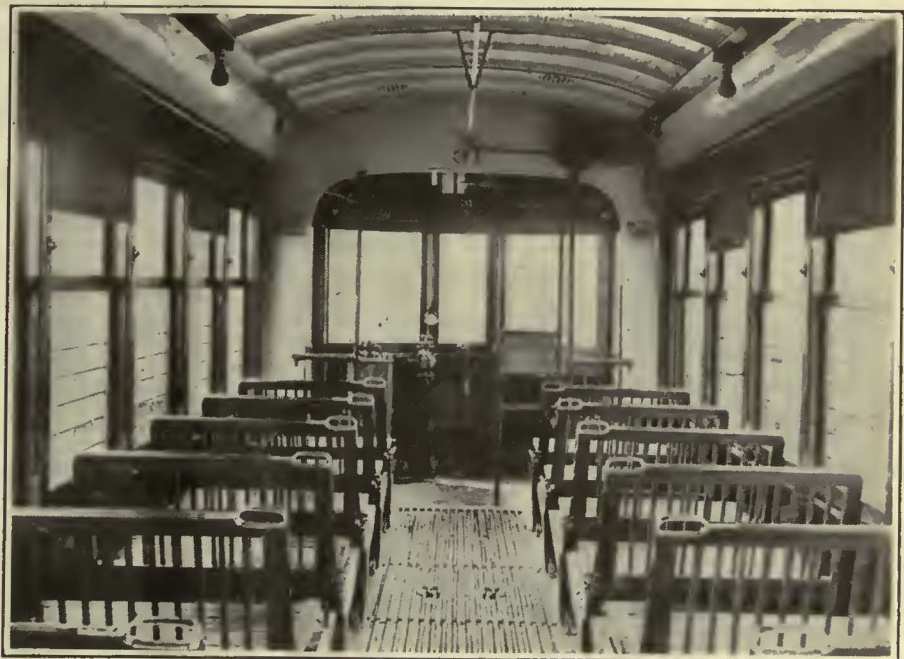
Statements by 23 prominent executives in various industries and in municipal governments are contained in the 1926 roll call number of the "Albatross," dealing with the use and importance of motor transportation in major fields of business, industry, and public service. Such men as T. F. Arkwright,

president Georgia Railway & Power Company; Edward Dana, general manager Boston Elevated; H. F. Fritch, president Boston & Maine Transportation Company; James J. Walker, Mayor of New York City, and Adrian Hughes, Jr., director of bus transportation United Railways & Electric Company, Baltimore, Md., are included in the list of contributors. The "Albatross" is the official news organ of the White Company, Cleveland, Ohio.

Thermit Patents Sustained

Decision was recently rendered by the United States District Court of New Jersey, Judge Bodine presiding, in the case of the Goldschmidt Thermit Company, a subsidiary of the Metal & Thermit Corporation of New York, versus the Alumino-Thermic Corporation of Roselle Park, N. J., Hugh G. Spilsbury and Henry J. Barnes, manufacturers of a material called "Feralite" for aluminothermic welding. The suit involved three patents covering essential features of aluminothermic welding. All three patents were sustained in the broadest terms and found to be infringed. The court has stated

Five Safety Cars for Mobile



Five light-weight safety cars have just been built for the Mobile Light & Railroad Company, Mobile, Ala., by the American Car Company, St. Louis, Mo. The cars are designed for double-end operation. Wood spindle backs are provided for the seats. Specifications follow:

Type of car.....Single-truck, double-end, one-man Birney Safety
Seating capacity.....33 passengers
Length over all.....29 ft. 9 in.
Truck wheelbase.....8 ft. 6 in.
Width over all.....8 ft. 3 in.
Height, rail to trolley base.....10 ft. 4 in.
Body.....All steel
Interior trim.....Natural Mexican mahogany
Headlining.....Carline finish
Roof.....Arch
Air brakes.....General Electric
Axles.....Brill
Bumpers.....Channel iron
Car signal system.....Faraday
Car trimmings.....Polished brass
Center and side bearings.....Brill
Compressors.....CP-27
Control.....K-63

Curtain fixtures.....Curtain Supply
Curtain material.....Pantasote
Destination signs.....Hunter Illuminated
Door operating mechanism.....American Car
Fare boxes.....Johnson type D.M.-4
Fenders.....H. B. wheelguards
Finish.....Pratt & Lambert Vitralite
Gears and pinions.....General Electric
Hand brakes.....American Car Co.'s standard drop brake handle and staff
Headlights.....Ohio Brass "Imperial Gold Ray"
Journal bearings.....Plain
Journal boxes.....Brill
Lightning arresters.....General Electric
Motors.....Two GE-265, inside hung
Registers.....International R-5, double acting, air operated
Safety devices.....Safety Car Devices Co.
Sanders.....Electric Service Supply Company
Sash fixtures.....O. M. Edwards Co.
Seats.....American Car Co. "Waylo"
Seating material.....Wood with spindle back
Springs.....Brill
Step treads.....Feralun
Trolley catchers.....Earl No. 10
Trolley base.....General Electric
Trolley wheels.....General Electric
Trucks.....Brill 79-E-2
Ventilators.....Brill exhaust type
Wheels.....Rolled steel, 26 in.

that a decree for an injunction and accounting may issue.

One of the patents sued on covers the aluminothermic mixture, or welding material; another covers the welding process involving preheating as a step, and the third covers the insert rail weld, whether having a loose insert or one made by cutting back the web and base. This latter practice is commonly known as "undercutting."

Advices from the Alumino-Thermic Corporation indicate that it may appeal the decision awarded by Judge Bodine. The course to be pursued will be determined following final decision by the court in the matter of the possible decree for an injunction and accounting.

General Electric Earnings for First Six Months of 1926

The General Electric Company's net sales billed for the first six months of the current year, ended June 30, 1926, totaled \$147,450,868 and the profit available for dividends on the common stock and surplus is \$19,000,392.

This announcement, which indicates net earnings equivalent to about \$2.63 per share on the 7,211,481 shares of new no par value stock, was made by President Gerard Swope in accordance with a new plan of the company for reporting earnings quarterly to the stockholders, in addition to the statement of orders received which has heretofore been sent stockholders every three months. The statement of earnings for the six months follows:

Net sales billed.....	\$147,450,868
Less: Cost of sales billed, including operating, maintenance and depreciation costs, reserves and provisions for all taxes	131,191,461
Net income from sales.....	16,259,407
Sundry income less interest paid and sundry charges.....	3,811,516
Profit available for dividends..	20,070,923
Less cash dividends on special stock	1,070,531
Profit available for dividends on common stock and surplus	19,000,392

Railway Men Get Insight Into Fire-Fighting Problems

More than 100 members of the Railway Fire Protection Association and others interested in fire protection were entertained at a practical demonstration given in Utica, N. Y., recently by the Foamite-Childs Corporation of that city. From the first simple demonstration until the final intricate one the interest of spectators was maintained at a high point. All tests were arranged with the principal idea of showing the best ways to fight typical railway and oil fires. In addition to the steam railroad men present, a number of electric railway representatives were on hand to witness the demonstration, as the problem of adequate fire protection on the two types of properties have many points in common.

A particularly convincing experiment was that dealing with fighting a fire in a box car. An especially constructed box-like structure was filled with open paint cans, over which gasoline was poured. The "car" was then touched off and allowed to burn furiously for some minutes before a Foamite port-

able machine was directed against it. The effect was immediately apparent and in a few seconds the blaze was completely extinguished.

Others of the demonstrations included methods of fighting acetylene gas combustion fire, hot tar flashes, fighting fire at 40 deg. below zero with the "All Weather" 2½-gal. extinguisher, automatic methods of extinguishing dangerous fires in oil tanks, and utilizing water lines in connection with the new Firefoam powdered chemical to extinguish certain types of large oil fires where other forms of foam equipment could not be readily employed.

A number of interesting discussions on the subject of fire fighting were given by various officials of the Foamite-Childs Corporation. W. J. Childs, president of the corporation, welcomed the guests in the morning and outlined the purpose of the sessions. A complete inspection of the Foamite-Childs plant was also made while the railway men were in Utica.

Rolling Stock

Interstate Street Railway, Attleboro, Mass., has ordered two light-weight, double-truck cars from the Wason Manufacturing Company, Springfield, Mass. These cars will be suitable for either interurban or city operation and are adapted to both one-man and two-man operation. They will possess many unique features of design and will constitute the last word in modern equipment.

San Francisco, Cal.—City Engineer M. M. O'Shaughnessy has received a request from Timothy A. Reardon, president of the Board of Public Works, for the purchase of six buses at a cost of \$54,000, to be operated on the Embarcadero. Mr. Reardon declares that the buses are proprietary articles and can be purchased without bids. Delay in purchase of the buses and operation of the line has caused much criticism to be directed at the Board of Public Works.

Trade Notes

Victor Oxy-Acetylene Equipment Company, manufacturer of cutting and welding equipment, has opened an Eastern factory branch and distribution center at 418-420 South Fourth

Metal, Coal and Material Prices

Metals—New York		July 27, 1926
Copper, electrolytic, cents per lb.....		14.375
Copper wire, cents per lb.....		16.00
Lead, cents per lb.....		8.775
Zinc, cents per lb.....		7.85
Tin, Straits, cents per lb.....		63.75
Bituminous Coal f.o.b. Mines		
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons.....	\$4.625	
Somerset mine run, Boston, net tons.....	1.875	
Pittsburg mine run, Pittsburg, net tons	1.75	
Franklin, Ill., screenings, Chicago, net tons	1.825	
Central, Ill., screenings, Chicago, net tons..	1.50	
Kansas screenings, Kansas City, net tons	2.50	
Materials		
Rubber-covered wire, N. Y., No. 14, per 1,000 ft.....	\$6.25	
Weatherproof wire base, N. Y., cents per lb	18.00	
Cement, Chicago net prices, without bags	2.10	
Linseed oil (5-bbl. lots), N. Y., cents per lb.	12.6	
White lead in oil (100-lb. keg), N. Y., cents per lb.....	15.50	
Turpentine (bbl. lots), N. Y., per gal.....	\$0.94	

Street, St. Louis, Mo., with A. W. Henry in charge as manager. St. Louis was selected as the most advantageous point to serve the territory between the Rocky Mountains and the Atlantic Coast. The company's main plant and general offices are in San Francisco, and it has been in business fifteen years. A distinct feature of its equipment is that city gas can be used for the cutting torches.

J. M. Mahoney has recently become associated with the American Brown Boveri Electric Corporation, New York, N. Y. He has been active for more than 30 years in railway and control work and is the holder of many important patents dating from 1900 relating to apparatus for railway braking, railway control, fuse, switch and circuit breaker equipment. He has had both operating and manufacturing experience along the above lines and has been active in the work of the Standards Committee of the American Institute of Electrical Engineers, with particular reference to switch and circuit breaker standards. Mr. Mahoney has read papers before the American Institute of Electrical Engineers, National Electric Light Association, Association of Iron and Steel Electrical Engineers, and other technical societies. He is a member of many technical societies and has made many contributions to the technical press from time to time.

New Advertising Literature

Dunn Painting Machine Company, San Francisco, Cal., has issued new descriptive matter covering several important improvements to the Dunn painting machine and it will be pleased to mail copies to any railways interested in painting machine work.

Morse Twist Drill & Machine Company, New Bedford, Mass., has issued a circular describing the features of spiral fluted expansion reamer No. 717, which has just been placed on the market. This tool has been developed as an improvement upon the straight fluted type which was formerly Morse standard. It is especially adapted for reaming piston pin holes and is easily adjustable to a few thousandths oversize.

Ohmer Fare Register Company, Dayton, Ohio, has published another pamphlet in its series of historical addresses on method of fare collection. The latest addition is a reprint of an address delivered by John F. Ohmer before the Central Electric Railway Association at Toledo, May 26, 1908, entitled "Tickets as a Fare Medium for Street and Interurban Railway Traffic." At the time this address was presented, the method of collecting fares on interurban railways varied greatly, and some methods were very crude. The talk by Mr. Ohmer emphasized the need, both for the company and the conductor, of making a definite record for each value collected by the conductor for the company. This plan, he said, would mean that the work of fare collection could be carried out in a businesslike way, equally fair to the conductor and to the employer, thus removing causes for suspicion.

Peacock Staffless Brakes



—specified
on new cars
for Richmond, Va.

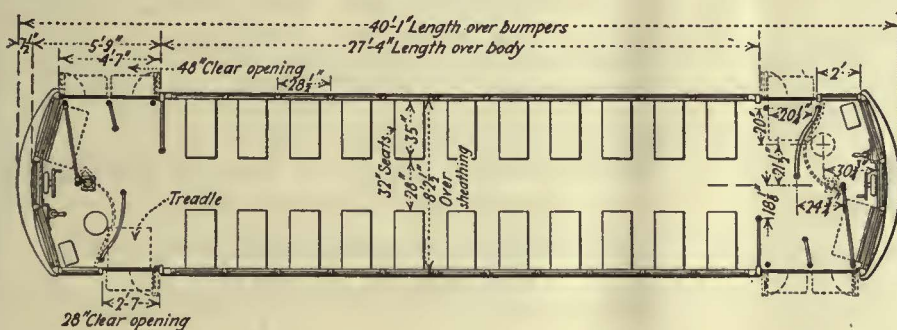
Fifteen double-truck, double-end safety cars were recently put in service by the Virginia Railway & Power Company.

Up-to-date, all steel construction is augmented by the latest types of equipment—such as Peacock Staffless Brakes.

Developing maximum braking capacity yet occupying minimum platform space, these brakes are especially adapted for the latest types of modern cars.



Write for performance facts and figures and for estimates on your installations.



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

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 FORGED STEEL AXLES
 For Locomotives, Passenger, Freight and Electric Cars
 Smooth Forged or Rough Turned—Carbon or Alloy Steel—Plain or Heat Treated, Forged and Turned Piston Rods, Crank Pins, Large Shafts, Round Bars, etc.

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 is turned out with equal care in our shops. The orders we fill differ only in magnitude; small orders command our utmost care and skill just as do large orders. CAMERON quality applies to every coil or segment that we can make, as well as to every commutator we build. That's why so many electric railway men rely absolutely on our name.
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 We guarantee all grades of poles; also any butt-treating specifications
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BRAZED Rail Bonds ARC WELD
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MA QUEDE

Ma quede is the Kaffir banana tree—producing bananas the size of a full-grown man's arm.

Yes, they have SOME bananas.

Eat one of them for luncheon and you have no desire to go over the rest of the menu.

It gives you that fine sated feeling of satisfaction that an operator gets once he quits choosing and picking and nibbling at all sorts of brushes for his machines and concentrates on Morganite.

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NEW ISSUE

\$5,000,000

Dallas Railway & Terminal Company

(Name at present Dallas Railway Company)

First Mortgage Gold Bonds, 6% Series due 1951

Dated July 1, 1926

Due July 1, 1951

Interest payable January 1 and July 1 without deduction for the Federal Income Tax up to but not exceeding 2% per annum. Pennsylvania 4 mills Tax refunded on timely application. Principal and interest payable at the office or the agency of the Company in New York and in Boston. Coupon bonds in denominations of \$1,000, \$500, and \$100, registerable as to principal. Redeemable in whole or in part at any time on 30 days' notice before July 1, 1930, at 106 and interest, and at a premium decreasing 1% each four year period thereafter, the bonds being redeemable at 100% on and after July 1, 1950. Old Colony Trust Company, Trustee.

The following is summarized from a letter written by Mr. A. S. Grenier, Vice-President:

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

EARNINGS: The earnings of the Company for the four years ended December 31, 1925, as certified by Messrs. Haskins & Sells, independent auditors, were as follows.

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

Annual interest requirements of this issue..... 300,000

Net earnings for the year 1925 as shown above, were 2.83 times the annual interest requirements of these Bonds.

Dividends have been paid on the Company's Preferred Stock since 1921. During the year 1925, cash dividends paid on the Company's Common Stock then outstanding amounted to \$7.24 a share, and cash dividends have been paid each year since 1921 in at least an equal amount on the Common Stock.

SECURITY: These Bonds will be secured, in the opinion of counsel, by a direct first mortgage on all the Company's property and equipment, including the terminal building. The principal amount of these \$5,000,000 Bonds to be issued is less than 60% of the value of the Company's wholly owned property as of May 31, 1926, as established under the franchise for rate-making purposes. This property has been recently appraised by independent engineers at depreciated values largely in excess of the franchise value.

FRANCHISE: Under the terms of the Company's franchise, approved by popular vote in 1917, a definite property valuation has been established on which the Company is entitled to earn a return of 7% after provision for maintenance, depreciation, accident and surplus reserves. The Company has since 1920 been granted such fare rates as have been necessary to permit the allowed 7% return under the franchise.

EQUITY: On completion of the present financing, these Bonds will be followed by \$1,500,000 7% Preferred Stock and \$3,250,000 Common Stock of the Company, more than 92% of which Common Stock will be owned by the Electric Power & Light Corporation.

SUPERVISION: More than 92% of the Common Stock of the Company will be owned by the Electric Power & Light Corporation. The Electric Bond and Share Company will continue to be identified in a supervisory capacity (under the direction and control of the Board of Directors of the Company) with the operations of the Company.

We offer the above Bonds, when, as, and if issued and received by us, subject to approval of counsel, Messrs. Simpson, Thacher & Bartlett.

Price 96½ and interest to yield over 6.25%

Tucker, Anthony & Co.
Old Colony Corporation

Halsey, Stuart & Co.
INCORPORATED
W. C. Langley & Co.

The information contained in this advertisement is not guaranteed by us, but having obtained it from reliable sources, we believe it to be correct.

Light on the Bus Braking Question

The ABC's of Bus Brakes and Braking Systems

Metal to metal or molded liners?

The ideal liner, if such a thing were possible, would give: First, constant coefficient of friction, i.e. coefficient of friction in one liner would be exactly like that of every other liner and would give exactly the same braking effect; second, it would be non-abrasive; third, it would have extremely long life.

In general terms, this combination would necessitate the use of a dense material impervious to oil and water, yet soft enough to avoid drum wear.

Cast iron liners are reasonably impervious to water and oil, they give reasonably long life, and help in dissipating heat. On the other hand, they necessitate heavier construction, increasing unsprung weight, and their low coefficient of friction makes enormous power necessary for their application. In addition, they have a tendency toward "grabbing," which makes smooth control difficult. This is not so noticeable when they are cool, but the tremendous pressure necessary for their application makes them heat rapidly and "grab."

Conventional fibre liners, as a rule, although their coefficients of friction may be fairly high, are adversely affected by water, oil and heat and heretofore they have rarely maintained even an approximately constant coefficient of friction. On the other hand, fibre liners give much smoother and more comfortable stops, far superior to metal in this respect. Then, too, the fibre and molded liner manufacturers are constantly improving their products, one heavy

fibre liner of recent development indicating a life equal to or closely approaching metal.

This particular liner (and others that equal it will probably follow) seems to possess the compromise features which come nearest giving an ideal brake. It has a satisfactorily constant coefficient of friction, high enough to operate without too great pressure; it is dense enough to resist the effect of oil and water; it resists heat well; it is hard and tough enough to wear exceptionally well, giving a life that compares very favorably with metal; and it is smooth, never "grabby," in operation. Used in combination with a high-carbon drum of correct design this hard fibre liner makes possible a worthwhile reduction in brake upkeep while giving smooth, dependable braking effect.

An abrasive or grabby liner is not desirable in operation as it is erratic and uncomfortable, even dangerous. It is our belief now that the newer heavy duty fibre and molded liners are superior to iron for all-around satisfactory brakes.

This is the fifth of an informative series on Bus brakes. The series consists of:

- A—What Brakes Must Do.
- B—How many wheels should brakes go on?
- C—Self-equalization and brake adjustments.
- D—Curing the skid.
- E—Metal to metal or molded linings—which?
- F—Braking Power.
- G—Compressor Mountings and Drives.
- H—Compressor Cooling.
- I—The Control Valve.
- J—Maintenance on Different Types.

The above topics will appear in the above order. Address any comments, suggestions, or requests for advance information to—

The Christensen Air Brake Company
6513 Cedar Avenue, Cleveland, Ohio

Christensen



A 25-passenger bus equipped with the Baker-Raulang Luggage Loft carries 30 paying passengers, with no increase in wheel-base.

35 Square Feet of Expense or Thirty Five Square Feet of Revenue



Luggage has always been the necessary evil of bus operation. Now that's settled to the complete satisfaction of operator and passenger alike by the Baker-Raulang Luggage Loft.

THERE are actual, provable, money-in-the-bank advantages to the operator in new Baker-Raulang Bus Body design. For one—35 square feet of your bus floor is changed from expensive luggage-carrying space into profitable passenger-carrying space, by the exclusive Baker-Raulang Luggage Loft.

Above each passenger is a roomy compartment where suit-cases, bags, hat boxes can be carried, out of the way. Floor space formerly required for baggage is used for revenue-paying seats, and in addition the bus operator is relieved of all time and liability in caring for passengers' baggage, and passengers have their parcels easily available at any time on the journey.

The Luggage Loft allows ample room for inside storage yet leaves the aisle clear.

The convenient guide rail increases the comfort of passengers going to and from seats, and making possible the carrying of standees where regulations permit.

The Luggage Loft is only one of many Baker-Raulang improvements in bus body design—improvements that make good our promise to the industry—to promote public popularity. The new features are the result of long and careful study of the needs of the industry on the part of this veteran organization which for 73 years has been designing and building fine closed bodies for carriages, for the first closed automobiles, and now for buses.

We will gladly explain Baker-Raulang advantages to interested buyers, and apply our experience, study and facilities to the solution of your engineering and operating problems.

Bus Body Division, THE BAKER-RAULANG COMPANY, Cleveland, Ohio, U. S. A.

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BODIES

TRADE MARK



No. 7 of Inter-Cities Coach Co. fleet, Dayton, Ohio

INTERNATIONAL HARVESTER MOTOR COACHES

*Are the Product of Tremendous Resources
and of 22 Years' Automotive Experience*

Manufacturers for nearly a century, motor truck builders for over twenty years, the International Harvester Company pioneered also in the designing of motor coaches. The earliest of its 6-cylinder conveyances are in highly profitable operation after six-figure mileage records, and the perfected chassis coming from the factories today are equipped in every detail to render utmost satisfaction to coach owners and drivers and—more important—to discriminating passengers. Mechanical excellence, beauty of line, and de luxe

appointments catering to the rider's comfort, have built a consistent high reputation for International Motor Coaches. The various bodies supplied for the 6-cylinder chassis carry 24 to 33 passengers. Regular equipment includes air brakes on all four wheels and every appointment detail known to highest-grade manufacture. The International SL 4-cylinder coach [12 to 14 passengers] offers advantages of flexibility and economy, either as main units or as auxiliaries to larger operating units.

Detail information on International Coaches—or trucks and industrial tractors—will be mailed on request

INTERNATIONAL HARVESTER COMPANY

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Chicago, Illinois

International Motor Trucks

A full line ranging from the ¾-ton "Special Delivery" and 1-ton and 1½-ton Speed Trucks to the 5-ton Heavy-Duty Truck.

McCormick-Deering Industrial Tractors

Compact, flexible power units, ideal for many trailer-hauling jobs and for work around yards, plants, etc. Disk wheels, rubber tires, spring-mounted front axle, and 2, 4, and 10 m. p. h. forward speeds.

International Harvester offers you unparalleled automotive service, rendered through the world's largest Company-owned truck and coach service organization. Company-owned branches are now located at 120 points in the United States and 17 in Canada, and they are supplemented by the service of International automotive dealers.



*Nothing takes the
place of leather*



“and people inquire daily—”

“Where is the car with the comfortable seats?”

Read that statement again! It is not hard to get people to ride in cars when they are enthusiastic about the seats.

It was a pleasant shock to the officials of this company to hear the riding public clamor for this particular car that they were trying out.

Real leather seats invite the public to ride and lower your cost-per-mile maintenance.

We offer you complete hides or will cut them to your pattern, if you submit paper templets. Send for samples.

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HYALINE

The Finest Coach Leather Obtainable



Where only the hardy survive

Among some tribes in Africa part of their religious ritual is to dance constantly for long periods of time. Only the most hardy can survive such a gruelling test of endurance.

On many electric railways they put cars out on the road for long periods. Only the best of car equipment can stand such service. Which is the reason why so many roads specify Boyerized Parts. The Boyerizing Process produces a surface that enables them to outlast ordinary steel parts three to four times—an important consideration when figuring maintenance costs.

Select the parts you need and ask for quotations.

Brake Pins	Spring Post Bushings
Brake Hangers	Spring Posts
Brake Levers	Bolster and Transom Chafing Plates
Pedestal Gibs	Manganese Brake Heads
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Bemis Car Truck Company

Electric Railway Supplies

Springfield, Mass.

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 W. F. McKenney, 54 First Street, Portland, Ore.
 L. H. Denton, 1328 Broadway, New York City, N. Y.
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The
 McArthur
 Turnbuckle



“It effectively



WILLIAM T. JACKSON, Director of Public Service for the city of Toledo. Mr. Jackson is well known for his active interest in behalf of city betterment, and he is now serving as President of the Ohio State Conference on City Planning. And as President and General Manager of Joseph Jackson & Son, one of Toledo's oldest and best known firms of general contractors, he has had a very direct part in the upbuilding of the city. He is also first Vice President of the Toledo Chamber of Commerce.

protects the pavement”

“FOR some time we have been working on the problem of how to prevent rapid deterioration of pavement in track zones—and I believe we now have the solution.” This statement was made recently by William T. Jackson, Director of Public Service for the city of Toledo. In Toledo, the city rather than the traction company handles the paving of track areas.

“We use granite block pavement in the track area, but we have found that it is practically impossible to fit the blocks tightly against the web of the rail. As a result, water and frost enter, and failure of the pavement follows. The flange of the wheel also frequently breaks off the block, or knocks the block out of place, causing it to pitch toward the rail.

“To overcome this condition, we have installed an asphaltic rail filler each side of the rail. This forms a water-tight bond with both rail and pavement, and keeps the granite blocks away from the flange of the wheels. We find it effectively protects the pavement and makes a neat looking job. We are, in fact, so well pleased with the result that we plan to follow this practice in our future paving work.”

Carey Elastite System of Track Insulation was the material used to effect the improvement in pavement construction described by Mr. Jackson. Traction engineers all over the country today are advocating the use of the Carey system because it effectively protects the pavement and lowers maintenance costs. Noticeable reduction of noise also results where this resilient material is used to cushion the rails.

Write today for full particulars.

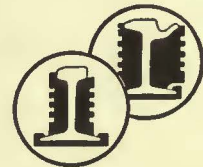
CAREY Elastite System of Track Insulation consists of a fibrous asphaltic compound, made in pre-formed slabs to fit any rail. It is easily cut, fitted, and driven into place with a sledge. Unaffected by moisture and temperature changes, and will outlive the track itself.

THE PHILIP CAREY COMPANY

Lockland, Cincinnati, Ohio

Carey
Elastite

TRADE MARK REG'D. U.S. PATENT OFFICE



SYSTEM OF
TRACK INSULATION



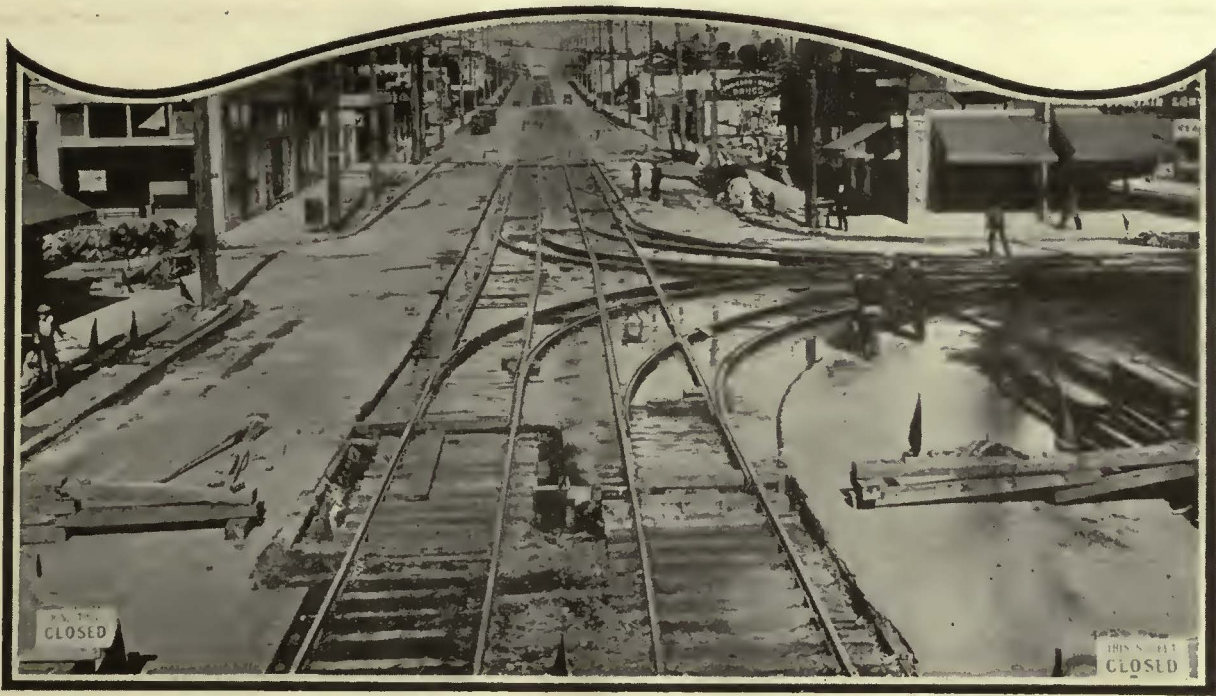
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modern current collector
with five specific points of
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1. LESS WIRE WEAR, because less trolley tension is needed for absolutely safe operation. Full 3-inch contact surface of Miller Trolley Shoes "hugs" the wire as no wheel ever could. This in itself is vitally important with increased operating speeds.
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4. NO ARCING. Arcing is a devastating waste. It is eliminated only with sliding contact.
5. AMPLE CURRENT CAPACITY, even for the fastest and heaviest modern cars, saves motors, ensures steady lighting.

Make a trial under your own operating conditions.

We will gladly co-operate.

Miller Trolley Shoe Company
295 Columbia Road, Boston 21, Mass.



Bethlehem Track Specialties *for Electric Railways*

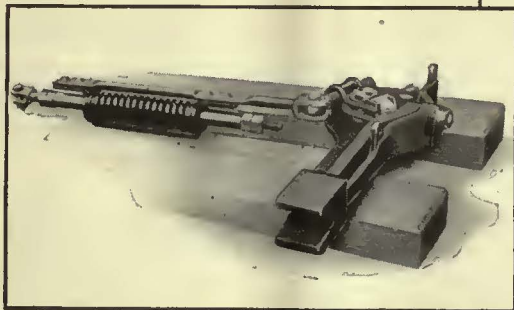
Special Trackwork; Tee and Girder Rails; Special Splice Bars for Welding; Machine Fitted Joints; Abbott and Center Rib Base Plates; Tie Rods; Bolts; Pole Line Material; Rolled Steel Wheels and Forged Axles.

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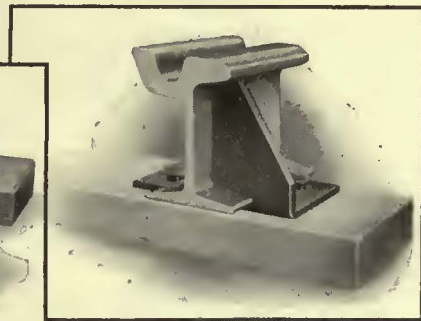
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Switch Stand, Model 1222



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Brace Tie Plate
Design 804

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Big—Bigger—Biggest!

Last year's convention was *big!*

This year's will be *bigger!*

In fact actual Exhibitors' space reservations already made indicate that it will be the *biggest* Convention of the American Electric Railway Association.

It all means more interest, more optimism—and *more buying* by the electric railway companies.

and to get the biggest benefits from the Annual A. E. R. A. Convention — use

ELECTRIC RAILWAY JOURNAL'S *Complete Convention Service*

New attractions for the reader—and new opportunities for the advertiser. A service which will afford the only effective and permanent meeting place for buyer and seller. It will enable you to put *your* message before the entire railway field, the stay-at-homes as well as the Delegates, before, during and after the Convention. This *is* complete service.

Advertising rates on request.

Annual Convention Number dated September 25

A complete volume on the theme of "Modern Cars Pay," written by recognized authorities. The big opportunity to ally your products with the thinking of the industry in the biggest single sales factor in the electric railway industry.

Three Daily Convention Issues dated October 5, 6, 7

The only way to reach every delegate at the Convention. Distributed on three mornings at the breakfast table and at the pier.

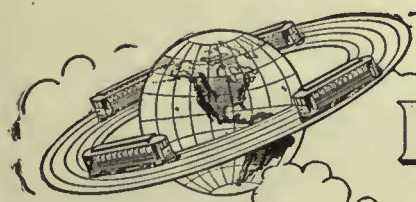
Annual Convention Report Number dated October 9

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

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

Member A.B.C., A.B.P., A.E.R.A.

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

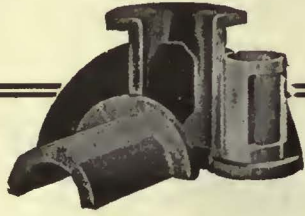


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More-Jones "Tiger" Bronze castings for axle and armature-bearing service was one of our early achievements. This is probably the most widely known bronze on the market. It has stood the test of time. There is nothing better for long, efficient and most economical results. Let us quote you.

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CORRECT IT
USE LE CARBONE CARBON BRUSHES

They talk for themselves

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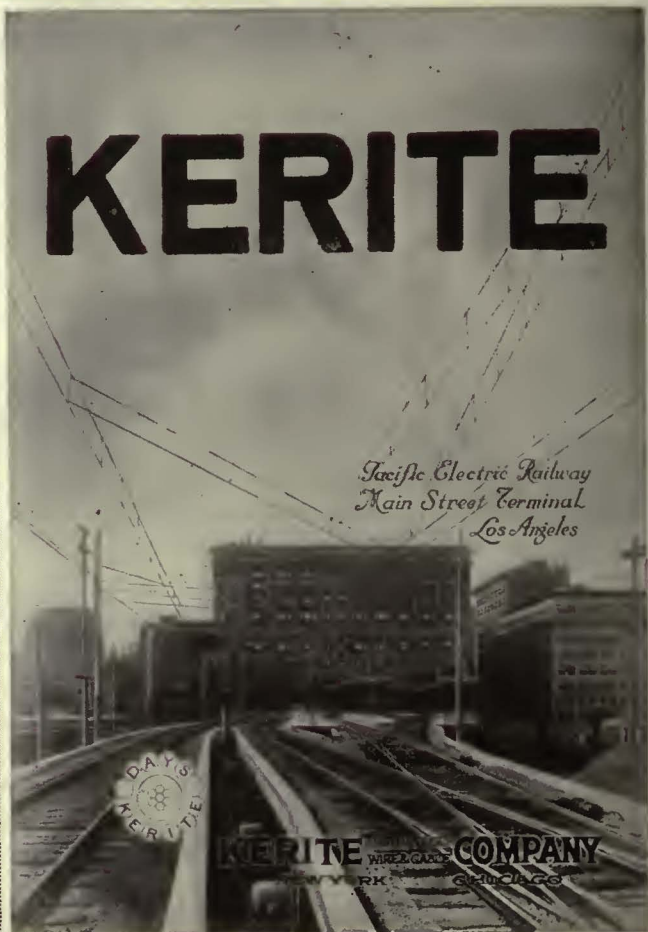
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*Pacific Electric Railway
Main Street Terminal
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Nuttall Helical Gear Set

They will wear Four Times as long

BP Gears are nearly four times as hard as untreated gears. An untreated gear of 40 carbon steel is 140 Brinell. The BP treatment raises the hardness from 140 to 500 Brinell. Naturally this increased hardness means that BP gears will wear longer in service.

R.D. NUTTALL COMPANY
PITTSBURGH PENNSYLVANIA



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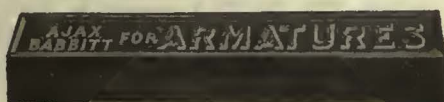


Cold Dinners
 for *your* passengers?

Not if you use

AJAX
BABBITT for ARMATURES

keeps the rolling stock rolling



The Ajax Metal Company

Established 1880

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Seat and Curtain Materials
There is no substitute for Pantasote

AGASOTE

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Roofing—Headlining—Wainscoting
The only homogeneous panel board

standard
for electric railway cars
and motor buses

The PANTASOTE COMPANY Inc.
 At 46th, 250 Park Avenue Street
NEW YORK



Kalamazoo Trolley Wheels

The value of Kalamazoo Trolley Wheels and Harps has been demonstrated by large and small electric railway systems for a period of thirty years. Being exclusive manufacturers, with no other lines to maintain, it is through the high quality of our product that we merit the large patronage we now enjoy. With the assurance that you pay no premium for quality we will appreciate your inquiries.



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San Francisco Los Angeles Portland Seattle



We make a specialty of
ELECTRIC RAILWAY LUBRICATION

We solicit a test of TULC on your equipment

The Universal Lubricating Co.
Cleveland, Ohio
Chicago Representatives: Jameon-Ross Company, Straus Bldg.

FARE BOXES for BUSES

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



The Cleveland Fare Box Co.
4900 Lexington Ave., Cleveland, O.
Canadian Cleveland Fare Box Co., Ltd.
Preston, Ontario

COIN COUNTING And Sorting Machines CHANGES CARRIERS Tokens



Type R-11 Double Register

International Registers

Made in single and double types to meet requirements of service. For hand or foot, mechanical or electric operation. Counters, car fittings, conductors' punches.

The International Register Co.
15 South Throop Street, Chicago, Illinois

Instantaneous Registration by the Passenger

ROOKE of fare collection SYSTEM

Meets every condition for all types of cars and buses. The stand device, as shown, adapts it to one-man uses—making register portable or stationary, at option. Handles nickels, dimes, quarters, or metal tickets, in any combination, FLEXIBILITY with CERTAINTY.



Roke Automatic Register Company Providence, R. I.

Railway Equipment

- | | |
|--------------------|-------------------------|
| Car Ventilators | Universal Lanterns |
| Bus Ventilators | Classification Lanterns |
| Air Sanders | Selector Switches |
| Mechanical Sanders | Fare Box Lights |
| Indicating Signals | Water Tanks |

THE NICOLS-LINTERN CO.
7960 LORAIN AVENUE CLEVELAND, OHIO

Surplus Stocks Are Easily Disposed of *Through the*

"SEARCHLIGHT SECTION"

"FOR SALE" announcements are carefully read by the trade.

"SEARCHLIGHT" Ads bring prompt and profitable returns.

Displayed—\$5.00 or less an inch per insertion.

THE BABCOCK & WILCOX COMPANY

85 LIBERTY STREET, NEW YORK

Builders since 1868 of
Water Tube Boilers
of continuing reliability

Makers of Steam Superheaters
since 1898 and of Chain Grate
Stokers since 1893



WORKS
Bayonne, N. J.
Barberton, Ohio

BRANCH OFFICES

BOSTON, 49 Federal Street
PHILADELPHIA, Packard Building
PITTSBURGH, Farmers Deposit Bank Building
CLEVELAND, Guardian Building
CHICAGO, Marquette Building
CINCINNATI, Traction Building
ATLANTA, Candler Building
PHOENIX, ARIZ., Heard Building
DALLAS, TEX., 2001 Magnolia Building
HONOLULU, H. T., Castle & Cooke Building
PORTLAND, ORE., 805 Gasco Building

BRANCH OFFICES

DETROIT, Ford Building
NEW ORLEANS, 344 Camp Street
HOUSTON, TEXAS, 1011-13 Electric Building
DENVER, 444 Seventeenth Street
SALT LAKE CITY, 405-6 Kearns Building
SAN FRANCISCO, Sheldon Building
LOS ANGELES, 404-6 Central Building
SEATTLE, L. C. Smith Building
HAVANA, CUBA, Calle de Aguilar 104
SAN JUAN, Porto Rico, Royal Bank Building

B. A. HEGEMAN, Jr., President H. A. HEGEMAN, First Vice-Pres. and Treas.
F. T. SARGENT, Secretary W. C. PETERS, Vice-Pres. Sales and Engineering

National Railway Appliance Co.

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

BRANCH OFFICES

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

RAILWAY SUPPLIES

Tool Steel Gears and Pinions	Ft. Pitt Spring & Mfg. Co., Springs
Anglo-American Varnish Co., Varnishes, Enamels, etc.	Flaxlinum Insulation
National Hand Holds	Anderson Slack Adjusters
Genesco Paint Oils	Economy Electric Devices Co., Power Saving and Inspection Meters
Dunham Hopper Door Device	Yellow Coach Mfg. Company— Single and Double-deck Buses
Garland Ventilators	Feasible Drop Brake Staffs
Walter Tractor Snow Plows	

CARNEGIE
for
**WHEELS
AXLES
RAILS
CROSS TIES**

Carnegie Steel Company
PITTSBURGH, PENNA.

Lorain Special Trackwork Girder Rails

Electrically Welded Joints

THE LORAIN STEEL COMPANY

Johnstown, Pa.

Sales Offices:

Atlanta Chicago Cleveland New York
Philadelphia Pittsburgh Dallas

Pacific Coast Representative:

United States Steel Products Company
Los Angeles Portland San Francisco Seattle

Export Representative:

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

Tisco Manganese Steel in trackwork,
introduced by Wharton in 1894, is
still the superior metal for long life
under severest railway service.

WILLIAM WHARTON JR. & CO., Inc.

Easton, Penna.

SPECIALISTS

in the

Design and Manufacture
of

*Standard—Insulated—and
Compromise Rail Joints*

The Rail Joint Company
165 Broadway, New York City

The DIFFERENTIAL CAR



Standard on
60 Railways for

Track Maintenance
Track Construction
Ash Disposal
Coal Hauling
Concrete Materials
Waste Handling
Excavated Materials
Hauling Cross Ties
Snow Disposal

Use These Labor Savers

Differential Crane Car
Clark Concrete Breaker
Differential Bottom Dump Ballast Car
Differential Car Wheel Truck and Tractor

THE DIFFERENTIAL STEEL CAR CO., Findlay, O.

"The Standard for Rubber Insulation"
**INSULATED WIRES
 and CABLES**

"Okonite," "Manson," and Dundee "A" "B" Tapes
 Send for Handbook

The Okonite Company
 The Okonite-Callender Cable Company, Inc.
 Factories, PASSAIC, N. J. PATERSON, N. J.
 Sales Offices: New York Chicago Pittsburgh St. Louis Atlanta
 Birmingham San Francisco Los Angeles Seattle
 Pettingsell-Andrews Co., Boston, Mass.
 F. D. Lawrence Electric Co., Cincinnati, O.
 Novelty Electric Co., Phila., Pa.
 Gen. Rep.: Engineering Materials Limited, Montreal.
 Cuban Rep.: Victor G. Mendoza Co., Havana.



ELRECO TUBULAR POLES



THE "WIRE LOCK" / THE ENAMFERED JOINT

COMBINE
 Lowest Cost Lightest Weight
 Least Maintenance Greatest Adaptability

Catalog complete with engineering data sent on request.

ELECTRIC RAILWAY EQUIPMENT CO.
 CINCINNATI, OHIO
 New York City, 30 Church Street

**Hubbard
 and COMPANY**
 PITTSBURGH · OAKLAND, CAL · CHICAGO



*{ The Hardware makes the line
 Hubbard makes the Hardware }*

**THE WORLD'S STANDARD
 "IRVINGTON"**

Black and Yellow
 Varnished Silk, Varnished Cambric, Varnished Paper
 Irr-O-Slot Insulation Flexible Varnished Tubing
 Insulating Varnishes and Compounds

Irvington Varnish & Insulator Co.
 Irvington, N. J.
 Sales Representatives in the Principal Cities

Waterproofed Trolley Cord



Is the finest cord that science and skill can produce.
 Its wearing qualities are unsurpassed.

**FOR POSITIVE SATISFACTION ORDER
 SILVER LAKE**

If you are not familiar with the quality you will be
 surprised at its **ENDURANCE** and **ECONOMY**.

Sold by Net Weights and Full Lengths

SILVER LAKE COMPANY
 Manufacturers of bell, signal and other cords.
 Newtonville, Massachusetts



Reg. U. S. Pat. Office
 Incandescent Lamp Cord

AMELECTRIC PRODUCTS
 BARE COPPER WIRE AND CABLE
 TROLLEY WIRE
 WEATHERPROOF WIRE
 AND CABLE
 PAPER INSULATED
 UNDERGROUND CABLE
 MAGNET WIRE

AMERICAN ELECTRICAL WORKS
 PHILLIPSDALE, R. I.

Boston, 176 Federal; Chicago, 26-32 West Randolph Street;
 Cincinnati, Traction Bldg.; New York, 100 E. 42nd St.



**Chapman
 Automatic Signals**
 Charles N. Wood Co., Boston



**NACHOD & UNITED STATES
 SIGNAL CO., INC.**
 LOUISVILLE, KY.
**BLOCK SIGNALS
 FOR
 ELECTRIC RAILWAYS
 HIGHWAY CROSSING SIGNALS**



Trade Mark Reg. U. S. Pat. Off.
 Made of extra quality stock firmly braided and smoothly finished.
 Carefully inspected and guaranteed free from flaws.
 Samples and information gladly sent.

SAMSON CORDAGE WORKS, BOSTON, MASS.

SEARCHLIGHT SECTION

USED EQUIPMENT & NEW—BUSINESS OPPORTUNITIES

UNDISPLAYED—RATE PER WORD:

Positions Wanted, 4 cents a word, minimum 75 cents an insertion, payable in advance.
Positions Vacant and all other classifications, 8 cents a word, minimum charge \$2.00.
Proposals, 40 cents a line an insertion.

INFORMATION:

Box Numbers in care of any of our offices count 10 words additional in undisplayed ads.
Discount of 10% if one payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:

1 to 3 inches.....\$4.50 an inch
4 to 7 inches..... 4.30 an inch
8 to 14 inches..... 4.10 an inch
Rates for larger spaces, or yearly rates, on request.
An advertising inch is measured vertically on one column, 3 columns—30 inches—to a page.

ERJ

OFFICIAL PROPOSALS

Bids: Aug. 27.

Steel Passenger Cars and Car Trucks

BROAD STREET SUBWAY
Contract No. 135

Philadelphia, Pa.
DEPARTMENT OF CITY TRANSIT,
CITY OF PHILADELPHIA, 11th Floor,
1211 Chestnut Street, Philadelphia, July 17, 1926.

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

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

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

No bid will be considered unless accom-

panied by a certified check on a responsible bank or trust company in favor of the City of Philadelphia to the amount of five (5) per centum of the sum of such bid, in accordance with the provisions of an ordinance approved March 7, 1924, as amended by ordinance approved July 2, 1924, and reprinted in full in the specifications.

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

H. E. EHLERS, Director.

POSITIONS VACANT

YOUNG man for superintendent of 14 mile trolley line in tropical city, of 75,000 people. Healthful climate. Give with first letter full statement of experience, salaries past and expected, references, age and personal habits. P-920, Electric Railway Journal, Tenth Ave. at 36th St., New York.

POSITIONS WANTED

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

FOR SALE

Machine Wheel Lathe

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

C. W. LEPPER

General Purchasing Agent
435 Sixth Ave., Pittsburgh, Pa.
Attention Mr. Josiah Poole

FOR SALE

14 BIRNEY SAFETY CARS

Brill Built

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

ELECTRIC RAILWAY EQUIPMENT!

Railway Motors

25—Westinghouse 307's
G.E. 80's.

Birney Cars

4—32 seating capacity Westinghouse 508A motors. Fully equipped. Splendid condition.

Tower Truck

1—2½-3 ton White. Three section. Fully equipped. New 1923.

Southern Cars

6—Double truck. 42 passenger. One man operation.

Car Hoist

1—Universal. Columbia Mch. Co. make. Motor and control equipment included

Sweeper

1—Double truck Snow Sweeper. Fully equipped

Welding Machine

1—Railway Welding and Bonding Co. New 1923. Fully equipped.

Track Grinder

1—Atlas Rail Grinder new 1923. Excellent condition

When the operations of the

New York & Long Island Traction Co.

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

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

H. E. SALZBERG CO., Inc, 50 Church St., New York City

“Opportunity” Advertising:

Think “SEARCHLIGHT” First!

—to help you get what you want

—to help you sell what you no longer need

WHAT AND WHERE TO BUY

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

Advertising, Street Car
Collier, Inc., Barron G.

Air Brakes
Christensen Air Brake Co.
Westinghouse Air Brake Co.

Air Receivers & Aftercoolers
Ingersoll-Rand Co.

Anchors, Guy
Elec. Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Armature Shop Tools
Elec. Service Supplies Co.

Automatic Return Switch Stands
Ramapo Ajax Corp.

Automatic Safety Switch Stands
Ramapo Ajax Corp.

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

Axles, Carbon Vanadium
Johnson & Co., J. R.

Axles, Steel
Bethlehem Steel Co.
Carnegie Steel Co.
Johnson & Co., J. R.

Babbit Metal
Ajax Metal Co.
Johnson & Co., J. R.
More-Jones Brass and Metal Co.

Badges and Buttons
Elec. Service Supplies Co.
International Register Co.

Banks
Tucker, Anthony & Co.

Batteries, Dry
Nichols Lantern Co.

Bearings and Bearing Metals
Ajax Metal Co.
Bemis Car Truck Co.
Brill Co., The J. G.
General Electric Co.
More-Jones Brass and Metal Co.
Westinghouse E. & M. Co.

Bearings, Center and Roller Side
Stuckl Co., A.

Bells & Buzzers
Consolidated Car Heating Co.

Bells and Gongs
Brill Co., The J. G.
Elec. Service Supplies Co.

Benders, Rail
Railway Trackwork Co.

Bodies, Bus
Baker-Raulang Co., The
Cummings Car & Coach Co.

Bodies, Passenger Car
Baker-Raulang Co., The

Body Material, Haskelite and Plymetl
Haskelite Mfg. Corp.

Boilers
Babcock & Wilcox Co.

Bond Testers
American Steel & Wire Co.
Electric Service Supplies Co.

Bonding Apparatus
American Steel & Wire Co.
Electric Railway Improvement Co.
Elec. Service Supplies Co.
Ohio Brass Co.
Railway Trackwork Co.
Una Welding & Bonding Co.

Bonds, Rail
Amer. Steel & Wire Co.
Electric Railway Improvement Co.
Elec. Service Supplies Co.
General Electric Co.
Ohio Brass Co.
Railway Trackwork Co.
Una Welding & Bonding Co.
Westinghouse E. & M. Co.

Brackets and Cross Arms (See also Poles, Ties, Posts, Etc.)
Elec. Ry. Equipment Co.
Elec. Service Supplies Co.
Hubbard & Co.
Ohio Brass Co.

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

Brake Shoes
American Brake Shoe & Foundry Co.
Bemis Car Truck Co.
Brill Co., The J. G.

Brakes, Brake Systems and Brake Parts
Bemis Car Truck Co.
Brill Co., The J. G.
General Electric Co.
National Ry. Appliance Co.
Safety Car Devices Co.
Westinghouse Tr. Br. Co.

Brushes, Carbon
General Electric Co.
Jeandron, W. J.
Le Carbone Co.
Morganite Brush Co., Inc.
Westinghouse E. & M. Co.

Brushes, Graphite
Morganite Brush Co., Inc.

Brushes, Wire Pneumatic
Ingersoll-Rand Co.

Bulkheads
Haskelite Mfg. Corp.

Bus Seats
Hale-Kilburn Co.

Buses, Motor
Brill Co., The J. G.
Cummings Car & Coach Co.
International Harvester Co.
International Motor Co.
Mack Trucks, Inc.

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

Cables (See Wires and Cables)

Cambrio Tapes, Yellow and Black Varnish
Irvington Varnish & Ins. Co.

Carbon Brushes (See Brushes, Carbon)

Car Lighting Fixtures
Elec. Service Supplies Co.

Car Panel Safety Switches
Consolidated Car Heat. Co.
Westinghouse E. & M. Co.

Car Wheels, Botted Steel
Bethlehem Steel Co.

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

Cars, Gas, Rail
Brill Co., The J. G.

Cars, Passenger, Freight, Express, etc.
American Car Co.
Brill Co., The J. G.
Cummings Car & Coach Co.
Kuhlman Car Co., G. C.
National Ry. Appliance Co.
Wason Mfg. Co.

Cars, Second Hand
Electric Equipment Co.

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

Castings, Brass Composition or Copper
Ajax Metal Co.
More-Jones Brass & Metal Co.

Castings, Gray Iron and Steel
American Steel Foundries
Bemis Car Truck Co.
Wm. Wharton, Jr. & Co.

Castings, Malleable and Brass
Bemis Car Truck Co.

Catchers and Retrievers, Trolley
Elec. Service Supplies Co.
Ohio Brass Co.
Wood Co., Chas. N.

Catenary Construction
Archbold-Brady Co.

Celling Car
Haskelite Mfg. Corp.
Pantastote Co., Inc.

Ceilings, Plywood, Panels
Haskelite Mfg. Corp.

Change Carriers
Cleveland Fare Box Co.
Electric Service Supplies Co.

Circuit-Breakers
General Electric Co.
Westinghouse E. & M. Co.

Clamps and Connectors for Wires and Cables
Elec. Ry. Equipment Co.
Elec. Ry. Improvement Co.
Elec. Service Supplies Co.
General Electric Co.
Hubbard & Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Cleaners and Scrapers Track (See also Snow-Flows, Sweepers and Brooms)
Brill Co., The J. G.
Ohio Brass Co.

Clusters and Sockets
General Electric Co.

Coil Banding and Winding Machines
Elec. Service Supplies Co.
Westinghouse E. & M. Co.

Colls, Armature and Field
General Electric Co.
Westinghouse E. & M. Co.

Colls, Choke and Kiecking
Elec. Service Supplies Co.
General Electric Co.
Westinghouse E. & M. Co.

Coin Counting Machines
Cleveland Fare Box Co.
International Register Co.

Coin Sorting Machines
Cleveland Fare Box Co.

Coin Wrappers
Cleveland Fare Box Co.

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

Commutator Truing Devices
General Electric Co.

Commutators or Parts
Cameron Electrical Mfg. Co.
General Electric Co.
Westinghouse E. & M. Co.

Compressors, Air
General Electric Co.
Ingersoll-Rand Co.
Westinghouse Tr. Br. Co.

Compressors, Air Portable
Ingersoll-Rand Co.

Condensers
General Electric Co.
Ingersoll-Rand Co.
Westinghouse E. & M. Co.

Condenser Papers
Irvington Varnish & Ins. Co.

Connectors, Solderless
Westinghouse E. & M. Co.

Connectors, Trailer Car
Consolidated Car Heat. Co.
Elec. Service Supplies Co.
Ohio Brass Co.

Controllers or Parts
American Brown Boveri
Elec. Corp.
General Electric Co.
Westinghouse E. & M. Co.

Controller Regulators
Elec. Service Supplies Co.

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

Converters, Rotary
American Brown Boveri
Elec. Corp.
General Electric Co.
Westinghouse E. & M. Co.

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

Copper Wire Instruments, Measuring, Testing and Recording
American Brass Co.
American Steel & Wire Co.
Anaconda Copper Mining Co.

Cord, Bell, Trolley, Register
Amer. Steel & Wire Co.
Brill Co., The J. G.
Elec. Service Supplies Co.
International Register Co.
Roehling's Sons Co.
John A.
Samson Cordage Works
Silver Lake Co.

Cord Connectors and Conplers
Elec. Service Supplies Co.
Samson Cordage Works
Wood Co., Chas. N.

Couplers, Car
American Steel Foundries
Brill Co., The J. G.
Ohio Brass Co.
Westinghouse Tr. Br. Co.

Cranes, Electric, Industrial, Truck-Mounted
Baker-Raulang Co., The
Cranes, Hoists & Lifts
Electric Service Supplies Co.
Cross Arms (See Brackets),
Crossing Foundations
International Steel Tie Co.
Crossings
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co.
Crossings, Frogs & Switches
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co.
Crossings, Manganese
Bethlehem Steel Co.
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co.
Crossings, Track (See Track Special Work)
Crossings, Trolley
Ohio Brass Co.
Westinghouse E. & M. Co.
Curtains & Curtain Fixtures
Brill Co., The J. G.
Morton Mfg. Co.
Pantastote Co., Inc.

Dealer's Machinery & Second Hand Equipment
Elec. Equipment Co.
Lepper, C. W.

Dealer Second Hand Rails
Electric Equipment Co.

Derailing Devices (See also Track Work)

Derailing Switches
Ramapo Ajax Corp.

Destination Signs
Elec. Service Supplies Co.

Detective Service
Wish-Service, P. Edward

Door Operating Devices
Brill Co., The J. G.
Consolidated Car Heating Co.
Nat'l Pneumatic Co., Inc.
Safety Car Devices Co.

Doors & Door Fixtures
Brill Co., The J. G.
General Electric Co.
Hale-Kilburn Co.
Morton Mfg. Co.

Doors, Folding Vestibule
Nat'l Pneumatic Co., Inc.
Safety Car Devices Co.

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

Dryers, Sand
Electric Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

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

Electric Grinders
Railway Trackwork Co.

Electrical Wires and Cables
Amer. Electrical Works
Amer. Steel & Wire Co.
John A. Roehling's Sons Co.

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

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

Engineers, Consulting, Contracting and Operating
Archbold-Brady Co.
Beeler, John A.
Bibbins, J. Rowland
Buchanan & Layng Corp.
Day & Zimmermann, Inc.
Ford, Bacon & Davis
Hemphill & Wells
Holst, Engelhardt W.
Jackson, Walter
Kelker & DeLew
Kelly, Cooke & Co.
McClellan & Junkersfeld
Richey, Albert S.
Sanderson & Porter
Stevens & Wood
Stone & Webster
White Eng. Corp., The
J. G.

Engines, Gas, Oil or Steam
Ingersoll-Rand Co.
Westinghouse E. & M. Co.

Exterior Side Panels
Haskelite Mfg. Corp.

Fare Boxes
Cleveland Fare Box Co.
Nat'l Ry. Appliance Co.
Perey Mfg. Co.

Fare Registers
Electric Service Supplies Co.

Fences, Woven Wire and Fence Posts
Amer. Steel & Wire Co.

Fenders and Wheel Guards
Brill Co., The J. G.
Consolidated Car Fender Co.
St. Louis Car Co.
Star Brass Works
Wood Co., Chas. N.

Fibre and Fibre Tubing
Westinghouse E. & M. Co.

Field Colls (See Colls)

Flaximum Insulators
National Railway Appliance Co.

Floodlights
Electric Service Supplies Co.

Floor, Sub
Haskelite Mfg. Corp.

Floors
Haskelite Mfg. Corp.

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

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

Frogs, Track (See Track Work)

Frogs, Trolley
Electric Service Supplies Co.
Ohio Brass Co.
Westinghouse E. & M. Co.

Furnaces, Electric, Steel Melting
American Brown Boveri
Elec. Corp.

Funnell Castings
Wm. Wharton, Jr. & Co.

Fuses and Fuse Boxes
Consolidated Car Heating Co.
General Electric Co.
Westinghouse E. & M. Co.

Fuses, Refillable
General Electric Co.

Gaskets
Westinghouse Tr. Br. Co.

Gas-Electric Cars
General Electric Co.
Westinghouse E. & M. Co.

Gas Producers
Westinghouse E. & M. Co.

Gates, Car
Brill Co., The J. G.

Gauges, Oil and Water
Ohio Brass Co.

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

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

Gears and Pinions
Bemis Car Truck Co.
Bethlehem Steel Co.
Electric Service Supplies Co.
General Electric Co.
Nat'l Ry. Appliance Co.
Nuttall Co., R. D.

Generating Sets, Gas-Electric
General Electric Co.

Generators
American Brown Boveri
Elec. Corp.
General Electric Co.
Westinghouse E. & M. Co.

Older Rails
Bethlehem Steel Co.
Lorain Steel Co.

Gongs (See Bells and Gongs)

Greases (See Lubricants)

Grinders & Grinding Supplies
Metal & Thermit Corp.
Railway Trackwork Co.

Grinders, Portable
Railway Trackwork Co.

Grinders, Portable Electric
Railway Trackwork Co.

Grinding Bricks and Wheels
Railway Trackwork Co.

Guard Rail Clamps
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co.

Guard Rails, Tee Rail & Manganese
Ramapo Ajax Corp.
Wm. Wharton, Jr. & Co.

Guards, Trolley
Elec. Service Supplies Co.
Ohio Brass Co.

Hammers, Pneumatic
Ingersoll-Rand Co.

Haps, Trolley
Elec. Service Supplies Co.
More-Jones Brass & Metal Co.

Nuttall Co., R. D.
Star Brass Works

Headlights
Elec. Service Supplies Co.
General Electric Co.
Ohio Brass Co.

Headlining
Haskelite Mfg. Corp.
Pantastote Co., Inc.

Heaters, Car (Electric)
Consolidated Car Heating Co.
Gold Car Heat. & Ltg. Co.
Nat'l Ry. Appliance Co.
Smith Heater Co., Peter

Heaters, Car, Hot Air and Water
Smith Heater Co., Peter

Heaters, Car Stove
Smith Heater Co., Peter

Helmets, Welding
Railway Trackwork Co.
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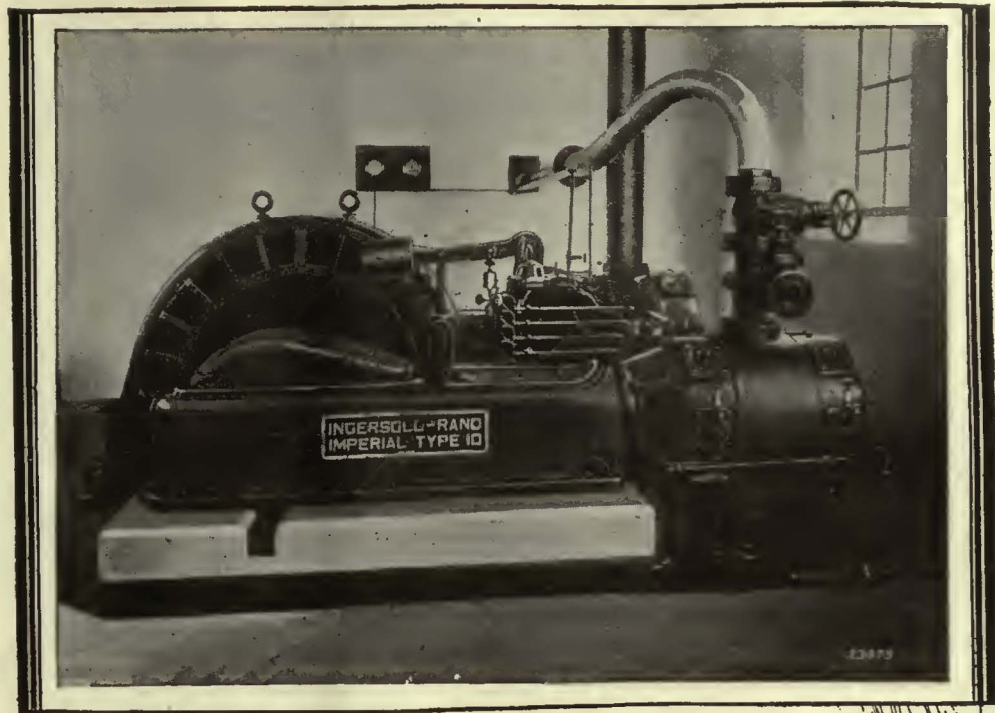
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Ingersoll-Rand Co.

Hose, Bridges
Ohio Brass Co.

Hose, Pneumatic
Westinghouse Traction
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(Continued on page 42)



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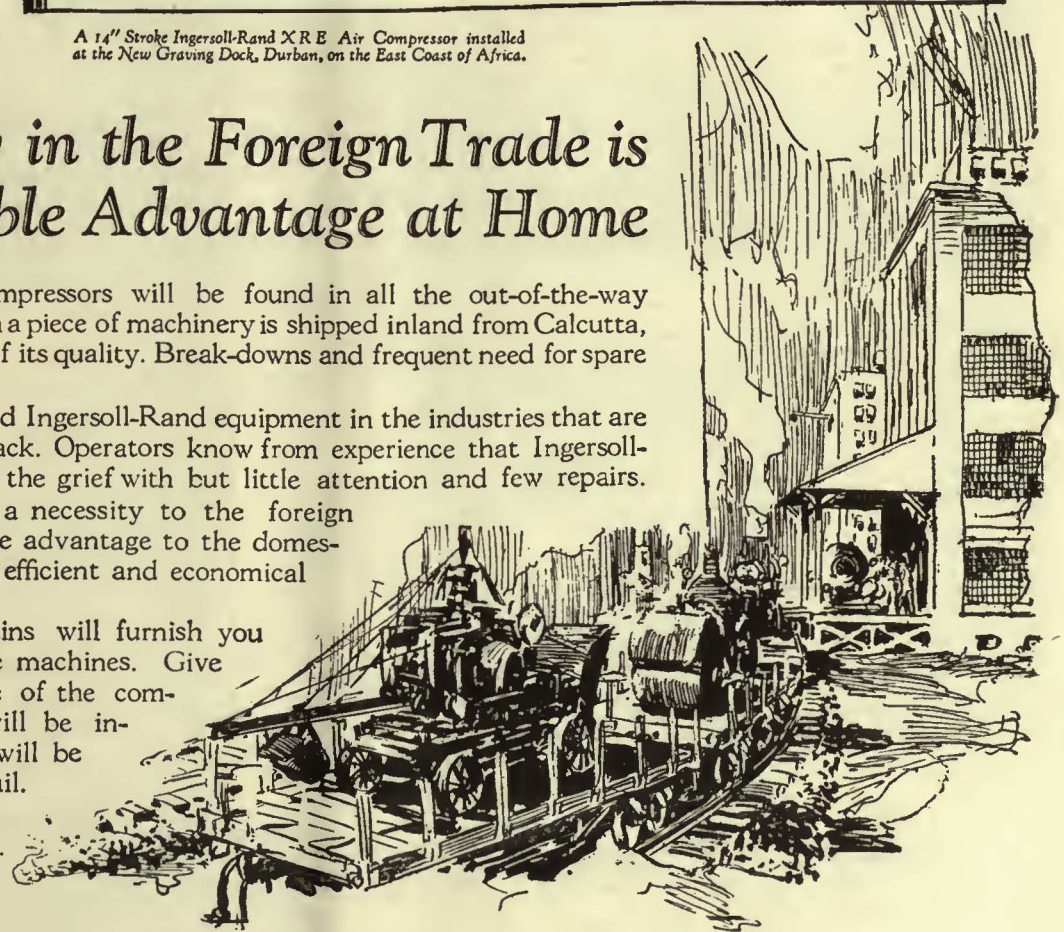
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Our advertisement in the issue of July 17 showed how electric rail way men are demonstrating their confidence in

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Pittsburgh, Pa.

Your Name

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



Car Heating and Ventilation

are two of the winter problems that you must settle without delay. We can show you how to take care of both, with one equipment. Now is the time to get your cars ready for next winter. Write for details.

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

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Better Quality Seats
For Cars and Buses

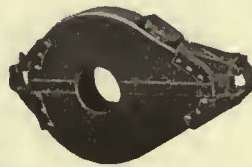
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THE BEST TRUSS PLANK ELECTRIC HEATER EVER PRODUCED



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One-Piece Gear Cases

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Best for Service—Durability and Economy. Write Us.

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H B LIFE GUARDS

PROVIDENCE FENDERS

Manufactured by

CONSOLIDATED CAR FENDER CO., PROVIDENCE, R. I.

General Sales Agents

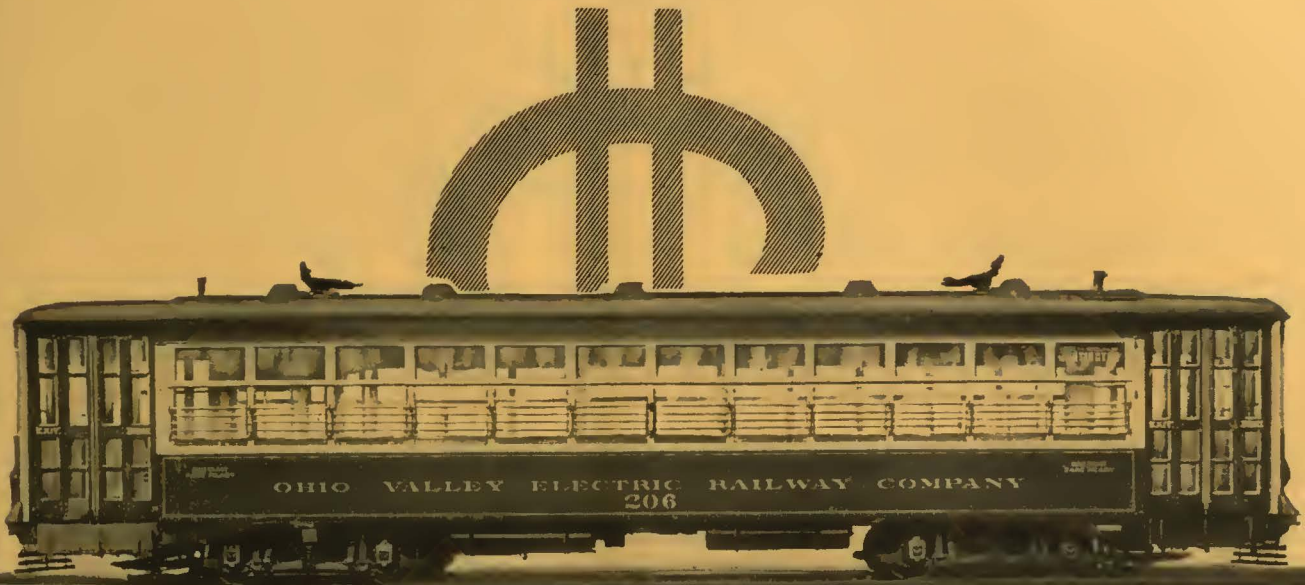
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HILLBURN, N. Y.
NIAGARA FALLS, N. Y.
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Ramapo Ajax Corporation

RACOR

RAMAPO AUTOMATIC
RETURN SWITCH STANDS
FOR PASSING SIDINGS
TEE RAIL SPECIAL WORK
MANGANESE CONSTRUCTION
SALES OFFICES AT ALL WORKS
—Main Office, HILLBURN, N. Y.



40 light-weight cars placed in service in 1923 resulted in a 12 per cent. increase in car miles per year, and an annual saving in maintenance, power and platform expense aggregating 15.2 per cent return on the investment.

New Cars—Worthwhile Economies

Substantial returns on investments result from economies realized with modern cars

The recently published report of the American Electric Railway Association's Committee on Essential Features of Modern Cars includes many excellent illustrations in which substantial returns have been obtained on investments in modern cars. While these vary from a few as low as 12.8 per cent up to 65 per cent, it is apparent

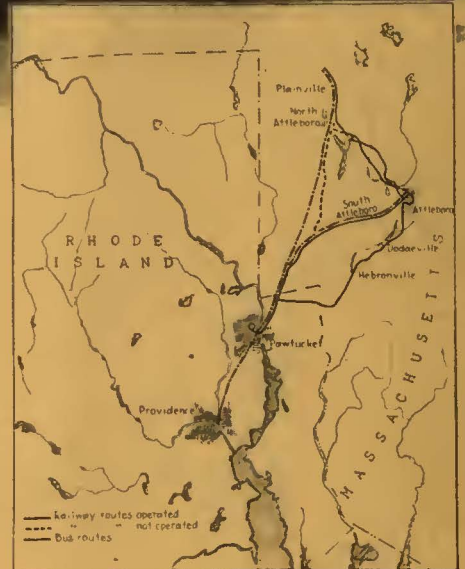
that the economies resulting from the substitution of light-weight modern cars for heavy and obsolete equipment are worthwhile.

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

 **THE J. G. BRILL COMPANY** 
 PHILADELPHIA, PA.
 AMERICAN CAR CO. — G. C. KUHLMAN CAR CO. — WASON MAN'G CO.
 ST. LOUIS, MO. — CLEVELAND, OHIO. — SPRINGFIELD, MASS.



The reduced expenses, and often increased revenue, mean such a large annual return on the investment that modern cars soon pay for themselves—and then they go on earning more than the obsolete cars they replaced.



New light-weight cars help retain railway service for "the Attleboros"

The history of the Interstate Street Railway covering recent months is another story of the power of modernization to make railway operation pay.

This road operated at a loss, passed into receivership and was sold at auction. Then it purchased lighter, attractive cars, G-E equipped; began one-man operation; increased schedule speeds; reduced sub-station costs by the adoption of automatic control; and promoted public good will.

Savings made during three months' operation total more than \$13,000—an annual return of 65% on the new-car investment.



General Electric equipment has been chosen for many of the recent outstanding, forward-looking car developments. It has helped to make many of the operating records which have established so conclusively the value of the modern light-weight car.

	Operating costs per car-mile for 3-month period during 1925		Reductions in operating costs per car-mile for accounts affected by the new cars	
	Old Cars	New Cars	Cents	Per cent
Way & Structures	4.10¢	2.38¢	—	—
Equipment	8.11	3.14	4.97¢	61%
Power	8.80	5.43	3.37	38
Conduct. Trans.	13.06	9.02	4.04	31
General & Misc.	3.52	5.93	—	—
Total	37.59¢	25.90¢	12.38¢	33%

GENERAL ELECTRIC