

ELECTRIC RAILWAY JOURNAL

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APRIL 28, 1928

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Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania

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



1928

Westinghouse

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Humanizing the Service

MUCH depends, in these days of intense activity, on the manner in which goods are displayed. This is true not only of the butcher, the baker and the dry-goods merchant but of the electric railway as well. In the past there has been a great deal of talk about what should be done. The JOURNAL has given space to many articles of real merit on how to better the sales methods of the railways. At one time there was but little to publish regarding actual accomplishment. Today, however, tangible results can be pointed out, and new methods are constantly coming to light.

One example of this new attitude is seen in the Philadelphia public relations department, an article on which appears in this issue. Another instance where the same spirit is making itself felt is in the organization of a personnel department by the Cleveland Railway, which will be the subject of another article to appear soon. Still another phase is the formulation by the North Shore Line of rules for employees in responsible positions. An article explaining this will also appear shortly. All these developments present evidence that the industry really is giving attention to humanizing the service. The ideas back of them are free for all to use. Watch for the articles.

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BETTER RAIL, BETTER TRANSPORTATION

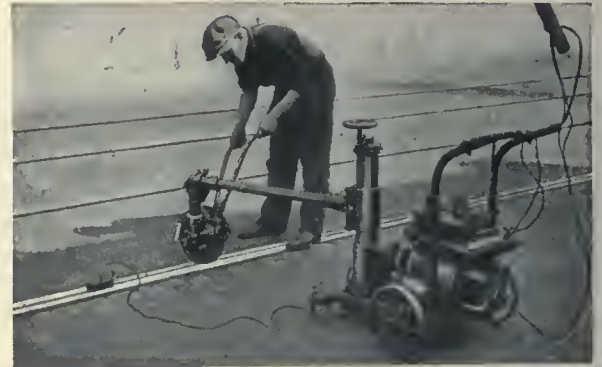
“Noise shortens life”

So said Professor A. M. Low, eminent experimenter with noise prevention in London tubes.

Noise in car operation certainly is a sure sign that life is being shaken and taken out of track and rolling stock.

Smooth rail certainly reduces noise and lengthens life of car and track.

Maintenance money put into track grinding and Ajax Arc Welding certainly goes farthest.



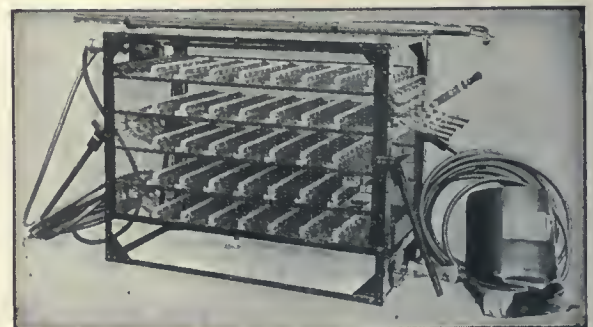
Eureka Radial Rail Grinder



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Reciprocating Track Grinder



“Ajax” Electric Arc Welder

Railway Trackwork Co.

3132-48 East Thompson Street, Philadelphia

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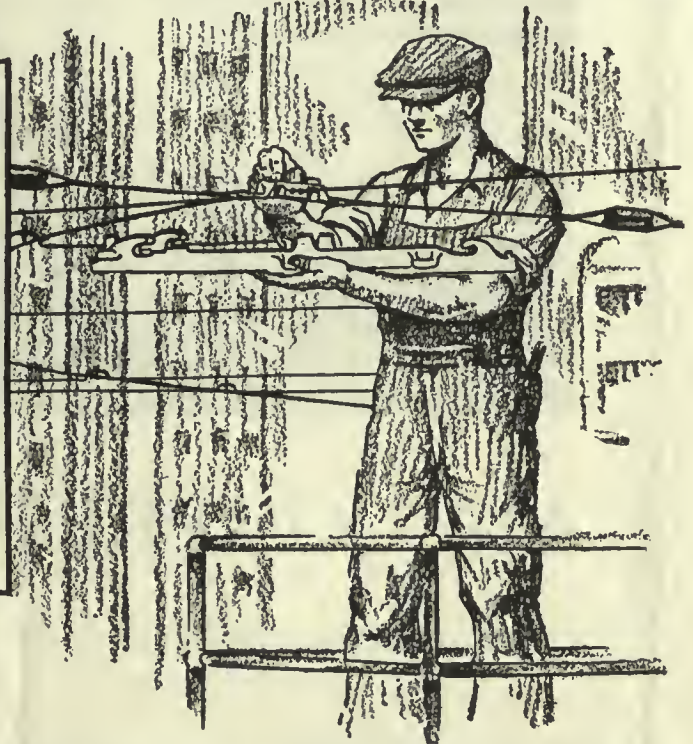
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The New ^{O-B} Duplex TROLLEY FROG



Used on Any Curve—Stays Up Longer—Easier to Renew!

NOW you can have all three of these service advantages in *one* frog. They are combined in the modern design, O-B Duplex Frog—made with overlapping runners, *renewable underrun*, and adaptable to any degree of turnout. Each of these features in itself means a saving—in time, materials, labor and revenue. Any one feature would justify the use of the Duplex Frog on your property—as another means of saving that 1% in costs that adds nearly 20% to the net!

The renewable underrun, next to longer life, is the outstanding advantage of the Duplex Frog. It is seldom necessary to replace the underrun; it will average from 300,000 to 500,000 car passes. *Then* replacement is

made in half the usual time, without disconnecting cross span or turnout trolley wire, without the use of block and tackle, and with no need of relocating or realigning the frog for satisfactory operation. The removal of two bolts that attach the underrun to the suspension yoke is all that is needed to release the underrun.

Overlapping runners keep the wheel off of the pan and O-B Cam Tips insure a smooth approach and leave—both add to the life of the trolley wire and frog itself.

Your O-B Salesman will give you complete information—and arrange for prompt shipment of your order for the Duplex Frog.

Ohio Brass Company, Mansfield, Ohio
Canadian Ohio Brass Co., Limited
Niagara Falls, Canada
818L

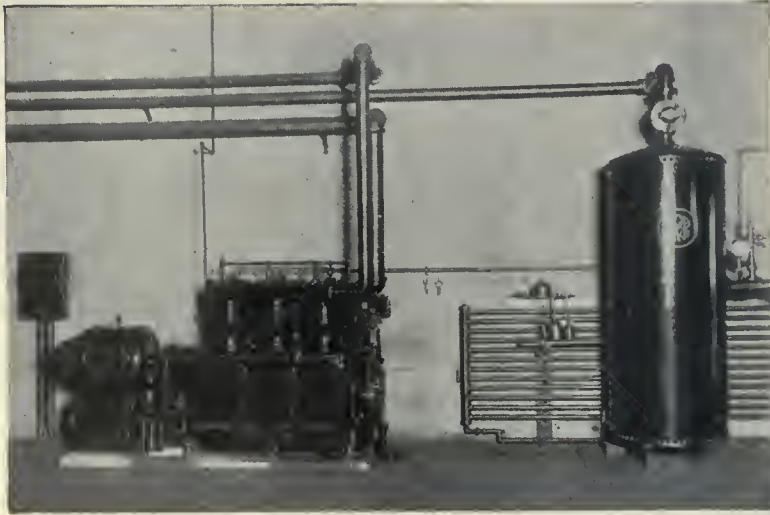
Ohio Brass Co.



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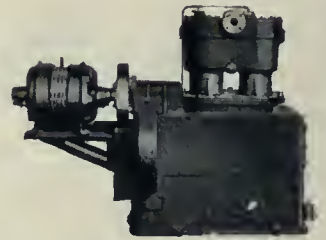
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"QUALITY MACHINES FOR QUALITY SERVICE"



Type "N" compressor, 12 to 60
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THE use of Steel Twin Ties in modern paved track construction saves both time and money, and has as a result a better, more enduring construction.

Steel Twin Ties save time in installation because they are uniform, easy to lay, easy to handle, and lend themselves to mass production methods.

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Write us today for delivered prices for your next track construction work.

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STEEL TWIN TIE TRACK
THE BASE OF MODERNIZATION

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—are manufactured to meet all operating conditions and to withstand the strains and stresses to which they are subjected during long periods of service.

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STEEL SPRINGS
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Here's the buying guide for the modern well-equipped car Essco Catalog No. 7

For the past few months we have pointed out in some detail a few of the many Keystone Specialties found on the modern well-equipped car—such as

- Hunter-Keystone Illuminated Signs
- Keystone Dome Type Lighting Fixtures
- Faraday Signal Systems
- Keystone Steel Gear Cases
- Wear-Proof Mats
- Keystone Rotary Gongs
- Golden Glow Headlights
- Keystone Trolley Catchers

To get full particulars of these as well as our other Keystone Car Equipment, send for

ESSCO Catalog No. 7.

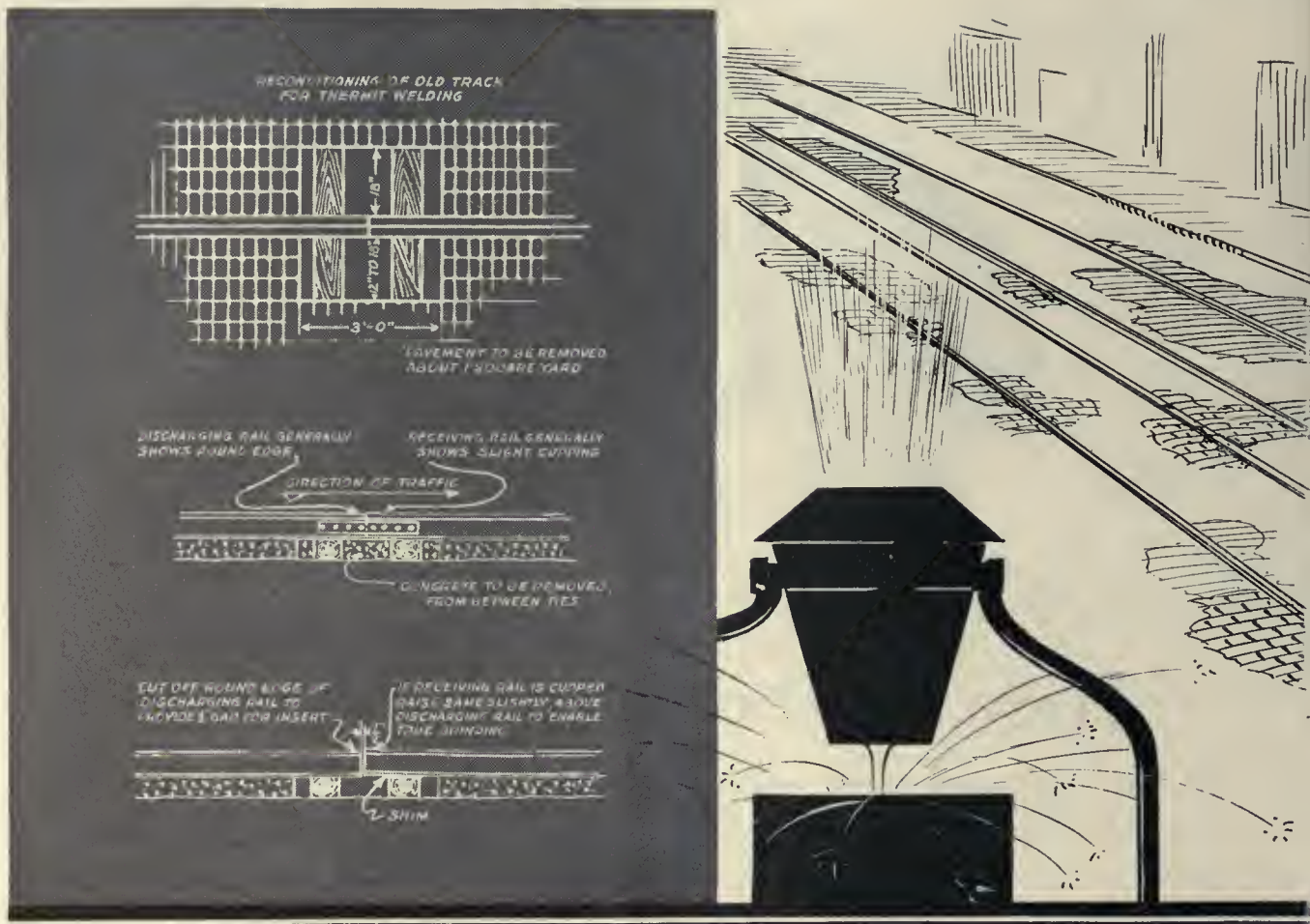
Home office and plant at 17th & Cambria Sts., PHILADELPHIA; District offices at 111 N. Canal St., CHICAGO; 50 Church St., NEW YORK; Bessemer Bldg., Pittsburgh; 88 Broad St., Boston; General Motors Bldg., Detroit; 316 N. Washington Ave., Scranton; Canadian Agents, Lyman Tube & Supply Company, Ltd., Montreal, Toronto, Vancouver.

ELECTRIC SERVICE SUPPLIES Co.

MANUFACTURER OF RAILWAY, POWER

AND INDUSTRIAL ELECTRICAL MATERIAL





It's simple enough to repair the bad joints with Thermit!

Less than 3 ft. of rail to be opened—just enough to get at the joint and set the moulds.

Only a bit of concrete to be removed between the ties under the joint.

Just a little shimming to raise the cupped part of the receiving rail, flush with the discharging rail.

Cut away enough of the discharging rail to allow placing of insert.

Then make your Thermit weld the same as in laying new rail.

And you get the same result—a continuous piece of rail free from future joint troubles as long as the rail itself will last.

Blueprints, instructions and further information on request.



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SOUTH SAN FRANCISCO

TORONTO



In Less than Two Years

14 *New Routes acquired*

6 *Re-orders placed*

5040 *daily bus miles added*

The policy that is building business and winning for the Camel City Coach Company, Winston-Salem, N. C.

Standardizing

on

YELLOW COACHES

“W



*The Camel City Coach Company
states its reason for Standardization*

“ We are highly pleased with our Yellow Coaches and the service they are giving our riders. They are the best coach on the road today and we do not know of any other coach, at any cost, that is as good. We have built up our business with them. We have no kicks of any kind to register, and if the Yellow Coach Company keeps its service up to its present high standard we will continue to standardize on Yellow Coaches and replace our worn out equipment with them. ”

have built up our business with **YELLOW COACHES**”

Two years ago the Camel City Coach Company started motor coach operation with six Type X Parlor Car Yellow Coaches.

Among its assets were a type of motor coach chosen after a careful survey of the field plus a determination to widen its range of service and build up a dominating transportation business.

By leaps and bounds additional routes were acquired; increasing bus miles operated per day from 960 to 6000. And to keep pace with this expansion, re-orders were placed steadily for Yellow Coaches. In all, the company has purchased Yellow Coaches seven times, increasing the original fleet of 6 to 33.

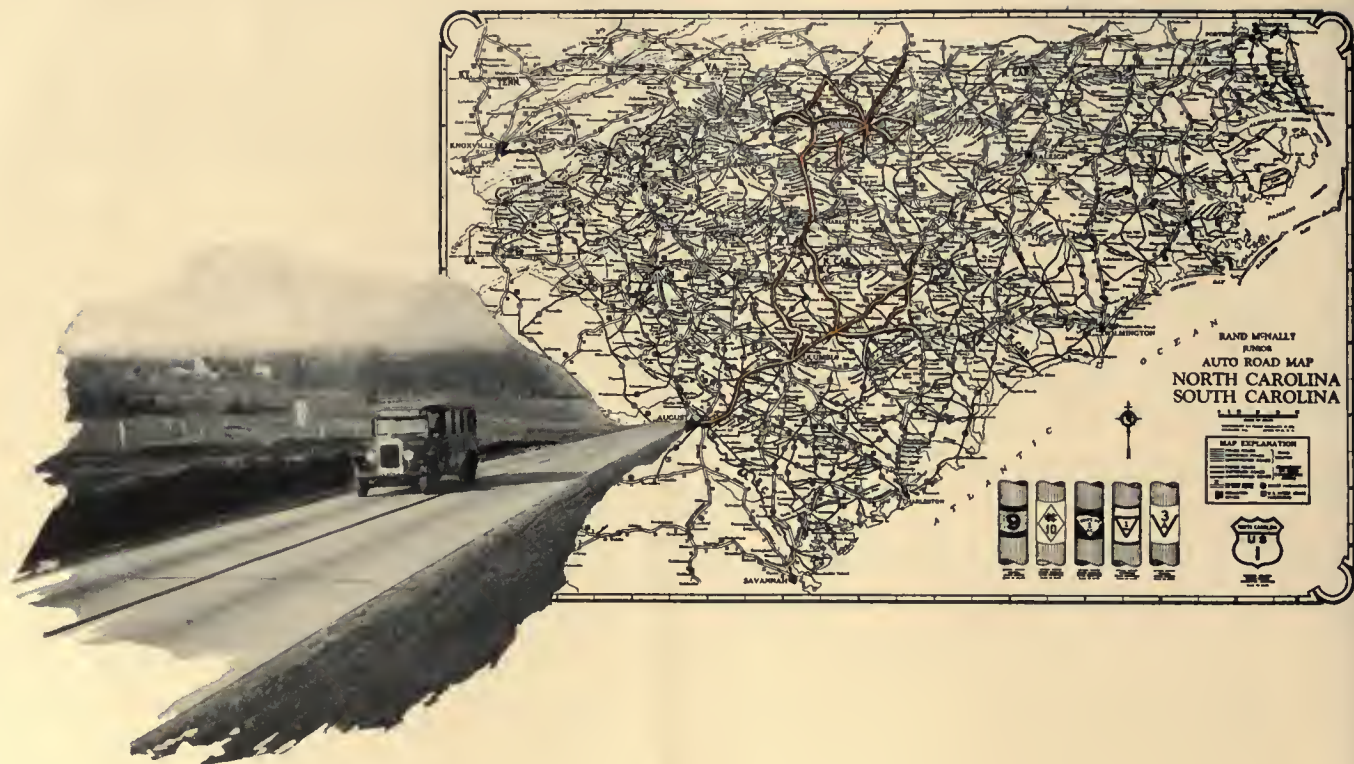
With the exception of one route, it is all inter-city service handling a widely diversified class of rider ranging from high class residential patronage and industrial factory workers to farmers and tourists— a remarkable yardstick for measuring approval toward the standardized make and type of vehicle offered.

Yellow Coaches are performing 75 per cent of all scheduled service, and miscellaneous buses acquired in the purchase of bus routes are being replaced by Yellows as rapidly as possible.

The Camel City Coach Company has learned from experience that standardization pays. Repeat orders, necessary to service the thousands of daily bus miles added, indicate not only that satisfaction arising from dependable and economical operation but the wisdom of servicing routes with motor coaches to which the public responds.

Yellow Coaches are route builders.

They are also fleet builders.



A million and a half bus miles per year at an average cost of 16.05 cents per mile

On routes served exclusively by Yellow Coaches, and on the basis of a three months' careful check, it is shown that Yellow Coaches are operating at a cost of 16.05 cents per bus mile. *And this low figure includes a 6 per cent State Tax and a 4 cents per mile depreciation charge.*

Operating costs include all operating and maintenance expense—fuel, drivers and garage wages, shop costs, maintenance, lubrication, insurance, general and miscellaneous, interest, tires, station expense and a depreciation item of 4 cents per bus mile.

And in all the hundreds of thousands of miles operated there have been but two road failures due to minor ignition trouble.

Does it pay to standardize on Yellow Coaches?

Ask the Camel City Coach Company!

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



There is no need for waiters when customers are glad to serve themselves.



SELF SERVICE CARS

On thousands of cars in nearly a hundred cities, the NP Automatic Treadle Doors have shown passengers how easy and safe it is to exit by their own efforts.

TREADLE-IZE!

CONSTANTLY



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Railway & Power Engineering Corp., Ltd.

PHILADELPHIA
1010 Colonial Trust Building

DECELECO

—a name which stands for the most modern and efficient type of Bus and Switch Cell structures.

ENGINEERS of modern electric railway substations—the Cincinnati Street Railway for example—have come to recognize in DECELECO a standard cell structure which combines convenience in construction with effectiveness at low cost.

With DECELECO, standardized construction can be applied to any cell structure. Fire-resisting, non-conductive resilient barriers between circuits and equipment are easily erected on the job. Any damaged cell part can be removed and replaced at any time without dismantling the rest of the structure.

“ZELLITE”, the material of which DECELECO slabs are made, can be cut, drilled and worked as easily as wood. It has more than 15 years' unqualified endorsement of foreign engineers in all parts of the world. In certain foreign countries it has been standardized to the exclusion of all other materials for cell structures.

The extent to which DECELECO Constructions have been accepted in this country in a remarkably short time by representative electric railway and public utility operators is expressed by the outstanding companies listed herewith.

Whenever you desire, our engineers will be glad to give you full information about DECELECO, our products and completed installations, also *why it is that “ZELLITE” is more and more being recognized as the most suitable cell structure material.*

A few representative installations

American Gas & Electric Co.
Carnegie Steel Co.
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City of Detroit
City of Lansing
Consumers Power Co.
General Electric Co.
Goodyear Tire & Rubber Co.
International Paper Co.
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Monongahela & West Penn Public Service Co.
Paul A. Sorg Paper Co.
Penn. Public Service Co.
Pollak Steel Co.
Wheeling Electric Co.
Youngstown Sheet & Tube Co.

DECELECO, Inc., Wayne, Michigan
New York—50 Church St. Chicago—447 Monadnock Block



YOU know how it is with ordinary track—stays good a few years (sometimes very few)—then it gets full of wrinkles and bumps.

The joints sink, and have to be bolstered up.

That sort of track gets old before its time—has to have its face lifted.

Dayton Tie Track stays young—you don't have to call in the plastic surgeon.

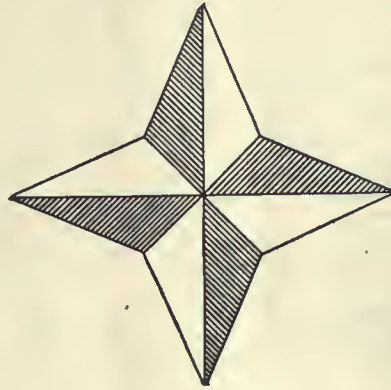
**DAYTON
Tie Track
Doesn't
Need "Face
Lifting"**



The Dayton Mechanical Tie Co.

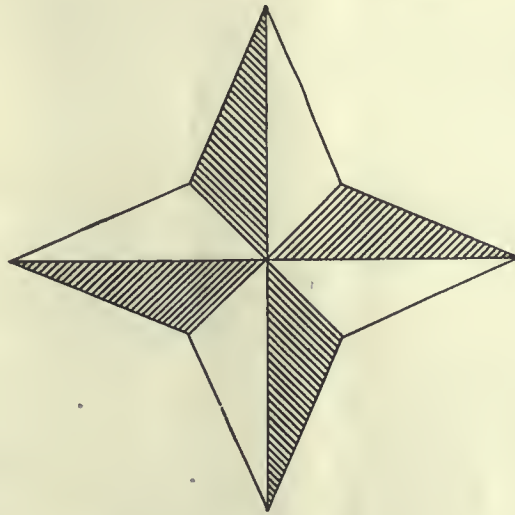
DAYTON

OHIO



How much of your earnings are left behind in slow starts?

How much is taken by accidents that are preventable?



There was a time when the street car was the fastest vehicle between curbs. Today many of them are the last to start—and to stop. Both short comings are needless handicaps. Slow starts beget slow schedules. Tardy halts imply accidents and resultant damage suits.

The Cincinnati Car Company will be glad to show you how Cincinnati **BALANCED LIGHTWEIGHT** cars have speeded up schedules. We will welcome the opportunity to show you in **ACTUAL REPORTS OF ACCIDENTS PREVENTED** how greatly Cincinnati Duplex-Air-Magnetic Braking Equipment **REDUCES THE STOPPING TIME**.

Faster schedules and reduced stopping time are factors that create increased earnings and reduce accident losses on every line which operates Cincinnati **BALANCED LIGHTWEIGHT** Cars. Their records are available for you to study.

CINCINNATI CAR COMPANY
CINCINNATI, OHIO

CINCINNATI **BALANCED LIGHTWEIGHT** **CARS**

—still a step ahead of the modern trend!



"Consolidated" Aviation Motor Heaters installed in this airplane proved a success in the tests made on the occasion of Colonel Lindbergh's visit. The tests were made at Westerlo Island.

CONSOLIDATED

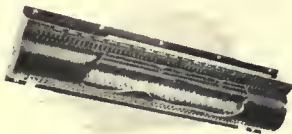
*leading the present—
pioneering the future*



Visible Mercury Thermostat with Glass Cover.



Heating Element of heavy nickel chromium wire, highly insulated—Rust proof, non-magnetic, withstanding and resistant to mechanical strain.



Protected Open Coil Heater. The guard positively prevents contact with any live parts. Furnished in Cross-seat, Panel and Truss Plant Types. Approved by the Underwriters' Laboratories.

Flying for all is coming! The future will bring with it a solution of the problems of safety and comfort for air passengers. The picture story above proves it.

Meanwhile, the world travels on wheels and the problem of heating comfort for passengers has been solved by the installation of CONSOLIDATED ELECTRIC CAR HEATERS equipped with CONSOLIDATED *visible* Thermostatic Heat Control and Safety Switches.

CONSOLIDATED ELECTRIC HEATERS are made in open and closed element types, in a wide variety of styles to meet any car design requirements. They can be furnished for 600, 1200, or 1500 volts. They give maximum economy, safety and service.

Consolidated Thermostatic Control is automatic and efficient, without failure or forgetting, without supervision or inspection.

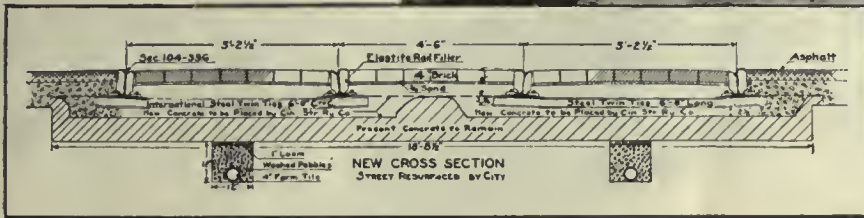
The car heating problem of today may be troubling you—why not let CONSOLIDATED help you give your passengers riding comfort?



CONSOLIDATED CAR-HEATING COMPANY

New York Albany Chicago

Carey Elastite System of Track Insulation is a preformed asphaltic compound reinforced with asphalt-saturated fibres. It is impervious to moisture, can be installed at any temperature, and forms a resilient cushion between the rail and the pavement. Slabs are preformed to fit any rail section.



Showing the method of track reconstruction on Reading Road, Cincinnati.

Cincinnati-

a glowing example
of traction development

BY June 1, of this year, The Cincinnati Street Railway Company will have completed one of the most extensive improvement programs ever undertaken by a street railway system.

New car-shops—178,000 square feet of floor space! A new power distribution system . . . nineteen substations, ten of them brand-new and all full-automatic—under supervisory control.

Twelve miles of track reconstructed in 1926. Twenty-one miles in 1927.

Twenty-four miles (estimated) in 1928. And The Cincinnati Street Railway Company has made some radical improvements over old methods of track construction . . .

For every foot of this track is protected by a lastingly resilient cushion between the rails and paving. An average, every year, since the beginning of 1926, of *more than three hundred and fifty thousand lineal feet* of rail filler—Carey Elastite System of Track Insulation!



THE PHILIP CAREY COMPANY
Lockland, Cincinnati, Ohio

SYSTEM OF TRACK INSULATION

ELECTRICITY IMPROVES SERVICE AND INCREASES REVENUE



THE ILLINOIS CENTRAL *electrified to improve suburban operation*

The Illinois Central, which serves Chicago's crowded suburban area, carried more than thirty million commuters in 1927—twenty-five per cent more than in 1926.

President L. A. Downs, of the Illinois Central, attributes much of the increased patronage to the faster and more frequent train service provided in the electrified zone.

Complete electrification of terminal lines not only brought about this sudden and substantial increase of riders but also turned the \$337,000 operating deficit of 1926 into an income of \$530,000 in the following year.

Speed always appeals to commuters; and in addition to speed, riders have been attracted by the absence of smoke, cinders, and noise; by the seating capacity and smooth motion of the trains; and by the clean comfort of the cars.

Not only at terminals, but on the long, level stretches of main line, electric operation produces more revenue, simplifies operation, reduces maintenance, and gives better service.



Manifold advantages of electric operation have resulted from the use of electric locomotives and cars on main and branch lines, at terminals, and in suburban traffic; gas-electric cars for light-traffic lines; oil-electric locomotives in freight yards; and gas-electric buses for feeder service. Electric floodlights expedite freight sorting, and electric signal systems promote safe transportation.

GENERAL ELECTRIC

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

Electric Railway Journal

McGraw-Hill Publishing Co., Inc.
JAMES H. MCGRAW, President

Consolidation of
Street Railway Journal and
Electric Railway Review

CHARLES GORDON
Editor

Volume 71

New York, Saturday, April 28, 1928

Number 17

"Window Dressing" Is an Important Activity

FEW retail stores make any pretense of attracting customers without preparing attractive displays in the show windows so that the passers-by may get some idea of the goods on sale within. Where the store makes any attempt to go after a substantial class of trade the window dresser and his art become an important factor in the personnel. Much literature has been written on the subject, and courses of study have been prepared to teach the window dresser the fine points of his business.

So it should be with the transportation company. In the article on the public relations department of the Philadelphia Rapid Transit Company by J. J. Davies in this issue the public relations man is likened to the store window dresser. He is the man who calls to the attention of the riding public the advantages of using the transportation system. He is the man who makes contact with the various citizens' organizations. He is the man who prepares the advertising designed to reach the prospect. Even more, he is the man who must mollify the patron who feels that he has a grievance.

At first glance, it might be assumed from the article that a large and expensive organization is needed to conduct a public relations department properly, so that only the very largest companies can afford to maintain one. The author is emphatic in declaring that one live wire, with the right personality and a proper understanding of his work, can accomplish wonders for a small property. In these days of intensive competition with personal transportation there is no company that cannot afford to make such an expenditure, for it is likely to prove the salvation of the property.

No Grass Growing Under Their Feet

COURAGE of high order is reflected in the report of the Market Street Railway, San Francisco, for 1927. That company operates not only at a 5-cent fare, but in the face of competition from the San Francisco Municipal Railway. It is paying no dividends, to be sure, but it is making a good record and it is apparently exhausting every resource of men and management in the adoption of the most up-to-date operating ideas. To run the gamut of all the things it has done would, of course, be impossible.

Last year its expenses increased \$226,764 over 1926 on account of increases in wages of employees, better maintenance of equipment and "increased costs of efforts to obtain new business." Truly that last phrase is significant. In the absence of any segregation of the items of expense there is no way to tell how much was spent in this effort to secure new business, but it is an activity of which no thought was taken by the railways only a short time ago. It may, of course, be assumed that this expenditure has more than repaid the company.

On its financial side the report is most satisfactory, everything considered. The net income was \$258,158, but this was after the payment of all expenses, including interest on funded debt. The sum of \$500,000 was set aside for depreciation, and another \$500,000 was put aside for the bond redemption. A provision of the bond indenture infrequently encountered these days is that the bonds acquired for the sinking fund shall remain alive and continue to draw interest for the retirement of additional bonds. This, of course, imposes a mounting burden, but it was considered advisable under the present circumstances, particularly the circumstances incident to the questions about the company's maturing franchises. Certainly the company is operating against great odds, but they appear only to have increased the fortitude of the management. In short, the annual report proves that the responsible operating officials of the company are not permitting the grass to grow under their feet.

Lackawanna Electrification Significant

DECISION of the Lackawanna Railroad to begin at once the electrification of its main commuting lines leading to New York City is doubly significant. In the first place the project involves 78 route miles, making it one of the longest suburban electrifications in the United States. Moreover, this large undertaking has been made possible at the present time by the willingness of the public to pay an increased fare for improved service.

The plan includes the entire Morris & Essex division from Hoboken to Dover, as well as the Passaic & Delaware and the Montclair branches, with a total of 173 miles of track. It is planned to operate all suburban service on these lines with multiple-unit cars. Through passenger service and all freight service will continue to use steam motive power. The Boonton branch, which carries the greater part of the Lackawanna's freight, will not be electrified.

Marked improvement in the suburban passenger service will be made possible by electrification. At present the mile-long tunnel under Bergen Hill, just outside the Hoboken Terminal, seriously hampers operation. On account of the poor visibility with steam operation no train is allowed to enter the tunnel until the preceding train on the same track has cleared the far end. This gives a minimum headway per track of about five minutes, or a combined headway of slightly under two minutes on the three tracks which are used in the rush direction. Present schedules provide sixteen trains in the maximum half-hour. This is believed to be the largest number which can be operated with steam motive power. With electricity, however, the tunnel can be divided into shorter blocks and the headway materially improved.

Other important advantages of electrification are the elimination of the smoke nuisance in the tunnel and in the many residential communities along the line, saving of labor on long trains which now use two locomotives,

and the ability to operate single-car or two-car trains with a small crew in non-rush hours instead of the present trains consisting of a locomotive and three or more cars with a larger crew.

Electrification of the Lackawanna has been in prospect for some years. Few local passenger locomotives have been bought in the past 25 years. The latest lot of cars was built with lower roofs to provide space for pantographs. But the tremendous cost of the undertaking, which is now estimated at \$14,000,000, caused the company to hesitate. Recently, however, a committee composed of representatives of civic bodies in many communities along the line agreed to co-operate with the railroad in securing an increase in commutation fares. In doing so it took the unusual attitude that, in its importance to the communities, the project was so outstanding those whom they represented would be willing to pay increased commutation fares in order to secure the advantages of such improvements in transportation facilities. Under these circumstances the railroad decided to go ahead with the project.

It is expected that the increase in fare will average about 2 cents per trip. The company states that this will not become effective until the electrification is completed, which will take about two years. For their willingness thus to co-operate in the interest of improved service both the railroad and the communities are to be congratulated.

Shifts in Employment Affect Railway Revenues

LABOR-SAVING equipment is being eagerly sought in all branches of industry. Development in this direction, especially during this decade, is a logical outcome of the present age of machinery and electrical distribution of power. While this trend is in the interest of national economy and therefore desirable, it must not be forgotten that it is having a noticeable effect on the employment situation.

The extent of this effect is shown in a report of the U. S. Bureau of Labor Statistics, submitted through the Secretary of Labor on March 24 to the U. S. Senate. This report, with accompanying documents, is printed in full in the *Monthly Labor Review* for April, 1928, just issued. Commissioner Stewart gives 1,874,050 as the number of unemployed in January, 1928, as compared with a total of 25,222,742 wage and salary earners in 1925, when there was no noticeable unemployment. The 1928 figures, he explains, do not include persons operating their own businesses or professions. He also points out that this group of unemployed may be subdivided into those temporarily not working because of plant suspensions, and those displaced by changes in industrial and commercial methods. The former are reasonably assured that when their business resumes, they will be restored to employment. In the second group, the job is gone, never to return. The man must change his occupation and seek new contacts. The commissioner thinks it reasonable to estimate that one-half of the present unemployment group belongs to the latter class.

An interesting phase of the employment situation was pointed out by Julius Klein, director of the Bureau of Foreign and Domestic Commerce, Department of Commerce, in an article published in the April 7 issue of this paper. Dr. Klein called attention to employ-

ment increases in the so-called "service" in non-productive industries. That tendency, in a measure, offsets the displacement of labor by machinery in production. Despite this alleviation of what would otherwise prove a very serious unemployment situation, changes in occupation result in major shifts of population from some employment centers, particularly in smaller communities.

This shifting of employment is being felt seriously by some electric railways. Persons who have made a study of the subject point to these basic industrial upheavals as the explanation for traffic losses that usually have been attributed entirely to automotive competition. The facts in any given territory may be ascertained readily. There is no question but that they are worthy of close study and analysis by transportation men.

Voluntary Regulation Will Be Least Restrictive

WHILE the preliminaries among those who favor regulation of interstate buses were marked by a spirit of give and take which promised a united front on the Parker bill before the Congressional committee, a seriously disturbing situation arose unexpectedly. This was due to the disposition of the N.A.C.C. to insist on conditions of administration more or less precise that tended to becloud the main issue.

It is right that each party at interest should stick by its guns, but after agreement on the essentials it does seem that over-emphasis was placed on the need for trying in advance to perfect the machinery of regulation. This does not mean that ends should be left dangling, but the history of regulatory movements makes it plain that it is quite impossible to anticipate all the *minutiae* of the application of a regulatory statute. In the light of that fact, some of the hypothetical cases advanced as criteria of what might be expected to be encountered in the application of the law seemed strained—to put it mildly. Of course, manufacturers are a party at interest, but it would seem to be extremely poor taste, where the operators appear to be ready for regulation, for the manufacturer to attempt to dictate provisions under which the user of his product is to be regulated. This is the view voiced by one manufacturer at the hearing.

Since the general trend of the discussion of the measure at Washington was set forth in the account of the hearing in *ELECTRIC RAILWAY JOURNAL* for April 21, the Interstate Commerce Commission has made its full report to Congress on the matter. This fortifies the opinion of Mr. Flynn, the commission's special examiner, in regard to the principles which should govern interstate regulation of buses, principles the Parker bill followed closely.

If the attempt to stabilize interstate bus operation through regulation should fail at this session of Congress there seems ample reason to attribute the cause largely to this unexpected last-minute disposition to try to make a regulatory law perfect in all of its details at its inception. Certainly the desirability of regulation has been proved. It is unthinkable that present conditions can be permitted to exist much longer. If regulation comes to correct abuses instead of merely to stabilize an industry—the consequences to both the manufacturer and operator may be much more dire than those conjured up by the opponents of the impending regulatory (not restrictive) measure.

Adult Education of Growing Importance

WHILE his remarks were directed primarily at educational methods in the college of today Doctor Hibben, president of Princeton University, in a recent address gave expression to the ideals and purposes which also motivate adult education in industry. Since the turn of the century, when only desultory and spasmodic efforts were made toward an improved personnel, to the present-day opportunities for advancement that are offered to their employees by many utility companies, much has been accomplished for the mental improvement of the man in the ranks.

Unfortunately, that millennium is far distant when instructors can put the idea into the man in industry that study is not so much an instrument for personal improvement as it is an inquiry into the nature of things themselves. However, for the present and the immediate future, if the educational opportunities offered to the employee encourage initiative and arouse in him the desire to make education a continuing process, whether he remains in the utility field or goes into the building of houses or the selling of bonds, then they have been worth while. If he has learned the value of capitalizing on his leisure hours, then the lectures and courses of study under the sponsorship of his company will not have been in vain.

Just as one college president puts it—"we do not nowadays attempt to give an education—we afford opportunities to our students to obtain an education by their own efforts," so education endorsed by utility companies does not mean the absorption of ready-made knowledge but the stimulation of interest in knowledge so that independent study will be undertaken. In the railway business that man who refuses to grow will in the not very distant future find himself off the roster of a progressive company, for only the fittest will survive.

Taxes by Some Other Name

PERSONS who advocate municipal ownership and operation of public utilities are not altogether unlike enthusiasts for "perpetual motion" machines. They seem to think there is some magic in municipal ownership whereby the people get something for nothing. For example, South River, N. J., recently received praise from United States Senator George W. Norris as a "taxless town." Freedom from taxation was made possible, so it was claimed, by the profits from the municipal electric generating plant, from which all expenses of the municipality have been paid for the past three years.

If the story stopped there, one might well envy the happy inhabitants of South River. But—there is a combined state, county and school tax of \$3.65 per \$100 in this "taxless town." This rate is considerably higher than that prevailing in numerous other communities in the same state which make no pretense of being taxless. With roads, bridges, institutions and schools provided for principally by the state, county and school district taxes, the town's municipal expenses naturally are small, and the profits of the electric plant have been sufficient to cover them.

To make this profit, however, it has been necessary for the town to charge more for commercial power than do the near-by privately owned companies. Domestic lighting, which probably does not represent more than one-fifth of the output of the plant, is at the same rate as that charged by the private companies.

Thus the net result of the municipal ownership and

operation of the electric plant in "taxless" South River seems to be that the customers using four-fifths the output of the plant have to pay more for electricity, and everybody pays more taxes than in neighboring communities.

Political Procrastination at Cleveland

EVER since the passage of the Tayler service-at-cost measure in Cleveland in 1909, major moves affecting the Cleveland Railway under the terms of that grant have been followed with great interest by the electric railway industry. This is only natural, since the grant was considered so sound basically that the principle back of it has been applied in many other places. In consequence, the changes made in the grant in 1926 were widely heralded. They were, of course, sound. The need has again arisen for doing something, something heroic, perhaps. Among matters to be adjusted are questions of fares to the suburbs and of bus operation.

No attempt ever was made to extend the service-at-cost provision to the suburbs because until a few years ago the amount of suburban service was comparatively insignificant. When Cleveland had 3-cent fares years ago, the Cleveland Railway and the City Council signed up the three major suburbs—Lakewood, Cleveland Heights and East Cleveland—for long-time 5-cent franchises. When rising costs put the Cleveland fare above 5 cents, the company and the Council succeeded in having the suburbs agree to pay the rate of fare, in force in Cleveland, but this arrangement still permitted suburbanites to ride for less than cost. That, of course, is absurd. It is equally absurd for the Council to dictate to the company a policy of bus operation that has resulted in a loss of \$370,578 in 1927 and a total loss of \$861,470 since the installation of bus service 29 months ago. Incidentally, 21 out of 35 car lines are unprofitable at the present time, since many of the car routings are archaic. But the company must perforce continue to let Wade Park cars perambulate over the east end, Clifton Boulevard cars amble alongside a bus route, and the East 105th Street cars meander along a narrow street parked with vehicles. Moreover, if the city continues indefinitely to regulate and prescribe service as it did nearly twenty years ago without first restricting the real dictator of service, traffic congestion, it will receive a decreasingly effective service at a constantly increasing cost.

These are the most obvious things that call for correction. Recent discussions of them have not been without attendant hysteria over the outlook for the future, *Finance and Industry* even raising the question, "Is the Tayler franchise a failure?" and *Greater Cleveland*, devoting a whole issue to transit, heads its review, "Council Must Act on Transit Problem." There, it seems, is the answer. The Tayler franchise is a human document subject to political procrastination. That seems to be the point. The Cleveland franchise has worked since 1909, not always with the celerity that might be desired, but it has worked. The idea on which it was founded is just as sound today as it was the day the grant was drawn. That questions arise under it which at the time appear serious is not a fault of the grant. The fault is with the agency that is indifferent. That agency in this instance is the Council. The company, Railway Commissioner Ballou and the committee which considered suburban fares appear to be agreed upon the course of action that should be followed. On this and other matters the Council needs to be spurred into activity.

Cincinnati Installs Full-Automatic Supervisory-Controlled Distribution System

By Harley L. Swift

Superintendent of Substations Cincinnati Street Railway, Cincinnati, Ohio



Colerain Avenue substation, one of the nine new 60-cycle stations built in Cincinnati

The architectural treatment of each building is adapted to its surroundings. At the right is shown the standard method of bringing feeder cables out of the building. The feeder rack is not completed.

BY JULY, 1928, the Cincinnati Street Railway expects to have completed the rehabilitation of its entire power distribution system. The rehabilitated facilities will include nineteen full-automatic, 60-cycle, synchronous-converter substations, with supervisory control from a central load-dispatching office adjacent to the Walnut substation. This

is the most extensive supervisory controlled automatic installation ever undertaken on a city distribution system and includes many novel features to provide flexibility and to insure safety and freedom from service interruptions. When completed the railway expects its distribution installation to be the most reliable and economical that the development of the art will permit.

Eleven new substation buildings have been erected, three buildings have been completely remodeled into substations and five present substation buildings have been partly remodeled. As outlined in the Jan. 21 issue of *ELECTRIC RAILWAY JOURNAL*, the rehabilitation program includes the sale of the Pendleton steam power plant, abandonment of former 25-cycle substations and purchase of all power at 13,200 volts from the Union Gas & Electric Company.

Complete redesign and rehabilitation of power distribution facilities will provide most extensive supervisory controlled automatic system ever installed on a city property. Nineteen automatic stations give efficient power distribution under supervision of central dispatcher

Locations of the new, rehabilitated and abandoned stations are shown in an accompanying map of the system. The three stations in the congested area will each have two 1,500-kva. converters; the intermediate ring of stations, ten in number, will each have one 1,500-kva. converter. Beyond these is an outer ring of stations having one 1,000-kva. converter each,

and a 200-kva. unit on the Milford interurban line. The total machine capacity of the new system will be 29,200 kw. Bearing in mind the proposed Cincinnati rapid transit system which has been under discussion for many years and which is partly completed, and the future growth of the city, provision for increased power has been made by allowing space for an additional unit in each of six of the stations—Walnut, Kenton, Brighton, Colerain, Mitchell and Westwood.

NEW SYSTEM USES 60 CYCLES INSTEAD OF 25

Under the old system 25-cycle power was generated at Pendleton power house, a steam-turbine plant of about 20,000-kw. capacity. This power was distributed at 6,600 volts although all equipment was adaptable for 13,200 volts to five synchronous converter substations—East

End, Hyde Park, Blair, Avondale and Brighton—and converted to 600 volts direct current. Power at 13,200 volts, 60 cycles, was purchased from the Union Gas & Electric Company at seven synchronous converter substations—Price Hill, Hartwell, Norwood, Walnut, Cumminsville, Depot and Miami—the three first named being

The outstanding feature of the supervisory control system being installed is the full knowledge the dispatcher has at all times of every important function in each station. The stations are completely under his control so that he can transfer loads from one station to another as load limitations or economy dictate, or should



New power distribution system of the Cincinnati Street Railway

All stations are full-automatic with supervisory control from a dispatcher's office adjacent to Walnut station. The location and capacity of each station was determined through the use of spot maps showing car distribution in peak periods.

full-automatic stations. There was a 1,500-kw., 60-cycle, synchronous converter at Avondale using purchased power, and a booster set at Brighton to help out during peak loads. The total substation capacity of the system was about 30,000 kw.

NO CHANGE IN TOTAL CAPACITY OF SUBSTATIONS CONTEMPLATED

With the new system the total capacity is practically the same as with the old, the difference being in number, capacity and location of the stations. These are now relatively close together, the average distance between them being about 1 mile. The location and capacity of each station was determined from spot maps showing car distribution throughout the city during peak loads, and a knowledge of energy consumption of cars when loaded and on grades. The new station locations will give far better voltage and lower line losses throughout the system.

the fire chief order lines cut out in a fire area the dispatcher can do so instantly.

Should anything happen to the supervisory control system for any station, group of stations, or all of them, those affected will at once function automatically, except that any device locked out by the dispatcher prior to the disruption will remain locked out until released by a visit to the station.

An average of 2½ seconds is required to establish a control circuit in the supervisory system. The actual operation of the devices and check-back indications is instantaneous, so that the time required to complete any cycle is determined by the speed with which the dispatcher can push the control buttons. To provide a permanent record of loads and to afford a means for analysis of the opportunity for economy, the bus voltage for each station and the ampere load on each converter on the system are recorded in the dispatcher's office by indicating and recording meters on each station panel.



Elmwood substation, which will normally operate as one of three grounded-return stations, but is so located that in an emergency it can feed an ungrounded return or double trolley division

For the circuits of the supervisory control system, four pairs of wires run from each of the nineteen stations directly to the local dispatcher's board, which has a panel for each substation. Two of the four pairs of wires from each station are for remote metering and a private telephone system. By means of buttons on each control panel the dispatcher may at will (1) start or stop each converter; (2) release each converter to automatic operation; (3) open or close each incoming line oil circuit breaker; (4) open or close each d.c. feeder; (5) release each d.c. feeder to automatic operation.

Through red, white and green lights the dispatcher has continuous indication of the following: (1) Whether each converter is running or stopped; (2) whether load-limiting resistor contactors are open or closed; (3) sequence of starting for converters in double unit stations; (4) availability for service of each incoming a.c. power line; (5) position of each incoming line circuit breaker; (6) position of each d.c. feeder breaker; (7) whether the station control battery is being charged; (8) that the station lockout circuit has shut down the station; (9) whether the station door is locked or unlocked.

The dispatcher can start any station independently of its automatic functioning by turning a key and pulling a button on the panel controlling it. Within five seconds he will have completed a circuit between his board and the relay to be operated at the station. A yellow light will appear on his board, which indicates to him that the circuit has been completed correctly right up to the relay at the station. Having received this check light he can close the relay through a second button, and a red light indicates that the connection has been made correctly.

If, while the dispatcher is engaged, some automatic device in any substation operates, his attention is called to it audibly by the ringing of a bell and visually by the appearance of a white light at the top of the panel for that station. At the same time the signal light indicating the device on the panel changes in color from red to green or vice versa, and a white light appears beneath. The white lights go out when the dispatcher acknowledges the signal by pushing a "clearing button" on that particular panel. Should several devices function simultaneously the signals are "stored" and sent in succession as the devices function. Thus the dispatcher is advised of every change occurring in each substation.

After a study of the present and future possibilities of the territory surrounding each station, a building was designed whose exterior not only would harmonize with,

but would be a distinct credit to, the locality. No two of the buildings are alike. The grounds about the stations will be carefully and beautifully landscaped.

Since many of the buildings are in residential districts, attention to the matter of eliminating objectionable features did not stop with attractive exterior architecture. Every effort was made to reduce noise and to make the stations as nearly soundproof as possible. The converters are mounted on 3 in. of Armstrong machinery isolation cork. Except for the main door and an emergency rear exit, there are no openings in the building above the ground line. The inside faces of the walls are 8-in. Insul glazed tile.

VENTILATION SYSTEM EMBODIES LATEST RECOMMENDATIONS AND DEVELOPMENTS

Particular attention was given to the ventilation of these buildings. The latest A.E.R.A. and other recommendations and developments are to be found embodied in them. All air enters the building below the floor line, and passes up through floor gratings at each end of the converters, under the transformers, and under the load-shifting resistor bank. A chimney leading from each converter pit through the roof conducts to the outside the hot air discharged downward by the converter. A 66-in. Robertson ventilator is mounted on the roof above each converter for the hot air discharged upward. There is an opening to the outside atmosphere of 400 sq. ft. in the half cellar under the converter side of the building. Another opening of 40 sq. ft. area from the outside feeds cool air to the grating under the transformers, and two or three 30-in. ventilators, depending on whether the station has one or two units, are placed directly over the transformers. This arrangement allows



Interior view of station showing load-shifting resistor mounting, floor grating and side wall louver near ceiling for ventilation

cool air to enter at the transformer base and to flow upward along the tubular radiator pipes, cooling them and passing out through the roof ventilator. The load-shifting resistors are mounted on the wall between two pilasters directly over a floor grating, the cool air coming up from the half basement, passing through the resistor and discharging outdoors through movable copper louvers in the wall above the resistors. The mean height of the buildings above the floor is 23 ft., which is not only an aid to ventilation but is a help in deadening the operating noises.

To facilitate maintenance, the new buildings have been designed and the old ones remodeled so that the arrangement of equipment in each station will be as nearly alike as is possible. Typical sections through single and double

High-tension bus structures are of "Deceleco," a fibrous compound of gypsum. The structures were made and installed by Deceleco, Inc., Wayne, Mich.

Transformers are of the outdoor, tubular-radiator, oil-cooled, three-phase, high-reactance core type with interleaved disk windings. As previously mentioned, however, they are installed inside the station buildings. Primary taps may be changed by an operating lever extending through the cap plate. Low voltage leads are brought out the side through weatherproof bushings.

The 1,000-kw. and 1,500-kw. synchronous converters have speeds of 900 r.p.m. and 720 r.p.m. respectively. They are capable of 150 per cent load for two hours and 200 per cent load momentarily. They may be operated without undue heating either as full compound machines



Interior of Colerain substation, showing typical arrangement of station equipment, provision for additional unit and "Deceleco" bus cell construction. The transformer is located behind the switchboard at the right

unit stations are shown in accompanying illustrations. All apparatus is located indoors in one large room on one floor, with the exception of the control and supervisory storage battery, the air compressor and the negative bus structure, which are in the basement.

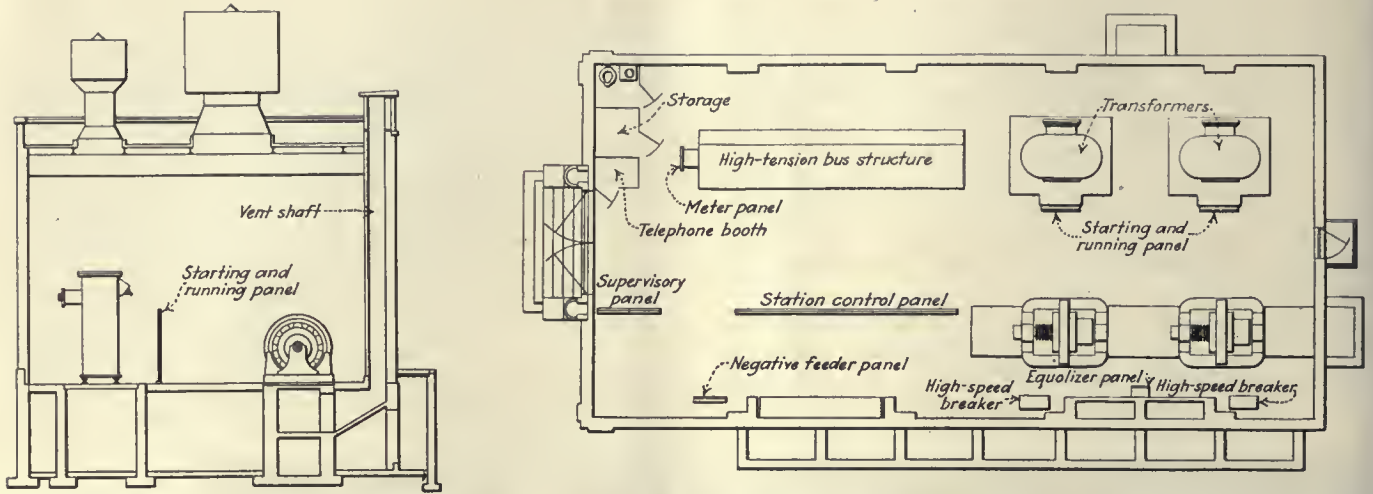
The incoming a.c. power lines come through underground ducts, and the outgoing d.c. feeders go through a tunnel to the curb line and are brought out to overhead feeders through vertical pipes mounted around the feeder pole. Double-unit stations have two incoming 13,200-volt, 60-cycle, a.c. power lines, and single units one incoming line. The Union Gas & Electric Company delivers power and maintains the lines as far as the pothead in the cell structure, which also houses disconnecting switches, potential, current and control transformers and the main oil circuit breakers. The lead-covered cable from the cell structure to the transformer enters the latter through side-type oil-filled potheads, so that no high voltage conductors are exposed.

or as full shunt machines or anywhere between, by adjustment of the series field.

High-speed breakers in the negative sides of each converter open in 0.007 second. This precludes a high value of current before the converter is cut off the bus. Aluminum bar is used for the negative bus and for interconnections between the load-shifting resistor units and the contactor groups. A 30 per cent saving in cost over copper despite use of additional bars, and the light weight of the aluminum, were factors determining its use.

Automatic reclosing circuit breakers have been installed on each of the 87 feeder circuits. These breakers open on short circuit or severe overload. When this happens, relays immediately feel out the circuit, and so long as the trouble remains on the line the breakers stay open. As soon as the trouble is cleared these relays cause the breakers to reclose.

Due to the double trolley system used in Cincinnati, the Elmwood station presents an interesting problem;



At left—Section-through typical single-unit automatic railway substation in Cincinnati
At right—Floor plan of typical two-unit substation

normally it is one of three stations with grounded return, but it is so located that in an emergency it may be called upon to feed an ungrounded return, or double trolley division. The load dispatcher, through the supervisory system, can make this change-over readily, as an interlocking arrangement makes it impossible to throw in the ungrounded breakers while the station is operating on the single trolley with grounded return and vice versa. The station functions automatically on either return.

FLOOD DISTRICT REPRESENTS SPECIAL PROBLEM

The Lincoln station, located in the flood district, has been constructed as a veritable concrete bathtub. The entire foundation is waterproofed with a 3/4-in. Carey fibrous asphaltic preparation and lead sheathed cables are used instead of varnished cambric flameproof cable.

Substation buildings are normally lighted with 110 volts a.c. from the control transformer, but there is an emergency 600-volt d.c. series lighting so that for cleaning and inspection the high-tension circuits can be

disconnected at the incoming pothead. The storage battery feeds one ceiling lamp near the door and two extension cord outlet plugs, one at the end of the switchboard and one in the basement.

An inclosed booth houses a telephone on a direct line over the supervisory cable to the dispatcher's office. Through it communication may be had with any other station. A Bell telephone also is part of the equipment of every station. There is a tool storage room and toilet in each building.

The Union Gas & Electric Company has installed the most recent type of metering equipment. Two outstanding features of these instruments are: (1) Power can be off 50 consecutive hours without affecting the accuracy of the meter; and (2) the silver stylus and impregnated paper chart not only do away with ink but give a clearer, more pronounced and more accurate reading than was heretofore available. One of the accompanying figures shows this Landis & Gyr meter.



Landis & Gyr Maxigraph meter and panel

The Colerain station was successfully placed in service March 12, Westwood April 5 and Hyde Park April 25. Lincoln, Depot, Delta and Kenton Stations will go into service early in May. Present schedules call for completion of the entire system by July 1.

All electrical equipment was furnished by the General Electric Company. Practically all of the 60-cycle equipment already in service has been utilized in the new system. The Collier Construction Company of Cleveland installed the electrical apparatus in ten of the new stations, while the Cincinnati Street Railway's forces handled the work at the remaining nine stations, five of which maintained partial operation during the changes.



Basement view of Cincinnati substation showing negative bus structure and method of carrying feeder lines to street



One of the 80-ton locomotives

South Shore Line Builds Attractive Freight Service

New stations, larger loading platforms and double-end sidings speed the service. Overnight delivery of l.c.l. freight popular with shippers

CENTRALIZED shipping and receiving facilities for the growing freight business of the Chicago, South Shore & South Bend Railroad, are provided by a freight merchandise station opened in South Bend, Ind., last month. The station embodies many new features in design and construction.

The over-all ground dimensions of the building are 28x90 ft., including a 10 ft. eave overhang on each side of the loading platform to protect against storms. The structure is built of Stefco steel with fireproof creosoted pine floor and corrugated steel apron reaching to the ground around the entire building. The office section has, in addition to the headquarters for the freight agent, a heated room for storage of perishable goods in cold weather and a room for valuables. The office part of the building is also constructed of Stefco steel, lined with

Celotex sheathing and given a pleasing, yet practical, interior appearance.

The loading platform is inclosable with vertically sliding doors, designed and built in the Michigan City shops of the South Shore line. Eighteen of these doors are provided, making it possible to expose the entire platform. At one end of the platform is a built-in loading scale with concrete foundation.

Freight business of the railway, since the reorganization, has already shown a remarkable growth under an active corps of traffic experts who were put to work on the freight problems of shippers in the territory. Reference to the building up of this business was made in *ELECTRIC RAILWAY JOURNAL* for Nov. 5, 1927, page 852, and Nov. 12, page 901. Extensive improvements were made in the facilities for handling freight, among them



The South Shore freight station at Gary, Ind.



Pantograph locking device on top of cab

being the remodeling and building of larger station platforms and construction of the South Bend freight station.

In addition to rehabilitating the road from end to end, passing tracks already built were lengthened and additional ones were constructed. Portions of the line were double-tracked in order to improve the handling of traffic, which was increasing in volume from month to month. New interchanges were constructed, with the Belt Railway Company of Chicago at Hegewisch, Ill., and the Wabash Railway at Gary, Ind. In addition, the interchange track maintained with the Nickel Plate Road at Michigan City, Ind., was doubled in capacity.

The present South Shore Line management realized at the outset that the establishment of working arrangements with other lines was imperative. Heretofore rates were in effect with only a few lines, and many confusing restrictions existed in tariffs. The South Shore Line has gone steadily ahead in this important branch of traffic work. Rates have been established with a large number of lines on a competitive basis and today it is in a position to give shippers and receivers of freight a service and rates in line with those of other roads.

Four receiving stations for freight were established at vantage points in Chicago and an overnight delivery policy was inaugurated. Freight taken to the receiving stations before late afternoon is transported to stations on the line ready for pick-up the next morning.

The South Shore Line has an advantage over some other electric railroads in that standard freight cars can

be handled over the entire line from Kensington, Ill. to South Bend, Ind. Through the activity of its freight solicitors and traffic agents, interchange and switching facilities have been established with several of the nearby steam lines and other arrangements are pending.

Through rates have also been established with several steam lines and other tariffs are being worked out. Private switching tracks have been built for several new industries and others have been laid for some of the established industries.

Another problem to be overcome was that some of the industries closer to Chicago trucked their l.c.l. freight to that city. The fast overnight service of the South Shore Line and lower cost are rapidly overcoming this competition. Large freight receiving stations are maintained in each of the cities served. Tracing of delayed shipments by wire, close personal contact between South Shore Line solicitors and traffic agents of the shippers, courtesy and modern appurtenances are among the factors contributing to the freight increase.

SIX LOCOMOTIVES HANDLE THE BUSINESS

The freight handling equipment consists of six 80-ton Baldwin-Westinghouse electric locomotives, four put in service a year ago and two received the latter part of March this year. Each can haul trains in excess of 1,500 tons on comparatively level sections of the system, the weight of the train being adjusted according to the grades. Short stretches of heavy grades exist between Kensington and Gary. The locomotives can be operated in multiple, providing a considerable range in tractive effort, and will have a combined total output of 3,200 hp.

The steeple type cab is carried on swivel trucks. The rigid truck bolster is of cast steel bolted to the side frames. Hangers from this rigid bolster carry through semi-elliptic springs, a spring bolster. The cab is thus spring-supported on the truck frames, which are in turn spring-supported in the usual manner from equalizers on the driving boxes. Each truck has spring-mounted side bearings. The cab underframe is built of heavy rolled steel channels, the side and transverse members being connected by knee castings. Heavy end bumping and coupling castings are bolted to the longitudinal underframe channels.



LaSalle Avenue freight station in South Bend, Ind.

PRINCIPAL DIMENSIONS, WEIGHTS AND RATINGS OF SOUTH SHORE LINE LOCOMOTIVES

Axle classification	B-B
Motors, axle mounted	
Maximum speed	45 m.p.h.
Total weight	160,000 lb.
Horsepower—one hour short field	1,600
Tractive effort—one hour full field	29,200 lb. at 18.6 m.p.h.
Tractive effort—continuous full field	17,200 lb. at 21.7 m.p.h.
Driving wheel diameter	42 in.
Rigid wheelbase	104 in.
Length over bumpers	434 in.
Length between coupler knuckles	39 ft. 4 in.
Length over bumpers	36 ft. 2 in.
Height, top of rail to roof	12 ft. 1 1/2 in.
Total wheelbase	27 ft. 0 in.
Rigid wheelbase	8 ft. 8 in.
Truck centers	18 ft. 4 in.
Width over all	10 ft. 7 in.

The two trucks are each equipped with two Westinghouse type 358-D-5, 750-1,500-volt field control, forced-ventilated motors, with single-reduction spur gears, having a ratio of 16:72. Current collection is provided by a spring-raised, air-lowered, double-shoe pantograph.

The master controller, which operates on a 32-volt circuit, contains nineteen notches, ten in series and nine in series parallel. There are four economic running positions, namely, full and short field connection in both series and series parallel.

Each locomotive unit is equipped with a 2 1/2-kw., 1,500-32-volt motor-generator set and an auxiliary battery. The motor-generator set is interchangeable with the sets employed on the motor cars of the system and the method of operation is similar. The two blower sets employed per unit consist of a 1,500-volt motor driving a Sirocco fan. The equipment is mounted on each end of the locomotive and supplies air to each end of a com-

mon duct running the entire length of the locomotive. A baffle is provided at the mid-point of the air duct. Under ordinary operating conditions this baffle is closed and each blower supplies air to the two motors nearest to it. In the event of a failure of one blower equipment the baffle can be opened and the air duct closed at the end adjacent to the blower motor which is out of commission.

Two 53-ton switching locomotives also were purchased and are being used in switching and incidental service.

Western Ohio Revamps Interurban Cars

WITH the present trend toward de luxe service and a desire to furnish more comfortable and attractive rides, the Western Ohio Railway has recently remodeled seven of its light-weight interurban cars. As these cars were comparatively new they were not rebuilt, but the interior was refinished and composition rubber tile flooring laid to harmonize with it. The passenger compartment has chair type seats covered in striped velour arranged in pairs on each side of the aisle. In the smoking compartment the interior finish is similar, except that the seats are leather covered.

Each of the seven cars is painted a different combination, using bright colors with two-tone pennant front dash design. The name of the car is in the center of



Bright colors are used to give an attractive appearance to the outside of the cars. The striped velour seats and rubber tiled floor give a pleasing interior

the side, flanked on each side by the company insignia. Each car is named after a president of the United States.

The Western Ohio Railway has received many favorable comments on the changes, indicating that the remodeled cars are meeting with the general approval of the riding public. In addition, two new equipments each consisting of four Westinghouse type 333 motors and HLF control were purchased.



Public Relations Man Plays an Important Role

By *J. J. Davies*

Assistant to the President Philadelphia Rapid Transit Company, Philadelphia, Pa.

Philadelphia Rapid Transit Company's public relations department serves in a dual capacity. It represents the company in all dealings with the public and at the same time champions the car riders with the operating departments



The P.R.T. public relations department renders a 24-hour telephone information service

WHAT sort of a "critter" is a public relations man? Five years ago there was scarcely such an individual in existence, at least in the transportation industry. For instance, while the public relations department of the Philadelphia Rapid Transit Company is a rather complex structure because of its association, direct or indirect, with every company activity in which public contacts are involved, it was not long ago that no such set-up was in existence. Public complaints were handled directly by the transportation department, there was no definite advertising policy, every operator made his public contacts according to his own judgment and inclination. The riding public lacked within the company a sympathetic auditor to whom it could take its troubles and know that they would be given intelligent and effective attention. And so, due to lack of attention, many troubles which were largely imaginary or at any rate easily adjusted, assumed extraordinary proportions.

Today all that is changed. An organization has been built up of trained men, experienced in all of the phases of public dealings that may occur in a co-ordinated transportation system such as the Philadelphia Rapid Transit Company. These men are charged with the responsibility for handling complaints, advertising, publicity, dealing with civic organizations, investigating conditions leading to requests for increased or altered service, running a well-equipped information bureau and the lost and found department, meeting the public more than half way at every conceivable point.

It is in a dual capacity that the public relations department serves. Not only does it stand behind the sales counter in marketing the transportation wares of the organization; it also stands ready at all times to carry the just pleas of the car-riding public before the operating heads and to request that they show cause why those pleas should not be recognized. Obviously, a delegation of citizens could not sit in the transportation con-

ference and argue in favor of their several needs. But the public relations department is constantly rubbing shoulders with civic associations, newspaper editorial writers, individual petitioners and similar representative units in the community life; it knows what the public wants, what it is justified in seeking. So it is that the car rider has a champion at court, an intermediary that is able to analyze his needs and present them to the management in a favorable light. If at the time those requests of the public cannot be granted in toto, then the why and the wherefore are frankly explained by the public relations contacts.

As the work of this service bureau becomes more generally known and understood throughout the community, it adds immeasurably to the good will existing between the company and the public. Also, this better understanding adds materially to the work and to the responsibility of the public relations department.

A transportation company which has not at present a definitely organized public relations department might be inclined to ask: "How large and how comprehensive a set-up would be required to handle our own dealings with the public?" The answer to that question, of course, depends on the size of the company and the community which it serves, the nature and extent of its operations, and the energy and resourcefulness of the individuals chosen to undertake the job. One live wire, with the right personality and a proper understanding of his work, could accomplish wonders for a small property.

But when the situation is similar to that in Philadelphia it is more complex. The Philadelphia system embodies street cars, subway and elevated lines, motor buses, both city and intercity, and a large fleet of taxicabs. Naturally, these diversified activities introduce widely varying problems of public service.

The constituent parts of the public relations organization are closely allied, and tie in closely with the recently created new-business department, whose specific function is to follow through the various new-business leads developed by the other units.

While there is this close tying in between the various units in the public relations department, each division has its particular functions and responsibility. For example, advertising and publicity are handled by men who, by virtue of earlier experience in newspaper and trade journal work, have the peculiar viewpoints necessary. With the advertising and publicity work is combined the responsibility for all of the printing incident to the production of company publications, read-as-you-ride folders, direct-mail material, notices of service changes, and the like. This printing activity alone entails an annual expenditure of approximately \$80,000.

The group of individuals who handle passenger complaints, contacts with civic organizations and similar matters, have been specially trained to analyze and to determine the justice of requests for added service and the practicability of granting them. The men who compose the staff of the information bureau have served formerly as trainmen and, through long association with the complex transit system of the city, have gained

the knowledge necessary to answer almost any conceivable question concerning transportation facilities.

These are only examples of the groups of specialists who make up the public relations department. There is one thing every member of the organization has in common—a deep-rooted appreciation of the public's viewpoint, a desire to render a well-rounded service to those who seek their assistance. They are the salesmen de luxe of the organization, seeking to put over the idea of service with both riders and company employees.

SALESMANSHIP AN IMPORTANT FUNCTION

The actual day-by-day salesmen of the organization are the trainmen, the bus operators and the cab drivers. They are the ones who ultimately must please the customers and convince them that the goods offered are the finest obtainable and not to be rivalled by the home-spun material, i.e., the private automobile. The public relations staff might be likened to the window dressers, the experts who have a highly developed sense of practical psychology and who have learned to array their display in the most favorable light.

Advertising of such a commodity as public transportation, generally speaking, directs attention to the advantages presented by the services of a particular company. Publicity follows the advertising through, supplements it, and helps the public to keep in mind the realization that the company is ever ready to

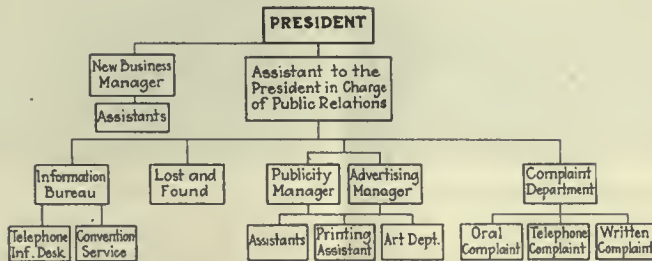
convey its patrons wherever their destinations may be.

Both of these specialized functions would avail little or nothing if the rank and file of conductors, operators and drivers, failed to accomplish their mission as personalized salesmen. No more would they be successful if the articles sold—in this case, car, bus and cab rides—failed to measure up to the standard of quality advertised by the company and demanded by the customers.

It easily may be seen, then, how important it is that the goods are first "as advertised"; second, that the salesmen who actually come into daily contact with the public realize the value of their wares and look upon themselves as joint proprietors in the business, and third, that these employee-owners receive the best possible backing up from the public relations department.

It is even more important to sell the men on the true significance of their jobs than it is to sell the public upon the merits of the service. To that end the public relations group is charged with the editing of the P.R.T. *Co-operator*, the medium of contact between management and men, and incidentally, a medium whereby the gospel of salesmanship, courtesy and efficiency may be sold to the more than 15,000 employees in the organization.

In addition to this direct contact, the public relations department, through following up complaints against individual employees on the grounds of discourtesy, passing up passengers or other marks of an unsalesmanlike attitude, helps to bring about a better understanding on the part of the employees of how to deal with the public. When repeated complaints are lodged against an employee, he is reinstructed in the elements of salesmanship, and if he still provokes complaints he is discharged.



Organization chart of the P.R.T. public relations department



Taking the details of a complaint. A few complainants call in person at the office, but the majority write or telephone

Not the least important duty of the members of the P.R.T. public relations department is to place themselves upon a basis of reasonable understanding with leaders in the various communities encompassed by the metropolitan area of Philadelphia. When there seems some likelihood that a misunderstanding concerning the prospective activities of the company may arise in a particular section, extraordinary pains are taken to reach the important organizations in that community and to win their support of the move.

CONTRACTS WITH CIVIC AND COMMUNITY ORGANIZATIONS ARE CAREFULLY MAINTAINED

Whenever an opportunity presents itself to provide a speaker for a luncheon club or some other organization which has a real interest in transit matters, that opportunity is eagerly seized upon by the public relations department. Its own members, and others of the official family of the company, have heretofore done most of the speaking in public, but efforts are now under way to develop a speakers' bureau that can function in a more comprehensive fashion. The membership of this bureau will be recruited from both sides of the employee-employer family, individuals who have a natural aptitude for speaking and who would find real pleasure in carrying the viewpoint of the company to the man in the street.

Another important contact is the community newspaper, the weekly publication devoted to the interests of a particular section. More than 40 of these papers are published within the Philadelphia area and their influence is constantly on the increase. They fill a need which of necessity the great city daily newspaper must ignore. As a consequence, their friendly co-operation with the transit organization is much to be desired.

Whenever a general advertising campaign has been under way, the advertising department has made it a

policy to place generous displays in all of these publications which are accredited news organs. Needless to say, the small weekly publications are more appreciative of such co-operation than are the metropolitan dailies. The many small voices speaking in fairness occasionally reach more ears and carry more weight than the one stentorian voice crying anathemas.

HOW COMPLAINTS ARE HANDLED

People who have a bone to pick with the company do that picking in three ways; they call in person at the public relations offices, they telephone or they write. By far the greatest number adopt the latter method. Complaints cover every imaginable type of grievance, real or fancied, and every one is given the most exacting attention.

Occasionally the cynical opinion is expressed by some member of the public that it is of little use to make complaints to the company since these documents are probably consigned to the wastebasket. Actually, however, the most meticulous care is observed in examining the merits of each case, with a view to settling it in a manner that will be satisfactory to the complainant and of value to the transit organization.

When a complaint letter arrives at the public relations office it is immediately acknowledged, the complainant being assured that immediate and effective steps will be taken to remedy service conditions, to discipline erring trainmen, or to meet the situation outlined in the letter, provided that the complaint seems reasonable and justified. However unreasonable it may be, it detracts not a bit from the courtesy of the reply.

It is interesting to note that a certain number of almost professional "kickers" are always in evidence. Month after month complaints roll in from these grumblers, most of them inconsequential and frequently unjustified, yet never does the tact and diplomacy of the

complaint handlers fail them. One of the prime requisites for the man who is to conduct public relations work successfully is the "patience of Job."

After the complaints, oral or written, have been acknowledged they are referred to the operating departments and such disciplinary or remedial action is taken as is justified. A report is then made to the public relations department, so that each complainant may be notified as to what action has been taken or is being planned. If it is not found possible to follow his suggestions the company's position is carefully explained, so there may be no reasonable ground for the feeling that the company is insincere in its attitude.

Only in the event of disciplinary action against employees is an exception made in giving the full details to the complainant. Then the customer is assured that appropriate steps have been taken to prevent a recurrence of the conditions with which he or she found fault. The trainman may actually be put on the extra list, or even discharged, but it is believed that no good comes from giving these details to the public.

A RESEARCH LABORATORY FOR IMPROVING SERVICE AND GOOD WILL

Important among the several functions of the public relations group is that of securing data on possible ways of adding to the efficiency and attractiveness of the service. This, in turn, will have its effect in improving the good will existing between the company and the public.

Periodic canvasses are made of the large industries in and about Philadelphia to determine whether or not the transportation needs of the employees are being adequately met. The stockholders of the transit system are asked from time to time to suggest ways and means in which the service and good will of the company may be improved. Close contact is maintained with the public and parochial schools of the city, for the transportation of school children is a most important element of the company's service and it is essential to know how this responsibility is being discharged.

Detailed records are kept of all types of complaints and commendations received, so that a monthly chart may be prepared. A check of these monthly charts over

a period of years shows an encouraging downward trend in the volume of complaints received involving discourtesy, inadequate service, passing up passengers—in fact, all along the line.

SERVICE BUREAUS MAKE FRIENDS FOR THE COMPANY

Such functions as the lost and found department and the telephone information service are integral parts of the public relations set-up. They are essentially there to render the extra degree of accommodation, the unexpected bits of service, which go so far in making friends for the entire organization.

The lost and found department is centrally located in the Mitten Building, accessible to the greatest number of people. It represents every branch of the P.R.T. service and lost articles are forwarded there with unusual speed and surprising frequency.

The telephone information service renders a 24-hour per day assistance to the individual who wishes to know how to get from where he is to where he wants to go. Questions are not confined to transportation; far from it. The information men are expected to know when Sunday school begins in the "so-and-so" church, when Colonel Lindbergh is expected to arrive, or where the best place is to get a bargain in used cars. It requires an inspired memory and a fertile mind, does the information desk.

Whenever a large convention arrives its directors may avail themselves, if they so desire, of the services of a trained information man to assist the delegates about the city and to provide them with whatever information on historical or industrial Philadelphia they may desire.

In addition to these various direct services, the company takes pains to give printed notice of impending service changes, temporary or permanent reroutings, etc., prior to the dates when those changes are scheduled to take place. These notices take the form of car cards, pole signs, and "read-as-you-ride" folders, which are distributed in boxes provided in all cars, buses and taxicabs.

SPECIAL CAMPAIGNS TO BUILD GOOD WILL

Entirely aside from the normal routine of the public relations work has come, from time to time, the conducting of a special advertising and feature campaign, de-



At left—Retrieving a possession from the lost and found department, located in the basement of the Mitten Building. At right—Section of the lost and found department, showing the great number of articles returned and how they are cared for

Militancy Made This Road Pay!

ARKANSAS has known no electric railway abandonments. And of the roads in that state none is more interesting than the one in Little Rock, where many economies have been put into effect. Economy, however desirable at times, is but a negative virtue. One of the features in the JOURNAL for May 5 will be the story of how the company turned the tide of receipts with improved service, backed by an advertising campaign.

signed to forward the worthwhile phases of community endeavor, and in so doing to establish the company ever more deeply in the hearts of the general public. Such an effort was the "Will Livelong" safety campaign of April, 1927. Such, again, was the "80 per cent" campaign carried on during the past winter season to arouse the group consciousness of the car rider to the fact that he constitutes 80 per cent of the users of street space and yet is grudgingly accorded only a very small strip of the street area. It was not a slap at the motorist, but rather an effort to picture the traffic conditions of the city just as they exist today, and to suggest ways and means of bringing about at least temporary relief.

The expenditures required by such efforts as these have proved more than justified by the definite results obtained in quieting thoughtless criticism of the company in matters beyond its power to control. By explaining the position of the transportation system frankly and openly, public approval has been won increasingly.

Most recent among the efforts of the public relations department has been the winning of the approval of the management to provide for the instruction of all new employees in salesmanship and every-day public relations philosophy. Along with this goes the reinstruction of older employees who have been repeatedly cited for discourtesy and other evidences of the wrong viewpoint in dealings with the public.

A certain amount of this instruction was given in years gone by, but no great emphasis was placed on the matter and it naturally was taken rather for granted by the new employee. Now he is destined to go through a course which will speedily disclose his fitness to represent the company in its relationship with its customers.

Thus it may be seen that the public relations man plays an important rôle in the modern transportation drama. The importance of that rôle is becoming increasingly apparent. He knows what he's there for and he'll either convert every other member of the cast to his way of thinking, or be thrown bodily out of the stage door.

Ornamental Viaduct Spans Kansas City Highway

ONE of the projects provided for in the Kansas City Public Service Company budget for 1927 was the replacement of an old wood-trestle viaduct located at the intersection of Mill Creek Boulevard and 43rd Street in Kansas City, Mo., with a new concrete-steel structure. The new viaduct provides for a single track and is approximately 310 ft. in length between the abutment pilasters. It is used by the Dodson line of the company which operates in part over the company's Country Club line and furnishes freight service between the southern limits of the city and the Westport industrial district.

The ornamental structure was designed to add to the appearance of the boulevard it spans. An arch treatment was carried out, three large spans being provided in the length. Two of these are over Mill Creek Boulevard, where the roadway is 60 ft. wide, and the third over 43rd Street. Because double-deck buses operate on the boulevard, a clearance of 13 ft. 9 in. was necessary.

Each span consists of a concrete deck on steel beams supported by steel plate girders incased in the parapet walls. The intermediate sections and approaches are concrete decks on steel I-beams, supported on bearing walls and abutments. The design provides for an 80-ton electric locomotive with a train of 80-ton gross weight gondola cars, with an allowance of 30 per cent for impact.

The trolley poles are of the hollow-spun reinforced-concrete type and will carry a lateral pull of 2,800 lb. at the trolley connections.

A temporary trestle was constructed to serve during construction. It was used not only to maintain regular service on the line, but also as a work track for handling materials.

The viaduct was designed and constructed by William G. Woolfolk & Company, Inc., engineers and constructors, Chicago, Ill.



The Mill Creek Viaduct of the Kansas City Public Service Company adds to the appearance of the boulevard it spans

Maintenance Methods *and* Devices

Automatic Device Maintains Third-Rail Shoe Pressure

DIFFICULTY is often experienced in maintaining a proper electrical contact between the contact shoe and the third rail of the transfer table. This was true with the transfer tables in the inspection house and shop of the New York & Harlem Railroad, New York City, until an automatic pressure regulator for the transfer table third-rail shoe was designed. This is shown in the accompanying illustration.

Previously, when the wheel flanges and journals became worn or if the running rail or third rail were in any way distorted, due to climatic changes or mechanical defects, the electrical contact was lost entirely at certain points. The shoe support was fastened to the truck framing previously and the only adjustment was that allowed by the spring compression and shimming. The device designed eliminates entirely any need for adjustment by hand, since it is taken care of automatically at all times.

Two $\frac{1}{2} \times 1\frac{1}{2}$ -in. hinged straps are fastened to the underside of the transfer table platform at the proper distance from the center of the third rail. An oak plank 2x15x30 in., well seasoned and specially treated, is bolted to these hangers. A 25-lb. counterweight of 4-in. diameter and 8 in. long is suspended from a $1\frac{1}{2} \times 2$ -in.

hanger, 6 in. from the back of this plank. This weight forces the plank and contact shoe towards the third rail at all times by gravity and thereby automatically adjusts the shoe for any rail irregularities immediately. The shoe spring in use is the same as is being used on the plows for conduit rail, but the shoe is somewhat larger.

This arrangement has been in service for over a year and to date not a single failure has developed.

Welded Framework Truck for Welding Outfit

DUE to the destruction by fire of some of the housing facilities at the shops of the Jamaica Central Railway, Jamaica, N. Y., it became necessary to perform a large portion of the welding work in the storage yard. The rugged welding truck illustrated was built for the transportation of the welding outfit.

The framework is welded. All of the vertical and platform framework is made of $1\frac{1}{4}$ -in. angles. It is fastened to the $\frac{3}{4} \times 1\frac{1}{2}$ -in. axle by means of a $\frac{1}{4} \times 1\frac{1}{4}$ -in. iron bracket shaped to fit over the axle, the ends being welded to the framework. A platform for the support of the tanks is made of $\frac{1}{8}$ -in. sheet iron, welded to the angle framework. The vertical members are strengthened by $\frac{1}{4} \times 8$ -in. plates welded to the uprights. The handles are made from 1-in.



Welded truck to hold oxy-acetylene welding equipment

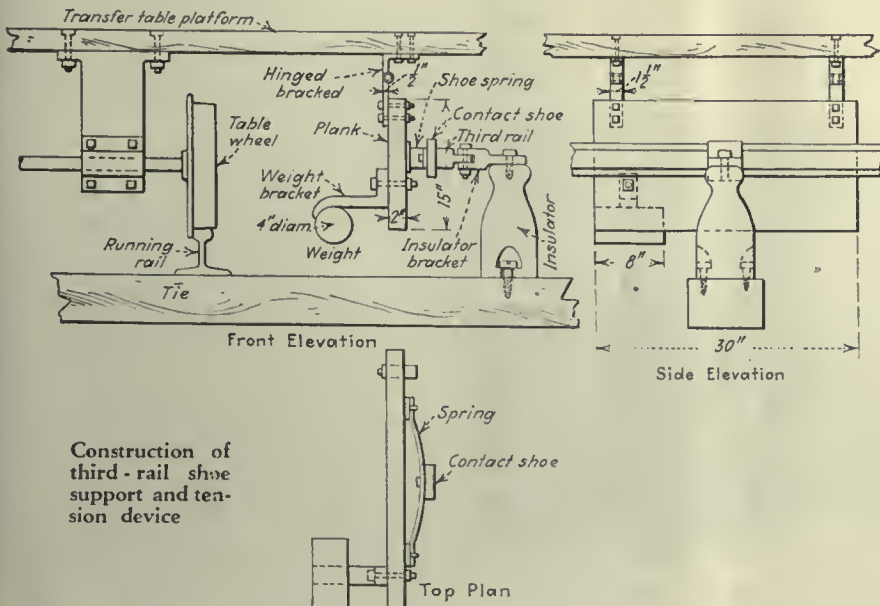
pipe, welded to the platform and vertical frame. Iron wheels of 10-in. diameter and 2 $\frac{1}{2}$ -in. face, spaced on 24-in. centers, provide for easy movement. The over-all width of the framework is 20 in. and the handles 21 in. The platform is 14 in. long from the center of the axles to the end of the framework, and the over-all height of the framework is 38 $\frac{1}{2}$ in. The tanks are held firmly by $\frac{1}{8} \times 1\frac{1}{2}$ -in. straps welded to the $\frac{1}{4} \times 8$ -in. reinforcing plate.

Making Removal of Cab Heaters Easy

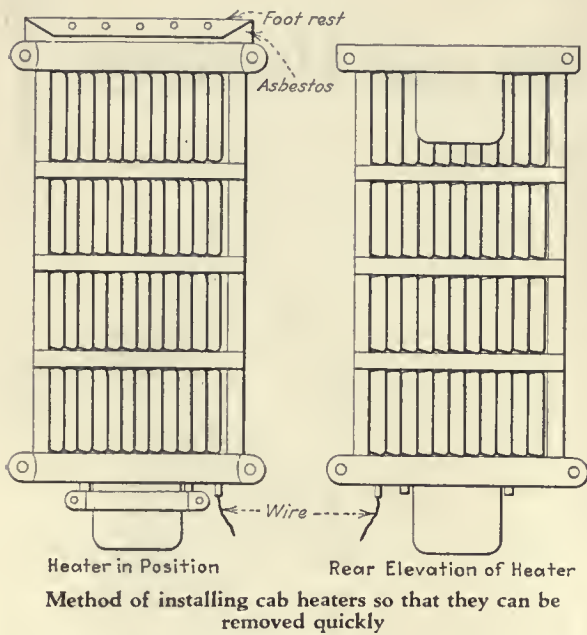
By BENJAMIN H. HALL
Shop Foreman West Penn Railways,
McKeesport, Pa.

WHERE individual heaters for motormen are used on the platforms of cars it is frequently desirable to remove them quickly for repairs. Where these are fastened permanently by four machine screws removal requires considerable time. In addition to this, when another heater is reinstalled frequently the drilling for the fastening screws varies so that additional holes must be drilled and tapped.

To provide a convenient mounting



Construction of third-rail shoe support and tension device



so that heaters can be removed and installed readily the West Penn Railways uses a clamping arrangement that has proved of particular value. It can be installed cheaply, and when a heater has an open circuit it can be removed by disconnecting two small two-way connectors for the leads and then can be lifted out and a new one set in place. Heaters cannot be changed in service.

Two brackets of bar steel $\frac{1}{2} \times 1$ in. are fastened to the inside panel of the cab and two other brackets are fastened to the heater. The brackets on the car form a pocket into which the heater brackets fit.

Portable Dryer Reduces Bus Painting Time

BUSES can be repainted in three days with a portable, electrically-heated drying shed, designed by James E. Dooley, master mechanic at

heaters are arranged in four 500-volt d.c. circuits and require a current of 50 amp. The temperature maintained in the shed for drying varies from 110 to 120 deg. F., which dries the paint quickly without cracking or checking. A small window in the side of the shed lets in light on a hygrometer and a thermometer so that readings of the temperature and humidity can be made at regular intervals.

A bus brought in for repainting is thoroughly cleaned and dried in the shed during the morning of the first day. It then receives a coat of enamel and another drying in the shed. Late the first afternoon the bus is given a second coat of enamel and then is housed to dry overnight. The second morning it is striped and lettered, and again placed in the shed. The third morning it is varnished, completing the job. When thoroughly dry the bus is removed from the shop, all



Portable shed used in Grand Avenue shops of the Connecticut Company to speed up process of bus painting

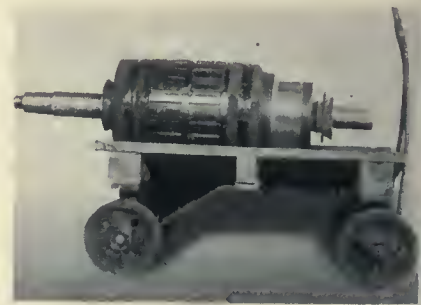
the Grand Avenue shops of the Connecticut Company, New Haven, Conn. The shed, which measures 35 x 12 ft. x 9 ft. 6 in., is made of 22-gage sheet steel with a frame of $1\frac{1}{2}$ -in. angles and weighs 2,800 lb. The sides and roof are of metal but the ends are of heavy canvas to permit easy opening. The shed is mounted on ten small wheels and can be rolled into position over a bus with little effort. Heat is furnished by ordinary car heater units, two rows of coils being mounted on each side about 2 ft. above the floor. The

ready to be again put in service.

With this apparatus a bus can be painted in three days, whereas the time formerly required was six days. Since the fixed charges on a bus are the same when it is in the shop as when it is in service, this effects a substantial monetary saving. This process is used for buses of the New England Transportation Company as well as for those of the Connecticut Company.

Armatures Are Moved Easily With Hand Truck

LITTLE time is lost in transporting armatures around the shop of the Binghamton Railway, Binghamton, N. Y., since a special hand truck was designed and constructed for this work. This truck, made of wood and steel, is 14 in. high, 18 in. wide and 33 in. long. The end timbers of the



Truck used in Binghamton for moving armatures about shop

platform framing are 4-in. x 4-in. oak and the center timber 2-in. x 3-in. oak, all being concave on one side to suit the diameter of the largest armature to be handled. Strips of 1-in. x $2\frac{1}{2}$ -in. wood fastened to these timbers form a strong support for the armatures and the curved surface prevents the armatures from rolling during transportation. The platform is strengthened further by $\frac{1}{2}$ -in. steel plates which are installed under each cross beam.

The front and rear axles are fastened to oak bolsters 3 in. thick. The rear bolster is held in place by bolts extending through the platform, end timber, reinforcing plate, bolster and axle. Additional strength is secured by two $\frac{3}{8}$ -in. x 1-in. braces extending from the axle to the center platform timber. The front bolster is held in position by a $\frac{3}{4}$ -in. king bolt which permits of easy rotating movement. Four 8-in. x $1\frac{3}{4}$ -in. cast iron wheels and a handle made of $\frac{3}{4}$ -in. round iron provide for easy movement throughout the shop.

New Equipment Available

Electric Gluepot

COMPACT glue-heating equipment that can be carried to the job instead of taking the work to the gluepot is announced as a new product by the Black & Decker Company, Towson, Md. With this equipment glue is maintained at a constant temperature of 150 deg. F. which is said to give the best working consistency for smooth, tight joints. The heating element is a Nichrome ribbon insulated with mica plates. The control is thermostatic. The glue container, which has a capacity of 2 qt., is cast aluminum, machined to fit a gray-iron receptacle for conserving heat.

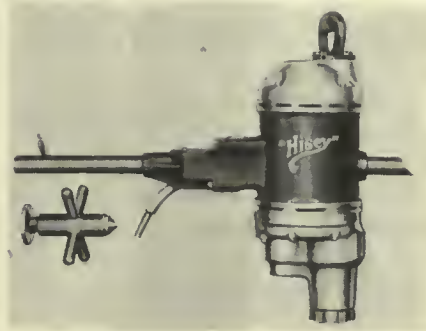


Portable electric gluepot

The heating element is sealed tightly with asbestos to eliminate fire hazards, short circuits, etc. The sides of the pot are sloped to minimize spillage, and a heavy iron wiper across the center of the glue container prevents waste from dripping.

Universal Drill

SEVERAL improvements appear in a universal drill of 1 1/4-in. capacity announced by the Hisey-Wolf Machine Company, Cincinnati, Ohio. The motor is mounted in ball bearings which in turn are fitted to eliminate the slip and creeping action so detrimental to the motor and other mechanical parts. The gear on the armature shaft is removable. All gears are proportioned for maximum strength and smooth running. They are made of high-grade steel, electrically heat-treated. The compound gear shaft has a bearing at each end.



Universal drill of 1 1/4-in. capacity

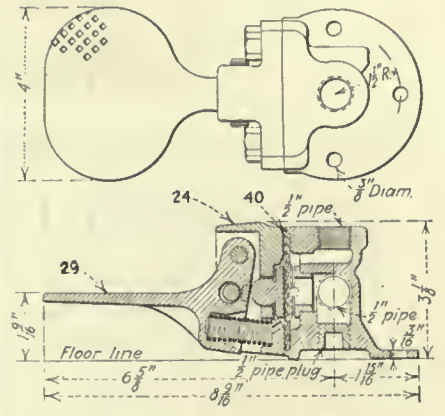
The drill spindle is fitted with a No. 3 Morse taper socket. It is of liberal dimensions, hardened and ground, and is automatically lubricated through the gear case. Brush-holders are provided with adjustable spring tension and the end handle cover is a rugged casting independent of the motor and motor bearings. This relieves them of strain and affords a convenient means of access to the carbon brushes for adjustment or renewal.

"A bird in the hand is worth two in the bush." So a car on the road is worth two in the shop.

Independent Devices for Foot and Cut-Off Valves

FORMERLY a device furnished with safety control equipment by the Safety Car Devices Company included the combined foot and cut-off valve with the twofold function of preventing automatic application of the brake when a straight air brake application of predetermined amount was made and when the operator found it necessary to release the controller handle to relieve fatigue, make change, issue transfers, etc. Two independent devices of improved form are now announced by the Safety Car Devices Company, Wilmerding, Pa., to take care of these functions. These include a diaphragm type foot valve and a diaphragm type cut-off valve.

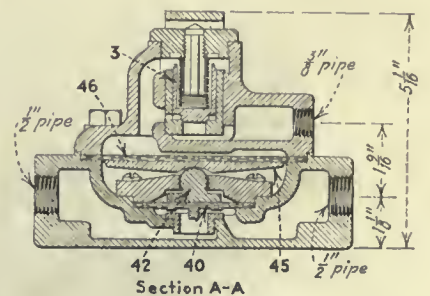
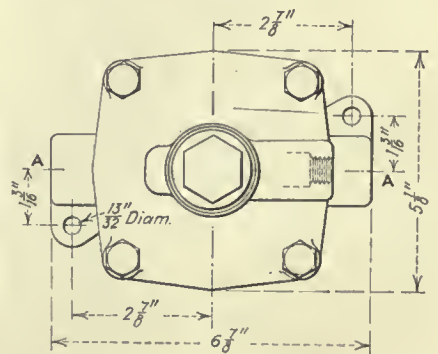
By making these devices in separate units instead of combined the equipment is simplified somewhat since only one cut-off valve is required for either single or double end equipment. The diaphragm type of construction makes the valves practically leak proof. In the foot valve illustrated



New type of foot valve

when pedal 29 is depressed the diaphragm follower 24 flexes diaphragm 40 inwardly so that the bead on the inside surface seals against the seat in the valve body, cutting off communication between the controller pilot valve and the emergency valve.

In the cut-off valve, when a predetermined straight air pipe pressure is reached, closing valve 3 lifts and allows air to flow to the top of the operating diaphragm 46. The pressure thus exerted acts through large and small followers 45 and 42 to flex the valve diaphragm 40 downward, causing the bead on its lower side to seal against the brass seat and thus automatically close communication between the controller pilot valve and the emergency valve. All diaphragms are made of Wabco material which, together with the unique structure, makes the valves tight and free from leakage.



Improved cut-off valve construction

Association Activities

One-Man Cars in Europe*

Trials of one-man buses and cars are being made under stress of higher costs. One-man operation in Paris has been satisfactory and will be extended

By J. CHAMPETIER DE RIBES

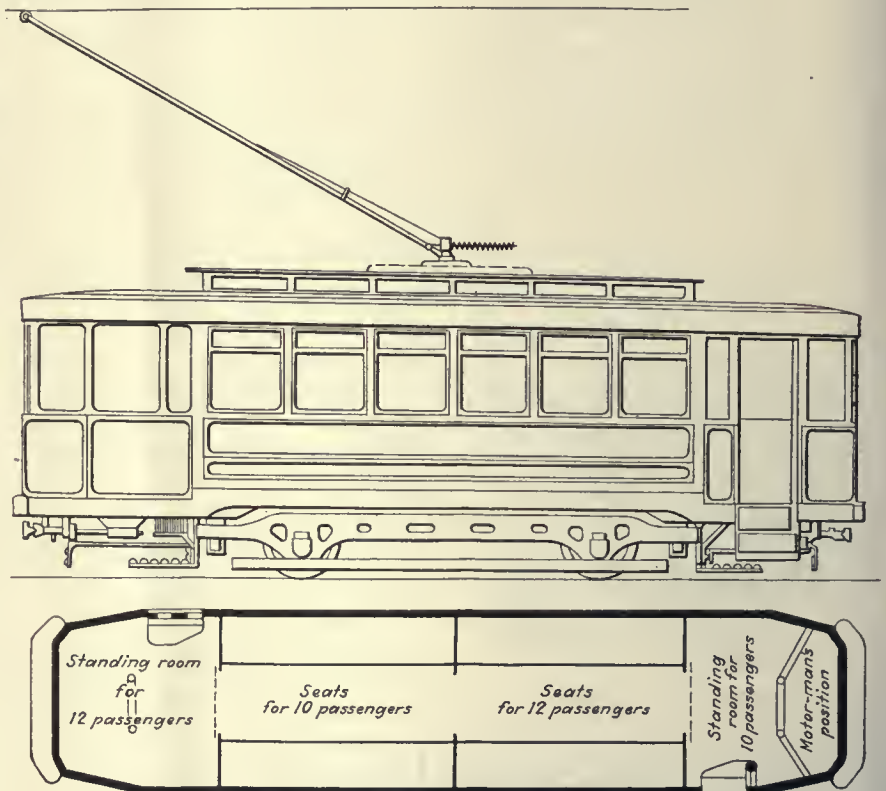
Transportation Manager of the S.T.C.R.P. (Paris Surface Railway and Bus Lines)

SINCE the war, the expense for platform labor has become an increasing proportion of operating expenses of electric railway and bus companies throughout the world. In Paris, during 1926, platform labor represented 29 per cent of the entire operating cost. Efforts to decrease it have been in various directions, such as (1) increase of schedule speed of cars and buses, (2) increase in size of vehicles, (3) operation of cars in trains, and (4) decrease of the platform labor cost by one-man operation, either by (a) the collection of fares before the passenger enters the car, or (b) by combining the duties of motorman and conductor. Of these methods, the first is becoming increasingly difficult owing to growing street congestion, and the second and third mean more stops per unit and therefore lower speed. Moreover, city regulations place a limit on the length of trains. The first alternative under (4) is used to some extent in Paris but is hardly practicable on city streets as ordinarily it means the use of prepayment areas. Hence the possibilities in reduction of labor costs lie largely in extending the one-man principle.

The idea is not new. It was used many years ago on a small scale with horse cars in America and also in Paris. As late as 1913 a Paris horse car line was run on this principle. The great development in one-man operation has occurred, of course, in the United States, beginning with the Birney safety car, but there have been trials of the system in Europe also. Thus, the Berlin surface lines introduced one-man cars on a small scale in 1923 on a line with light traffic. When the number of passengers increased, two-man operation was substituted.

The London United Tramways put in operation in 1922 a single-deck, single-truck car, like the Birney, with satisfactory results. Later, four double-truck cars, weighing 12 tons each, with interlocked pneumatic door control and other safety features followed. The Rooke register was used to collect fares and a change-making machine was installed. The seating capacity was 30 passengers and a schedule speed of 10

*Abstract of paper presented at the convention of L'Union des Voies et des Transports Automobiles (Railway and Bus Association of France), held in Marseilles, Nov. 6-8, 1927.



Type of one man car used by the Paris surface lines

m.p.h. was attained. The motorman was paid a somewhat higher wage because of the added duties performed. These cars did not meet popular approval, but this may have been because they were single-deck and the British riding public favors double-decks.

The Basle (Switzerland) Tramways put a one-man car in operation in 1927 as a trial. It was similar to the Birney in design and had full safety equipment. The results are not available.

The Malmö (Sweden) Tramways has one city and three suburban lines with one-man operation and despite the payment of a higher wage to the motorman, platform expenses were reduced 46 per cent. The schedule speed is 9.3 m.p.h., instead of 9.7 with two-man cars. The zone system of fares is used, the passengers paying on entering. The results have been satisfactory.

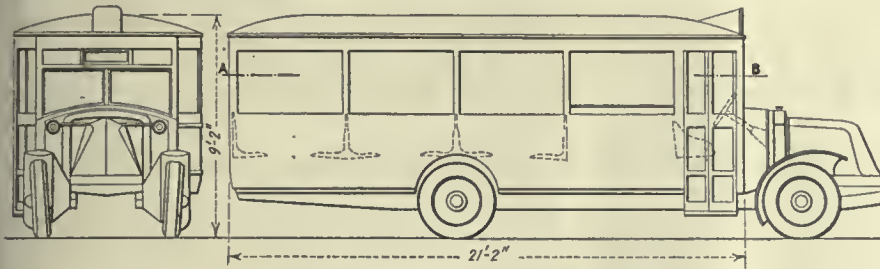
The Arnhem (Holland) Tramways put some single-truck one-man cars in operation in 1923. Each had accommodations for 18 seated passengers and

14 standing passengers. The results have been so good that all cars on the system have been changed over for one-man, including cars with a capacity for 24 seated and 25 standing passengers. The headway has been reduced. The recent adoption of the unlimited-ride weekly pass has undoubtedly helped the problem of fare collection.

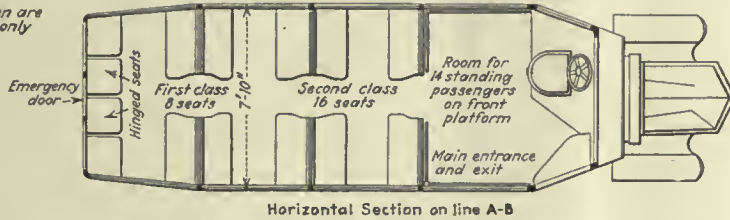
The S.T.C.R.P. has been operating for some time a one-man car of the type shown in an accompanying illustration and has recently expanded this service to fifteen cars. Only one class of passenger service is given on these cars, instead of two, the usual practice in Paris. Automatic sanding and braking are used and the doors are controlled by the operator in the usual American manner, except that they are arranged so that they can be opened from the inside by the passengers.

ONE-MAN CARS AND BUSES IN PARIS

In 1924 the S.T.C.R.P. put 50 one-man buses in operation. They were designed primarily for express service between the center of the city and the outskirts, and each had a capacity of 25 seated passengers, but carried only one class. They were equipped for a speed of from 20 to 25 m.p.h. Entrance and exit were at the front only. Later, several 38-passenger one-man buses were built, also with entrance and exit



Dimensions given are approximate only



This one-man bus used in Paris accommodates 38 passengers

in front, but designed to carry two classes of passengers. The body has a length of 21 ft. 2 in. and wheelbase of 14 ft. 5 in. A line drawing is given of these buses, showing other dimensions.

There are more exact data available on the one-man bus service than on the Paris one-man trolley service.

The 50 express buses mentioned ran on five different routes, were in service only during the rush hours and made only two or three stops between terminals. The fares were somewhat higher than first-class fares on the regular buses, and no standing passengers were carried. The financial results were not satisfactory and the service was abandoned in 1925.

The objections were five in number, as follows:

- (1) Running only during the rush hours, the buses were largely empty during alternate half trips.
- (2) The higher fare adopted because of the expensive operating conditions appeared prohibitive to many persons who otherwise would have patronized them.
- (3) To increase the schedule speed, each line had an average of only two loading stops, but although these stops were chosen with regard to their desirability from a traffic standpoint, it was found hardly possible to obtain sufficient passengers going from these points to fill the bus seats.
- (4) Because of this small patronage, the buses were run on a pretty long headway, which made the lapse of time for many passengers about the same as if they used the regular service.
- (5) The street congestion was such that the express buses were able to make a schedule speed of only 22 m.p.h. This was a gain of only about 40 per cent over the speed of the regular buses, which was 15.6 m.p.h.

After this express service was abandoned, the buses were transferred to lines in the suburbs, but one-man service was continued and under conditions which permitted careful study. For instance, one line was divided into three fare sections and had twelve stops, of which three were obligatory. The distances between stops varied between 800 ft. and 4,000 ft. Fare was paid as the passenger entered, but owing to the

rather complicated schedule of fares the operator had to have tickets at eight different prices. Nevertheless the one-man buses made better over-all time over the route than two-man buses.

In expenses, maintenance for the one-man buses was higher, largely because they were equipped with pneumatic instead of solid tires. The total operating expenses, however, were 12 per cent less for the one-man buses, or 25.34 cents, instead of 28.67 cents, per bus-mile. Actually, these figures are not quite comparable because the two-man bus has places for 38 seated and standing passengers, whereas the one-man bus has places for only 30 passengers, of which 25 could be seated.

ONE-MAN VEHICLE THE TYPE OF THE FUTURE

The conclusions reached by the company are that the one-man vehicle is the vehicle of the future, though certain conditions must prevail. They may be summarized as follows:

- (1) The system of fare collection should be so simple that fares can be paid easily and rapidly. Where a flat fare cannot be charged the rate should be such that fares can be paid with coins in common use.
- (2) The vehicles, whether buses or cars, ought to have ample carrying capacity. The Americans seem to be abandoning the small Birney 32-seat safety car for cars hold-

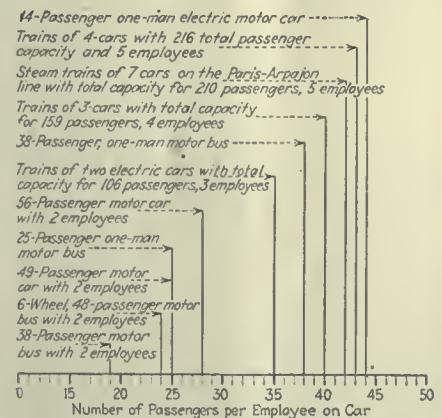


Chart showing the number of passengers per operator on various Paris vehicles

COMING MEETINGS OF Electric Railway and Allied Associations

May 2-5—Southwestern Public Service Association, Dallas, Texas.

May 4—Metropolitan Section, A.E.R.A., 33 W. 39th Street, New York, N. Y.

May 6-12—Union Internationale de Tramways, de Chemins de fer d'Interet Local et de Transports Publics Automobiles, Rome, Italy.

May 7-10—National Conference on City Planning, Dallas and Fort Worth, Texas.

May 8-11—United States Chamber of Commerce, Washington, D. C.

May 9—A.E.R.A. Executive Committee, Washington, D. C., 3 p.m.

May 9-10—Central Electric Railway Master Mechanics' Association, Lawrence Hotel, Erie, Pa.

May 9-12—American Institute of Electrical Engineers, regional meeting, Northeastern District, Hotel Taft, New Haven, Conn.

May 24—New England Street Railway Club, annual meeting, Boston, Mass.

June 4-6—Midwest Electric Railway Association, Hotel Baltimore, Kansas City, Mo.

June 4-8—National Electric Light Association, Atlantic City, N. J.

June 6-8—Canadian Electric Railway Association, annual convention and exhibit, Toronto, Canada.

June 14-15—New York Electric Railway Association, Half Moon Hotel, Coney Island, N. Y.

June 20-27—American Railway Association, Div. 5—Mechanical, annual convention and exhibit, Atlantic City, N. J.

June 21-22—American Railway Association, Motor Transport Division, Atlantic City, N. J.

June 21-22—Wisconsin Utilities Association, Accounting Section, Hotel Pfister, Milwaukee, Wis.

June 28-29—Central Electric Railway Association, Cedar Point, Ohio.

July 8-12—Public Utilities Advertising Association and International Advertising Exposition, Detroit, Mich.

July 25-27—Electric Railway Association of Equipment Men, Southern Properties, Cincinnati, Ohio.

July 27-28—Central Electric Railway Accountants' Association, Detroit, Mich.

Aug. 16-17—Wisconsin Utilities Association, Transportation Section, Sheboygan, Wis.

SEPT. 22-28, 1928

American Electric Railway Association, 47th annual convention and exhibit, Cleveland, Ohio.

ing as many as 68 seated passengers. The trials being made in Paris with one-man cars of 44-passenger capacity should give good results. As for buses, the 38-passenger bus which has been mentioned should give better results than the 30-passenger bus.

No steps should be neglected in the education of the public to the use of these vehicles before they are actually put in service.

Equal care should be given to insuring the interest of the employee in making the experiment successful. The operator of a one-man car may properly receive a somewhat higher wage than the member of a two-man car crew.

Hotel Arrangements at Cedar Point

SPECIAL hotel rates have been granted for the summer convention of the Central Electric Railway Association, to be held at Cedar Point, Ohio, on June 28-29. At the Hotel Breakers

the majority of the rooms will be available at \$2 a day for one person or \$1.25 each for two persons. There also are numerous rooms at the rate of \$2.50 for one person or \$1.75 each for two persons, and a limited number at higher prices. Rooms with bath are \$4 and \$4.50 for one person and \$2.75 and \$3.25 each for two.

At the Hotel Cedars most of the rooms are \$2 for one person or \$1.25 each for two, with a limited number \$3 for one and \$1.75 each for two persons. Rooms with bath are \$3.50 for one person and \$2.25 each for two persons.

At the Bon Air Annex all rooms are with bath and twin beds. A number are at \$5 for one person or \$3.50 each for two, while the majority are \$6 for one person and \$4.50 each for two persons.

All railroads grant tourist rates to Cedar Point which are considerably cheaper than the regular rates. Information regarding trains, fares and Pullman accommodations can be obtained at railroad ticket offices.

American Association News

Subjects and Meetings

DEFINITE plans for the Cleveland convention were blocked out at the meeting of the committee on meetings and subjects of the American Association held at association headquarters, New York City, on April 20. Chairman Frank R. Coates stated that he had presented the tentative program of the convention previously adopted to the executive committee and that it was approved with certain suggestions.

The general subject for the first day will be "Economics." This will include economics of public transportation and its future in cities, as well as developments going on in the transportation field. Tuesday will be left for inspection of exhibits, instead of Wednesday as in previous years. Tuesday evening, however, will be Advisory Council Night as heretofore. The subject for Wednesday's meeting will be "Modernization." On Thursday the subject will be "Viewpoint of Others on Our Industry." This is planned to include a series of addresses by men from outside the industry.

It is proposed to continue the round-table luncheon in a form similar to that used last year. It is now planned to have a total of fourteen of these groups with topics as follows: Monday—safety, fares, taxation, manufactures; Tuesday—interurbans, traffic, education, merchandising; Wednesday—financing, public relations, new cars; Thursday—freight, management, motor bus. It is planned to limit each luncheon to 50 people and if the demand is made for more seats, it will be determined later whether arrangements should be made for an additional group. These lunch-

cons will be held at the various hotels and tickets will be sold in advance on application, similar to the method used last year.

Those present at the meeting were F. R. Coates, chairman; J. P. Barnes, H. V. Bozell, I. C. Bradley, C. A. Brooks, H. C. Clark, G. H. Clifford, W. A. Draper, Charles Gordon, T. R. Langan representing M. B. Lambert, and W. T. Rossell, of the committee, and R. P. Stevens, president of the association; Labert St. Clair, J. A. Miller, Jr., Leslie Vickers and J. W. Welsh, general secretary.

Traffic and Safety

SELECTION methods and the training of men were important subjects discussed at the meeting of the traffic and safety committee of the Transportation & Traffic Association, held at association headquarters on April 13. After the original assignments were reviewed by Chairman R. W. Emerson, the individual subcommittee chairmen reported on the development of their respective topics which had been assigned at a previous meeting.

Dr. C. F. Slocombe outlined his section of the report entitled "Make a Study of Men and the Causes of their Failure in Accidents." The Milwaukee psychological tests were discussed in considerable detail since one member of the committee, John A. Dewhurst, had made a special study of this particular topic. The consensus of opinion among the committee members was that more up-to-date information should be obtained. To this end the chairman will shortly appoint a committee to make a

more detailed study of the recent results at Milwaukee.

"Accident Classification" was reported upon by Mr. Emerson who is working in conjunction with E. J. Murphy, statistician of the association. Mr. Emerson also reported on item No. 3, "Co-operate with the Committee of the American Engineering Standards Committee on the Study of Colors for Traffic Signals." S. E. Emmons, chairman of the subcommittee to study the question of improved schedule speeds as affected by fare collection, loading delays and traffic control systems, read an excellent report on the subject.

The committee was inclined to believe that with the subjects assigned the field was too wide to be covered by one committee's activities and that the final report would not be a thorough treatise on any one. Following a suggestion of Guy C. Hecker, the committee spent some time in discussing the advisability of concentrating on only one or two subjects for this year's report, leaving the balance of the work to be completed next year. The committee will decide this question finally at its meeting, which is planned for the first week of June. Boston has been selected upon the invitation of Edward Dana, president of the Transportation & Traffic Association.

Those present were R. W. Emerson, chairman; H. O. Allison, M. W. Cooke, S. E. Emmons, E. K. Miles, C. F. Slocombe, C. D. Smith, E. C. Spring, J. A. Dewhurst, Guy C. Hecker, and John A. Miller, Jr.

Motor Buses

REVIEW of the uniform motor bus specification code sponsored by the Society of Automotive Engineers and the National Automobile Chamber of Commerce was the principal business before special rolling stock committee No. 2—motor buses, at a meeting held at association headquarters in New York on April 16.

A number of suggestions were made relative to the code. With these suggestions, it was voted to recommend indorsement of the specifications for action by the standing committee on rolling stock.

The work of reviewing the uniform specifications code occupied the entire day. With regard to the other subjects assigned to the committee, Chairman Berry reported that it probably would not be possible to cover all of them this year, but that he and several of the other members have been working on some of these subjects and would in the near future be ready to submit material for comments and criticisms of the committee members.

The following members were present: V. W. Berry, chairman; H. C. Eddy, F. A. Klock, A. J. Scaife, H. D. Schultz, W. A. Blume, G. W. Wilson, E. H. Lamberger representing S. B. Cooper, A. Klein representing L. H. Palmer, and C. W. Stocks.

News of the Industry

Key System Exonerated in Ferry Accident

United States steamboat inspectors have exonerated engineers of the Key System Transit Company, Oakland, Cal., of blame for the accident of Feb. 17 when the Key ferry boat *Peralta*, crowded with passengers on her way to Oakland from San Francisco, Cal., did a sudden nose dive and precipitated more than a score of persons into the bay. Five were drowned. The men exonerated are Edward Dyson, chief engineer of the *Peralta*, and Harry E. Hill, his first assistant. In announcing their decision the steamboat inspectors said that there was insufficient evidence to corroborate charges of inattention to duty and negligence which had been placed against the two men. It was found that some of the *Peralta's* passengers jumped, some were crowded and some were actually washed overboard. Causes assigned for the accident were a combination of swell from the passing Key Route ferryboat *Hayward*, the incoming tide, shallow water and the fact that the *Peralta* was down in the head.

Discontinuance of use of the ballast tanks on the *Peralta* and her sister ship, the *Ycrba Buena*, is ordered and chains are to be installed on the two crafts to keep passengers far back from the bow. Both boats must proceed slowly over the shallow area in San Francisco Bay where the accident occurred, and only one day's supply of oil and water are to be carried on the boats to make them ride higher in the water.

Out to Win Coffin Award in Gary

An effort to win the Charles A. Coffin award is to be made by the Gary Railways, Gary, Ind. An announcement to this effect was made recently by president Charles W. Chase, who referred to the honorable record of the company and the splendid results of the recent rehabilitation program. All employees were solicited to get back of the movement and to help win the honor.

Ten-Cent Fare Sought in Savannah

A straight 10-cent fare for casual riders, a 5-cent fare for school children and tickets sold at the rate of six for 50 cents are being sought by the Savannah Electric & Power Company, Savannah, Ga. Savannah now has a 7-cent fare and tickets are sold at the rate of fifteen for \$1 to regular commuters.

The petition of the company for an increase in fares was presented to the Georgia Public Service Commission on

April 18 by Howard C. Foss, president of the company. The petition declares that the present schedule of fare rates forces the Savannah company to sustain an annual loss in its passenger department. It also states that the growing use of private automobiles has adversely affected the railway earnings.

Hearing was set for May 15 before the Public Service Commission. At that time arguments for and against the proposed increase in fare will be heard and a decision rendered.

Passes in Utah

The Utah-Idaho Central Railroad has installed the weekly pass system on all of its lines operating in Ogden, Utah, except the line known as the Ogden-Huntsville line. The latter is not included, due to the long distance between points. Passes will be good for seven days and are transferable.

Ten Cents in San Jose

Experimental fares, calculated to produce sufficient revenue to net a 5 per cent return upon the property of San Jose railroads were authorized by the California Railroad Commission. The recent decision increased single local fares from 6 cents to 10 cents, with four tokens or rides for 25 cents. The same rates were also authorized for the Peninsular Railway on its San Jose local lines. These two railways applied to the commission for increased fares on the San Jose local lines, setting forth that present rates were entirely inadequate. The commission authorized the new fares as an experiment only, in the hope that the earnings of these companies would be improved to the extent that adequate service might be maintained. The new fares will be applicable on the local lines of the two companies in the City of San Jose, interurban fares not being involved in the proceeding.

Electricity for Another New York Road

Delaware, Lackawanna & Western to spend \$18,000,000 on equipping suburban lines. Construction to start as soon as engineers report



District in which electrified lines will operate

BETWEEN \$14,000,000 and \$18,000,000 is to be spent by the Delaware, Lackawanna & Western Railroad in the electrification of the Morris & Essex line from Hoboken to Dover, the Passaic & Delaware to Gladstone and the Montclair branch, a total of 78 miles of road, or 173 miles of track, James M. Davis, president of the road, announced on April 23.

Construction work will be started just as soon as Lackawanna engineers can prepare plans and it is expected that electrification will be completed within two years. Direct current probably

will be used. If it is necessary to purchase power from outside producers the cost will be \$14,000,000, while if the railroad decides to construct its own generating plant and manufacture its own power the cost is estimated at \$18,000,000.

This action of the managers follows the presentation of a petition of a joint committee, representing business and civic organizations of various communities in a section of northern New Jersey with a population of approximately 1,250,000 asking that the lines be electrified. The petitioners expressed their willingness to agree to an increase in commutation fares in order to secure the improved facilities.

President Davis in his statement said:

This matter of the electrification of the suburban lines of the Lackawanna has been the subject of much speculation and discussion on the part of our patrons and communities for a long time; it also has been accorded consideration by our board, but the present service is thoroughly dependable, operates with clock-like precision and the cost mounted so high that, considering the gradual loss of traffic to other forms of transportation that come and go, the increased cost of performing service and the everlasting pressure to reduce rates here and there placed us in a position where we were unable to imagine an increase in traffic or a reduction in expenses of sufficient proportions to enable the railroad to get its money back. Obviously,

therefore, we have been rather cautious about incurring such a burdensome obligation.

The committee expressed the opinion that the importance of this project was so outstanding to their communities that those whom they represented would be willing to pay increased commutation fares in order to secure the advantages of such improvement in transportation facilities, and placed themselves on record agreeing to co-operate with the railroad in securing an increase in commutation fares. Under such circumstances our board has authorized the project.

Some conception of the far-reaching significance of the change and what is involved can be gained when one contemplates that while the construction of many of the present suburban cars is such that they can be altered to fit the new operating conditions, about 100 of these cars which are now in good condition and serviceable for a long time to come will have to be replaced with others of special design; that about 75 perfectly good locomotives which are now in splendid condition but shall have to be replaced, are not readily salable and in all probability, will be reduced to mere scrap value; also that engine houses, coal-handling plants, water stations, ash pits and other railroad paraphernalia almost without end, incident to steam operation, shall have to be dismantled.

The railroad owns both land and water rights along the Hackensack River and has ample quantities of excellent steam coal readily available to its lines. Officials of the company are carefully weighing the advantages and relative cost of purchasing electric power from outside companies as compared with the construction of a generating plant and manufacturing its own power. The construction and equipment of a power plant of capacity sufficient to meet the railroad's needs will cost about \$4,250,000.

The work of construction will be handled by an electrical committee of the Lackawanna, appointed by President Davis, consisting of Vice-President and General Manager E. M. Rine, chairman; Chief Engineer G. L. Ray; Electrical Engineer H. M. Warren; General Superintendent E. B. Moffatt; Superintendent of Motive Power and Equipment C. J. Scudder, and Superintendent R. M. White, with the advice and assistance of Jackson & Moreland, well-known consulting engineers.

Construction work will be started just as soon as the Lackawanna engineers can prepare plans, and it is estimated that it will be completed within two years.

Pass Tickets for St. Louis Employees

The St. Louis Public Service Company, St. Louis, Mo., has recalled all of the old employees' badges issued by the United Railways and is now issuing to each employee a pass ticket good for 104 rides. Tickets must be presented to the conductor for punching, and when used in full additional tickets may be obtained from the various department heads. Trainmen, when using the tickets, must also present their badges.

To Make "Safe Workers"

The *Safe Worker* will be published each month, beginning in May, by the National Safety Council for distribution to employees. Stories, jokes, helpful hints, poems, a calendar and a space for a record of time will appear in every issue. The purpose is to keep safety alive in every plant year in and year out. The schedule of prices per month is as follows:

Copies	Each in cents
25 to 100.....	4
101 to 500.....	3½
501 to 1,000.....	3
1,001 to 3,000.....	2½
3,001 and over.....	2¼

For instance, delivery on the June issue cannot be made unless the order is received before May 20. There are no transportation charges up to 1,000 copies—larger quantities f.o.b. Chicago.

Bill to Curtail Powers of I.C.C. Over Railway Extensions

Advocating that the Interstate Commerce Commission be divested of the power to require a "certificate of public convenience and necessity" from railroads and electric railways desiring to make extensions, Representative Abernethy, Democrat of North Carolina, has asked Congress to amend the interstate commerce act. The measure is similar to one introduced in the Senate in December by Senator Simmons.

The presentation of the measure is an outgrowth of the recent refusal by the I.C.C. to grant permission to the Piedmont & Northern, an electric line, operating in the Carolinas, to extend its lines, after a hotly contested argument in which the Piedmont & Northern maintained that the I.C.C. did not have jurisdiction.

Representative Abernethy pointed out to the House that state officials, including the Governors and the railroad commissions of the two Carolinas; civic organizations and shippers had asked the I.C.C. to approve the application, while the only opposition came from competing railroads.

In referring to the I.C.C. decision, he said:

Such power as has been exercised by six men who rendered the decision could not have been contemplated by the most ardent supporters of the interstate commerce act. No one could have dreamed that the men chosen by the President of the United States and confirmed by the Senate to carry out the mandate of Congress would ever have exercised such power as is evidenced by the decision in this case.

He declared that the Piedmont & Northern had never been treated by the I.C.C. as a railroad subject to the valuation act; that it is governed by the accounting rules laid down for electric railways; that on Oct. 12, 1920, the I.C.C. ruled that the Piedmont & Northern was not subject to the transportation act of 1920, relating to the issuance of securities, and that the Railroad Labor Board had ruled the Piedmont & North-

ern was an electric interurban line not operated as a part of a railroad system. He declared:

To put this matter in plain and simple language, we find a commission here in Washington which by vote of half of its membership denied to two sovereign states the right to have constructed strictly within the borders of their states an extension of an electric railway.

Increased Rates in Joplin

A ruling of the Missouri Public Service Commission delivered April 20 grants increased rates to the Southwest Missouri Railroad in the city of Joplin. The increase is from the present fare of 5 cents for adults to 8 cents for a single adult fare, with two token fares for 15 cents. Under the ruling the company is entitled to charge the increased fare for a trial period of thirteen months.

Testimony taken in the hearings showed during the period from Sept. 15, 1926, to Aug. 31, 1927, that the company had suffered an operating loss on its Joplin lines of more than \$20,000.

Rehearing Sought by City on Pacific Electric Rate

The city of Los Angeles, Cal., through Jess E. Stephens, city attorney, has petitioned for a rehearing of the California Railroad Commission's recent order fixing rates for the Pacific Electric Railway in Los Angeles and points in southern California. It is alleged that the rates fixed by the commission are discriminatory and unfair as between the patrons of interurban lines and those of the local system, for the reason that interurban fares have been reduced and increases on the local system have been granted, notwithstanding the rate of return upon the capital investment on the local system has been comparable with the same on the interurban lines.

Seventy-Cent Top Rate in Pittsburgh

A settlement of the trainmen's wage scale agreement between the Pittsburgh Railways, Pittsburgh, Pa., and the Amalgamated Association has been reached. In consequence it has been announced that, effective May 1, trainmen will receive an increase of 1½ cents an hour. This brings the maximum rate to 70 cents. On Jan. 1, 1927, an agreement was reached whereby the wage rate of trainmen was increased 1½ cents.

Trainmen have been on a maximum rate of 68½ cents an hour with a starting rate of 61½ cents. Effective May 1 for a period of two years, the time of the contract, the starting rate will be 63 cents. After the first three months the hourly rate rises and the maximum rate is reached at the end of the first year.

Rapid Transit Before St. Louis Board

Rapid transit was brought before the St. Louis, Mo., Board of Aldermen as a paramount issue at the first meeting of the 1928-29 session of the board on April 17, when Mayor Miller and Aldermen Sam Wimer both presented bills calling for the creation of a rapid transit commission. Mayor Miller's bill differs in several material points from the measure filed at the last session of the Aldermen. The chief point of difference is that the new bill provides the city shall appropriate \$50,000 for use of the commission in making a transit survey, while the old measure provided among other things that the St. Louis Public Service Company should reimburse the city to the amount of \$100,000 to be used in the survey.

Furthermore the new bill gives the railway only one non-voting member on the commission while the other bill provided the company should have three voting members. The new commission would have sixteen members, including representatives of the City Plan Commission and the State Public Service Commission and not more than seven private citizens. All members would serve without pay and the life of the commission would be two years. The commission would study all phases of transportation, general street and highway plans and related matters.

Mr. Wimer's measure provides for only \$6,000 for clerical and incidental expenses of the commission he would create. His commission would include the Rapid Transit Committee of the aldermanic board and six citizens to be named by the Mayor.

Unanimous approval for a rapid transit system was expressed by leading business men at a recent public hearing.

Tax Relief Sought by Danville Company

The Danville Traction & Power Company, Danville, Va., is seeking an amendment to its local franchise and relief from the tax required for the use of the city streets. At present the company pays the city 1 per cent of all gross receipts up to \$40,000 and one-half of 1 per cent thereafter. Waning public patronage and the heavy blow dealt the Danville company on account of curtailment of the Danville textile mills are advanced as reasons for tax relief.

Mayor Wants Fifteen-Year Boston Extension

Mayor Nichols of Boston, Mass., appeared before the House Ways and Means Committee at the State House recently and explained his bill for the continued public control of the Boston Elevated Railway. The bill provides for a fifteen-year extension of public control, the creation of a board of five public trustees, of whom three shall be appointed by the Governor of Massa-

chusetts and two by the Mayor of Boston. The Mayor said he did not care to control the board, but felt it was a big program and the city had considerable interest in it.

Mayor Nichols explained that he had not included in the bill any provision for the purchase of the common stock of the company because, he said, he did not want to load it down with too many controversial matters. While it was Commissioner Eastman's idea that the state could buy the common stock, little by little, the Mayor felt the state was not quite ready for such action.

It is provided in the Mayor's bill

"U" Turns Prohibited in Chicago Loop

Passage on March 29 by the City Council of a new ordinance prohibiting mid-block or "U" turns in the Loop district, in the opinion of traffic officials of the Chicago police department, will give Chicago the most efficient and fastest movement of heavy street traffic in any city in the country. The new ordinance must be signed by the Mayor before it can become effective. It was bitterly opposed at the public hearing stage, by taxicab companies regarded as the gravest offenders.

Let Us Be Fair!

A FEW days ago the California State Railroad Commission granted a permit to a bus line to operate in direct competition with one of the beach lines of the Pacific Electric Railway. Without regard to the merit of this particular proposition, it should be said that the general policy enunciated in such permits amounts to subsidizing competitors of railways and that in principle it is unfair and inequitable.

The railroads are California's heaviest taxpayers. . . . On the other hand, the bus lines pay almost no taxes at all. . . . California owes a tremendous part of its development to the railroads; without them much of its area would still be ranches and desert, sparsely settled and almost unproductive.

Even this does not tell the whole story. If the railroads had been treated like ordinary private businesses in the past, allowed free sway in setting their own prices for the services they render, they would have no ground for complaint if another agency succeeded in obtaining the business. But they were not given a free hand; their fares have been regulated, their earnings restricted even while their taxes rose; they have not been allowed to accumulate a fund which

might now be used in protecting themselves in a competitive rate war. This is no argument against public regulation; it is an argument showing that if the state does regulate, it is in duty bound to protect. It has limited railroad earnings on the ground that railroads are a natural monopoly; the plain corollary is that this recognized monopoly should not be interfered with artificially and without compensating grants.

The *Times* holds no special brief for the railroads. It has had several hard battles with them in the past, outstanding examples being the fight for a free harbor at San Pedro and the fight for a union station at the Plaza, in both of which most of the other newspapers of the city took the railroads' side. It has consistently opposed the railroads when it believed them wrong, and just as consistently it has been for them when it believed them right.

It believes now that this whole matter of bus competition with the rail carriers needs to be taken up and settled according to the plain principles of equity and justice, and that the railroads should be given just as fair treatment as the public they serve.—Los Angeles *Times*.

that all the subway leases, the old ones as well as the new ones, should be made to expire in 1953. The old ones are dated to expire in 1936. But the Mayor would not agree to the suggestion that the subways should be operated free of rentals after the bonds had been paid. He said the rental money after that date could be applied to extension and improvement of service.

The new bill also provides that if the stockholders of the Boston Elevated do not accept this measure the secretary of the commonwealth shall give notice to terminate public management and operation of the property. The Mayor said the time had come when this matter should be settled, and now was a good time to end the controversy.

Decision Against Non-Paying Extension in Cincinnati

Cincinnati's City Council voted seven to two, on April 18, against extension of the Warsaw Avenue line of the Cincinnati Street Railway to the Westwood car line, in order to serve pupils of the new Western Hills high school. Representatives of the railway said this was only the first of many similar extensions sought by residents of various sections, which, if undertaken, would tend to cripple the company. Parents of high school students in the district, on the other hand, said that without an extension their children would have no means of transportation to the school. Establishment of a bus line now is contemplated.

Free Window Display for Market Street Railway

Car card and newspaper messages have long been accepted as good mediums for electric railway advertising but out in San Francisco, Cal., window display as a medium goes even further. It pays for itself. As a result of a display at Christmas time by the Market Street Railway several locations are now open to the company to exhibit under similar arrangements with rental free.

In December, 1927, the Market Street Railway had an attractive exhibit in readiness and no place to show it. Several realtors and building managers had stores for rent in good locations so the railway sold an enterprising real estate firm on the idea that a decorative window would win a prospective tenant more readily than an empty window in an unlighted store. Removal on notice was satisfactory to both parties.

In accordance with the plan at the Holbrook Building, 58 Sutter Street, the week before Christmas the display, neat and attractive, was opened and the company was permitted to install large flood lights, paying for the current but no rent. There were Christmas trees, red crepe paper, tinsel and the like, model of a new car and samples of some of the 750 street car parts made by the company ranging from trolley wheels to door handles all in the natural brass. Practically every part of the city and many important events of recent date were represented in pictures. People paused for as long as half an hour in an effort to identify the different scenes portrayed.

The same general idea was carried out in a later display except that the trimmings were in deep blue. When the next move is made nine smaller models portraying the development of railway transportation in San Francisco will be added. These will include an early type of horse car, known as a balloon car because of its circular body, a steam tram, the first cable car in the world and thus down to the California Comfort Car of 1925. The exhibit appears to be destined to travel through all parts of the city in choice locations.

Higher Fares on Hydro-Electric Lines

A new schedule of increased fares became effective on the lines of the Hydro-Electric Railways in Windsor, Canada, on April 15. The new schedule calls for four tickets for 25 cents, or a straight 7-cent fare instead of a straight 6-cent fare, or twenty tickets for \$1. The joint transportation board, representing the several communities affected, has stipulated that the old schedule must be resumed on Oct. 31. This board, at the instance of Alderman Clyde Curry, demanded nine tickets for 50 cents.

The Hydro-Electric Power Commission, which operates the railway, has reported a \$75,000 deficit, but the Mayors and Aldermen of the various municipali-

ties claim that the increased fare should make this up by the end of October. According to newspaper comment the persistent criticism of the service in the past year, coupled with the new rate, has resulted in a demand for local control of the border lines, instead of control from Toronto.

Indiana Papers Boom Interurban

The two newspapers at Boonville, Ind., have been running a series of articles urging the people of that section to be more liberal in their patronage of the Evansville, Suburban & Newburgh Railway, which operates from Evansville to Boonville and Newburgh, Ind. They urge the business men to ship freight by the railway instead of the trucking lines that operate along the state highway between Evansville and Boonville. The Boonville Business Men's Association has repeatedly urged the merchants to patronize the railway, pointing out that the trucking companies pay no taxes in Warrick County.

The Clangor of Jacksonville's Varicolored Car

PROBABLY some time today you'll meet *it*. *It* may be placidly waiting for the "go" signal at Bay and Main Streets, or *it* may be ambling squat and heavy and contentedly on St. Johns Avenue. Sooner or later you'll cross *its* trail. *It's* a street car.

Yes, sir! A street car. But *such* a street car. Never before in Jacksonville's history and, in all probability, never before in the history of any Southern city has such a car raised its clangor.

Red and white and blue and gray and brown and green—the colors of the spectrum were overtaxed in the phantasmagoria of shadings decreed by the Jacksonville Traction Company for its vehicles henceforth.

For several days *it* has stood in the carhouse of the company, a gayly colored thing awaiting the drop of the barrier to race forth upon the streets. Unlike the company's new Murray Hill buses, *it* has no name.

It is an experimental paint job. If Jaxons see *it* and are not stricken suddenly blind the company will give it a brother in brilliance and a sister, and a papa, and a mama, and a whole flock of bedaubed uncles and aunts.

Lest Jaxons suffer from the monotony of street car colors in the future, and the company officials, directed by a sudden welling up of futuristic impulses, have no desire that they should, all *it's* relatives will wear different garbs in different ways.—*Jacksonville Journal*.

Conferences on Wages in St. Louis

A deadlock has been reached in the negotiations between officials of the St. Louis Public Service Company, St. Louis, Mo., and its 4,500 employees relative to a new wage scale and working agreement for members of the Amalgamated employed by the company.

Recent developments are the rejection by the workers of the company's counter-proposal that the carmen, maintenance workers and shops crafts accept an average reduction of 10 per cent in wages, and a recommendation to be made to the board of directors of the company that notice of termination of the existing contract be served on the union. The later action was decided upon April 24, following a conference between company officials and a committee from the union at which the decision of the workers in rejecting the company's proposal was reported to the company. The contract proposed to the union by the company was identical with the existing contract except that it called for a decrease in wages to the scale in effect before the increase in 1923. Thirty days notice for terminating the existing contract is required.

Last December after the St. Louis Public Service Company took over the properties of the United Railways the union announced it would seek a new sixteen-months agreement. Subsequently wage increases of 5 cents an hour for the 3,500 platform men and increases up to 10 cents an hour for the 1,000 maintenance men and shop workers were asked. The union has also asked that 65 per cent of all runs be made straight runs to be completed within nine hours. In addition the union wants one-man cars abolished and the period of maximum seniority reached at the end of one year instead of three years.

At present the conductors and motormen receive from 50 to 67 cents an hour, while wages of other workers range from 45 to 81 cents an hour. The increases asked by the union would total about \$450,000 annually.

"Copy" Wins Prize in Augusta

A \$10 gold prize was won recently by D. J. Roberts, a member of the senior class of the Academy of Richmond County, Augusta, Ga., for copy for an advertisement submitted for use in the space of the Augusta-Aiken Railway & Electric Corporation in the *Musketeer*, the school paper. The subject was "Conservation of Their Equipment." The corporation offered the prize to check student marauders who frequently damage cars.

The winning essay called attention to what the railway was doing generally toward progress and prosperity in the south, and particularly for the students, by offering of special rates to them. It urged all to protect the vehicles and to prevent anyone from damaging property of the company.

Recent Bus Developments

Trial Franchise Suggested in Kansas City

A trial franchise to run either four or six months may be the solution to the bus problem of the Kansas City Public Service Company, according to the City Council members.

Despite the fact that the present franchise does not expire till June, a proposal of this kind will probably be made to the Council soon in order that the Council may have ample opportunity to study the proposition made in a recent report by Powell C. Groner, president of the company.

As noted in *ELECTRIC RAILWAY JOURNAL* for April 14, page 631, changes in routes and a 15-cent fare on downtown routes were included among Mr. Groner's proposals. He does not want the car rider penalized for bus deficits. Asked regarding the report, Mr. Groner stated:

After a long study of the matter, we believe we have set out the bus situation in our report and we suggest in the report that the city fix a trial period for testing our findings.

New Key System Service Authorized

The Key System Transit Company has been authorized by the California Railroad Commission to operate bus service between the City Hall in Oakland to the intersection of Webster Street and Santa Clara Avenue in Alameda. Before beginning the proposed service the company will be required to submit the complete route to the commission for its approval. Permission is also granted to the company to discontinue its present railway service on Webster Street and over the Webster Street bridge in Alameda upon the installation of the proposed bus service. In its decision the commission suggested that the company should provide transportation for the needs of the fast growing city of Oakland, to the north and to the east, instead of confining the proposed service to Broadway and Washington Streets and the area between Twelfth and Fourteenth Streets.

Joint Coach Service in Los Angeles Territory

An application has been filed by the Los Angeles Railway and the Pacific Electric Railway, both of Los Angeles, Cal., with the Railroad Commission for authority to operate under the name of the Los Angeles Motor Coach Company, coach service between Fifth and Hill Streets in the city of Los Angeles to the intersection of Wilshire Boulevard and Santa Monica Boulevard in the city of Beverly Hills. It is proposed to operate this service in conjunction with a

shuttle motor coach service for the transportation of passengers between Wilshire Boulevard and La Brea Avenue and the intersection of La Brea Avenue and Edgewood Avenue in the city of Los Angeles. When the proposed through service is started separate coach services now operated over these lines by both companies will be discontinued.

Proposed Purchaser Would Replace Poughkeepsie Railway

John B. Marian has announced that he is ready to purchase for cash the real estate, rolling stock and franchise of the Poughkeepsie City & Wappingers Falls Electric Railway, Poughkeepsie, N. Y. His plan is to offer to passengers a service by which, if they live off the seven established trunk lines, they would be brought to their doors for an additional 10 cents. The initial fare would be 10 cents. This presupposes substitution of buses and taxis for the railway.

Bus Control Asked by I. C. C.

Congress gets recommendation for joint United States-local regulation differing slightly from Flynn report. Reservations made by Commissioner Woodlock

FEDERAL legislation setting up a co-operative system of state and national regulation over motor bus operations on highways was recommended to Congress on April 21 by the Interstate Commerce Commission.

At the end of a prolonged investigation the commission adopted a report presented by Commissioner Esch, which declared that motor transportation had become "a well established and useful factor of the nation's transportation system" and that the development had been sufficient to require a regulatory system in the public interest.

At the same time the commission held the transportation of property by motor truck at the present time should not be made the subject of interstate regulation. The control proposed was recommended almost exclusively to passenger transport by motor bus lines.

Under the system proposed, state regulatory bodies would assume primary jurisdiction over the lines, acting in conjunction with each other through joint boards on which the Interstate Commerce Commission would be represented. In any state where state authority failed to appear, the Interstate Commerce Commission would assume power.

Railroads should be authorized to undertake motor operation, and all operators intending to undertake service should be required to obtain certificates from the regulatory authorities to the effect that public convenience and necessity required their service.

The report also suggested that joint rates between railroad and motor lines should be permitted, and that rates for highway transportation should be made subject to regulation, while free transportation by passes should be forbidden to bus lines as they are now forbidden to railroads.

The report closely follows the recommendations by the commission's Attorney-Examiner, Leo J. Flynn, in his tentative report issued several months ago. In general both the commission's recommendations and the examiner's report propose regulation similar to that incor-

porated in the Parker bill (H.R. 12380).

The principal point of difference between the tentative report and the commission's final one is the omission of regulation for trucks from the latter. In this connection the commission says:

While experience may show that the interstate transportation of property by motor vehicles operating as common carriers on the public highways should be regulated, there does not appear to be at this time public need therefor.

It is recommended, however, that interstate truck operations by carriers subject to the interstate commerce act should come under the provisions of the act. This would not apply to operation through subsidiary companies.

With respect to bus regulation the commission has made a number of changes from that of its examiner. Mr. Flynn's belief that bus operation by railroads should come within the provisions of section 15a of the interstate commerce act in determining net railway operating income is not completely shared by the commission, which thinks that possibly they should be excepted. Moreover, the commission would move up the date in the grandfather clause to one year before the opening of the session at which the law is passed, instead of March 2, 1925. Operation on such date would be *prima facie* evidence only of convenience and necessity.

As indicated previously joint rates between railroads and motor carriers would be authorized, subject to the provisions of the interstate commerce act, but the commission believes that such rates should not be required. It also believes that interstate motor carriers should be required to extend their routes if necessary in addition to furnishing more service on the same route, if needed.

Commissioner Flynn's recommendation that small carriers be exempted from regulation, at the discretion of the body in charge, is abandoned in favor of counsel to the effect that broad discretion with regard to classification of companies be allowed, but no exemptions should be permitted from provi-

sions relating to certification, liability, insurance and rates of fare.

Commissioner Thomas F. Woodlock of New York concurred in the report but made a note of his reservations in which he said:

Regulation is not in itself a good thing. The less regulation that is necessary, other things being equal, the better for the community. It is necessary in the case of public service utilities because of their semi-monopolistic nature. Transportation in general is not *per se* of such nature; transportation by railroad is. Transportation by motor bus and motor truck does not necessarily depend upon monopolistic or semi-monopolistic organization or performance.

It is manifest that at the present time these services are much more largely of a competitive than of a monopolistic nature. For that reason the need for regulation—except in so far as concerns the public safety—is not wholly clear. This being so regulation should proceed with caution and only in response to demonstrated needs.

A digest of Examiner Flynn's original report, together with the recommendations he made, was presented in *ELECTRIC RAILWAY JOURNAL* for Jan. 21, 1928, page 136, and the statements by witnesses at the hearing before the committee on interstate commerce on the Parker bill were noted in the issue of April 21.

Would Run Buses on New Hampshire Line

The Chester & Derry Electric Railway, Chester, N. H., has petitioned the Public Service Commission of New Hampshire for authority to substitute bus service for railway service between Chester and Derry.

Oklahoma Commission Hears Interstate Bus Petitions

Members of the Oklahoma Corporation Commission conferred recently with representatives of the Oklahoma Bus and Truck Operators' Association and decided that it would assume jurisdiction over all interstate bus operators under the police powers of the state, providing other existing laws do not confer jurisdiction. Hearings are being held on several applications before the Oklahoma Commission for certificates of convenience and necessity to operate interstate buses into and through Oklahoma.

Partial Substitution in Glens Falls

A declaration of abandonment by the Hudson Valley Railway of the South and Knight Street lines, the depot line and the belt line, all in the city of Glens Falls, was approved by the Public Service Commission on April 12. Decision was deferred on the company's petition for approval of abandonment of two other parts of its system, the Fort Edward-Thomson line and the Northumberland-Stillwater line. The railway would substitute bus service in Glens Falls.

Rail-Bus Service in Seattle Suburb

To provide improved transportation to the large suburban district of Green Lake, Wash., a combination bus and street car service will be installed as soon as new buses can be purchased and made ready for operation. The City Council utilities committee has approved a plan recommended by Superintendent of Seattle Municipal Railways, D. W. Henderson whereby a new bus line will be started, the bus operating north on West Green Lake Way and south on East Green Lake Way. Under this plan persons living east of the lake will ride the bus to Winona Avenue, on trips downtown where they will transfer to inbound Green Lake cars. On returning they will use the street cars to their destination. Persons living on the west side of the lake will use the street cars on trips downtown. On their home-bound trips, they will ride the cars to Woodland Park Avenue and North 55th Street, where they will transfer to a north-bound bus.

De Luxe Suburban Transit Out of Newark

Rapid progress is being made by Public Service Co-ordinated Transport, Newark, N. J., in the development of one of the latest phases of bus transportation—suburban transit by a high type of bus, designed to give additional riding comfort. The company has put many high-speed motor coaches of the latest improved models into service. They run in and out of Newark over various routes with termini at Paterson, Hackensack, Montclair, Jersey City, Elizabeth, Plainfield, the Oranges, Maplewood and Morristown. The purchase of the bus business of the Morris County Traction Company enables Public Service to operate as far as Lake

Hopatcong and to points as far north as Sussex County. No local lines are included in this service.

Buses Supply Service Over Abandoned Railway Route

Since suspension of railway service by the Centre & Clearfield Railway, Johnstown, Pa., last August the Philipsburg Motor Bus Company has been supplying service in Philipsburg and connecting Philipsburg, Grassflat and Winburne. Loss of patronage due to greater use of automobiles resulted in decreased revenues and led to the abandonment of the railway.

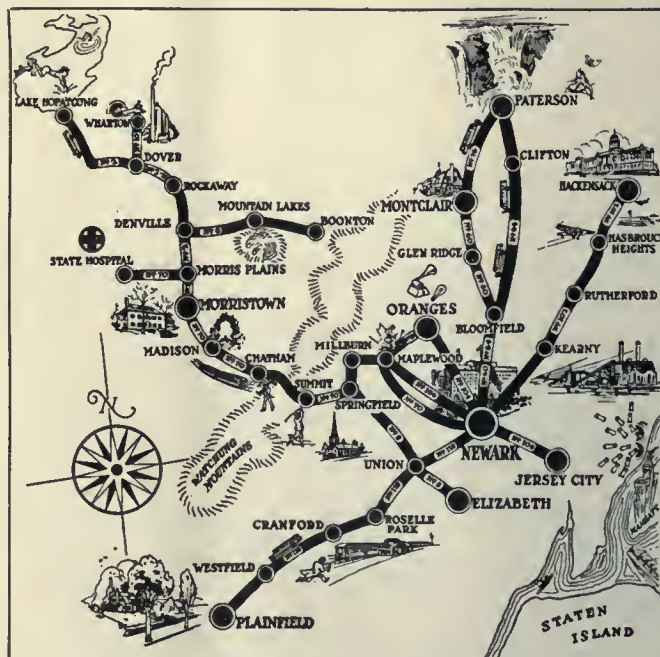
Bus Makes Good Showing in Springfield

A. D. Mackie, general manager of the Illinois Power Company, Springfield, Ill., and W. J. Hagenah, utilities expert, engaged by the company, testified before the Illinois Commerce Commission recently that buses operated in Springfield are netting sizable profits while the street cars are operating at a loss. The company has petitioned for increased railway fares in Springfield. Buses, representing a net investment of \$130,826, are showing a gross income of \$140,000, while electric railway traffic has fallen from 11,178,985 in 1926 to 10,616,856 in 1927. According to statements made to substantiate the contention of the company for a fare increase, a return of only 1.9 per cent is shown upon the railway investment.

Extensions Planned in Hartford

Expansion of its bus service to augment present railway service and in some instances to replace it is being considered by the Connecticut Company in Hartford, Conn., which has received a petition signed by approximately 2,500 residents, for a cross-town bus line. Alderman John B. Riddell is sponsoring this projected service and has been in conference with officials. The company is also planning a bus line to replace the Farm School railway line. It is planned to continue railway service from Hartford to Rockwell Corner via Blue Hills Avenue.

This is merely another move toward greater co-ordination of the services.



Routes of Public Service high-speed motor coaches into the city of Newark

Financial and Corporate

Washington Merger Plea

Any opposition by Congress to proposed consolidation of District of Columbia properties likely to center around \$50,000,000 valuation

THE merger of transportation companies of the District of Columbia, as provided in the Zihlman resolution, was explained to members of a sub-committee of the House Committee on the District of Columbia on April 20 by John W. Childress, chairman of the Public Utilities Commission.

The agreement of the companies, which was made voluntarily upon the suggestion of the commission that an effort be made to find the basis for unification, Mr. Childress said, was reached upon the understanding that the rate-making valuation for the new company would be \$50,000,000.

Harrison Brand, Jr., on April 23, reiterated a previous statement that he regarded as "fair and just" the valuation of \$50,000,000.

The companies receded from their original view that the valuation should be \$62,500,000, Mr. Brand said, because of the delay which would result if the commission had made a detailed valuation examination of the properties of the Washington Railway & Electric Company. Mr. Brand expressed the opinion that an exhaustive inventory of the company's properties would disclose a value which would bring the total for the two companies above \$50,000,000.

As the investigation progresses it is becoming evident that Congressional opposition to the unification plan will center around the \$50,000,000 valuation figure approved by the commission. It developed during the examination of Colonel Brand, engineer member of the commission, by Representative Gibson of Vermont on this subject that the latter had been making a study of valuation disputes in cities which had either taken over transportation lines or arranged for service-at-cost agreements.

In his reference to the fact that no depreciation had been deducted from the valuation of the property of the Capitol Traction Company, Mr. Gibson cited the case of Detroit. He said:

When the city undertook to take over the company in this Michigan city it was found that the valuation of the properties was \$31,500,000. The properties were actually taken over at a figure \$9,000,000 less than this amount. In Seattle the railway lines cost the city \$15,000,000 although a subsequent valuation placed this value at \$8,000,000.

He also referred to methods used in Milwaukee and Grand Rapids to arrive at a valuation for operation at service-at-cost, which he said proved the need for accurate depreciation deductions. He then said:

So far as I have been able to ascertain the depreciation by any method used is far in excess of what you have allowed for the purpose of this merger. Why should the situation here be any different? Do you think that these roads are kept in any better condition?

Mr. Gibson made it plain that the paving tax is "the fixed policy of Congress, which was decided upon by 500 representatives of the people.

During this discussion reference was made to a list of cities, compiled by the A.E.R.A., that have freed the railways from paving burdens. Mr. Gibson indicated that the A.E.R.A. would naturally be biased in this matter.

Montreal's Ticket Fund Considered at Annual Meeting

At the annual meeting of shareholders of the Montreal Tramways, Montreal, Que., on March 30, Julian C. Smith, the president, touching on the matter of the unredeemed ticket account, stated that the disposition of this fund had been the object of a dispute between the city and the company for some time, and that finally an agreement had been reached whereby \$500,000 was taken as sufficient to meet the company's liabilities as regards unredeemed tickets. A sum of \$621,206 was transferred to earnings, and, since all of the contract requirements had been satisfied, this sum constituted divisible surplus and was divided so that the city obtained 30 per cent, the company 20 per cent, while 50 per cent was transferred to the tolls reduction fund. Mr. Smith expressed gratification over this adjustment.

Another Offer for British Columbia Electric Railway

Reports continue to increase with respect to offers for the purchase of the British Columbia Electric Railway, Vancouver, B. C. The latest bid is from the Power Corporation of Canada, through A. J. Nesbitt of the Nesbitt, Thomson Company of Montreal. This overture is on the basis of \$57,500,000

for the property. The Lord Rothermere group bid £240 and £280, respectively, for the preferred ordinary and deferred ordinary shares. Nesbitt's first bid was £266 and £306, and Holt's bid £272 and £312. Mr. Nesbitt's second offer to directors of the railway read in part as follows:

We offer to purchase all preferred, preferred ordinary stock and deferred ordinary stock and shares of the company at the following prices: preferred ordinary, \$1,330 per \$500 nominal; deferred ordinary stock, \$1,530 per \$500 nominal of stock and shares, and so, in proportion, for smaller amounts on the following conditions:

We agree to buy and you agree to recommend all other preferred ordinary and deferred ordinary stock and shareholders to sell to us their stock and shares at the same price and on the same conditions. There will be no alteration of the articles of association or special rights attached to shares and stocks between April 19 and date of completion, May 31, 1928, or a later date, if mutually agreed on. This offer is conditional on the acceptance by not less than 75 per cent being lodged with us before May 10, 1928, or a mutually agreed date.

Situation in Baltimore Revealed

Annual report of United Railways shows falling off in transportation revenue. Net income \$535,364 without certain allowances

A NET income of \$535,364 was realized by the United Railways & Electric Company, Baltimore, Md., for the year ended Dec. 31, 1927. In the Baltimore News of April 11 President Emmons in a full-page message to the people states "approximately 29/30ths of the entire amount collected on the street cars of Baltimore was promptly paid out again in 1927 in wages, taxes, interests on borrowed money and cost of materials, the balance of 1/30th only remaining for stockholders and surplus."

At the annual meeting held on April 11 an amendment to the charter of the company permitting the issuance of preferred stock and the sales of convertible securities was adopted. The president said this action had no significance at the present time.

In the twenty-ninth annual report, that for the year ending Dec. 31, 1927, the earnings and expenses were as follows:

STATEMENT OF EARNINGS OF BALTIMORE COMPANY	
Total operating revenues	\$16,188,668
Operating expenses	\$9,987,005
Taxes assignable to railway operation	1,575,938
	11,562,944
Operating income	\$4,625,724
Non-operating income	165,656
Gross income	\$4,791,380
Fixed interest on mortgage bonds and rentals	2,309,821
Remainder	\$2,481,559
Other deductions from gross income:	
Interest on unsecured funded debt	\$376,284
Interest on income bonds	559,080
Interest on unfunded debt	84,757
Amortization of discount on funded debt	67,901
Miscellaneous	48,737
	1,136,762
Net income	\$1,344,798

Out of \$1,344,798, \$809,433 was credited to reserve for depreciation, the remainder being transferred to surplus from which dividends of \$818,448 were paid. In order to do this and to cover other necessary adjustments, the company's surplus was reduced from \$2,020,863 to \$1,588,822.

The company filed application for an increased fare in July, 1927. The case was finally decided Feb. 10, 1928. The fare was increased to 9 cents flat, 3 for 25 cents. The company has applied to the courts for a flat 10-cent fare.

Following are the results for 1927 compared with those of 1926:

COMPARATIVE INCOME STATEMENT OF BALTIMORE COMPANY

	1927	1926
Revenue from transportation	\$16,043,932	\$16,571,545
Other revenue	144,736	144,163
Total operating revenues	\$16,188,668	\$16,715,709
Operating expenses	\$9,987,005	\$9,955,019
Depreciation	809,433	835,785
Operating expenses and depreciation.....	\$10,796,439	\$10,790,804
Taxes assignable to railway operations.....	1,575,938	1,672,316
Total operating expenses, depreciation and taxes.....	\$12,372,377	\$12,463,121
<i>φIncludes increase of 2% in wages to employees.</i>		
Ratio of Operating Expenses to Operating Revenues:		
	1927	1926
Operating expenses	Per Cent 61.69	Per Cent 59.55
Depreciation	5.00	5.00
Operating expenses and depreciation.....	66.69	64.55
Taxes assignable to railway operations.....	9.73	10.00
Total operating expenses, depreciation and taxes.....	76.42	74.55

It is estimated by the company that there are approximately 18,000 to 20,000 owners of its bonds, the largest bond issue, representing about three-eighths of its total issues, being held by about 5,000 owners. All the banking capital of Baltimore, the report says, added together, does not equal today the market value of the company's outstanding securities, even at depreciated values.

"Failure to protect this vast investment," it is stated, "owned by so many of our people, will not only affect the community's welfare, but if the faith of these investors in the credit and stability of the company is lost, it is obvious that the company will have nowhere to turn to secure money with which to serve the public in the future. How will new cars be purchased, new rails laid, new electric stations built? Destroy credit and in a short time service dies with it."

In the report Mr. Emmons said that in 1926 there was some evidence that the use of private automobiles for transportation to and from business had reached its peak—gross receipts of the railway had started to pick up a little. In 1927, the trend had begun the other way; receipts began to fall off rapidly in the spring of 1927, and by July it had become evident that the company could no longer continue to operate with a 7½-cent fare.

The Baltimore Coach Company controlled by the company now owns 108 buses. Its total mileage during 1927 was 2,113,819 bus miles and its revenue showed an improvement. Reconstruction of track during the year covered 14½ miles. Reconstruction in the past nine years totaled 146.3 miles.

Rockford Railway Lines Pass to Chicago Interests

The Rockford Public Service Company, Rockford, Ill., and interurban properties operated by it have been sold to the Central Public Service Company, Chicago, which a few months ago acquired the Rockford Electric and Rockford Gas, Light & Coke companies. Adam Gschwindt, general manager of the latter two concerns, becomes manager of the railways also. The deal involved about \$2,200,000. The price represents \$1,700,000 paid eighteen months ago by T. M. Ellis, Jr., presi-

persons would ride was being charged. General Manager Bramlette testified that the competition of Lincoln Traction Company buses and of privately-owned automobiles was constantly reducing the number of revenue passengers carried; that the truck had taken most of its package and carload freight movements and that it had lost its mail-carrying contract.

A total of \$316,566 is now invested in the property. Total revenues last year were \$42,695, while operating expenses were \$56,439.

Change in Richmond Company's Capitalization

Directors of the Virginia Electric & Power Company, Richmond, Va., have been authorized to issue, in their discretion, \$8,000,000 in first and refunding mortgage gold bonds. They have also been authorized to file with the State Corporation Commission an amendment to the company's charter so as to provide for an increase of \$5,000,000 in 6 per cent cumulative authorized preferred stock.

It is regarded as likely that \$3,000,000 in 6 per cent cumulative preferred stock will be issued this year to cover improvements and developments undertaken by the company to increase industrial power facilities in tidewater Virginia and northeastern North Carolina.

Rainier Line Puts Burden on Seattle Municipal

The problems of the Seattle & Rainier Valley Railway, Seattle, Wash., are adding to the financial difficulties that beset the city-owned railway line, Clark R. Jackson, superintendent of utilities, recently advised the City Council. He said that the Rainier Valley Company was in arrears \$9,500 to the Seattle Municipal Railway for material purchased and for an amount due on a transfer exchange, with the sum increasing monthly. Moreover the arrears were increasing at the rate of \$650 a month. Efforts to collect had met with explanations by the Rainier Valley officials that the company's financial condition precluded payment. The City Council appointed Councilmen Blaine and Erickson as a committee of investigation.

Loss in Fresno

The Fresno Traction Company, Fresno, Cal., reports to the Railroad Commission its 1927 operating revenue at \$324,071, compared with \$334,087 in 1926. Operating expenses, excluding taxes for 1927 were \$313,268 and for 1926, \$318,678. During 1927 tax charges were \$19,729 and in 1926 \$18,769. The gross corporate income representing the amount available for interest, amortization of debt discount other fixed charges, non-operating expenses, dividends and surplus was a loss in 1927 of \$15,908, compared with a loss in 1926 of \$10,382.

dent and majority stockholder, for the lines, \$316,000 spent on improvements and 10 per cent for intangibles.

The utilities involved in the sale are the Rockford city traction lines and feeder buses; Rockford, Beloit & Janesville Electric Company; Rockford & Freeport Interurban Company, the Roscoe Electric Company and the Rockford, Belvidere & Elgin interurban, owned by Mr. Ellis and B. J. Arnold of Chicago. When the railway lines went into receivership on Feb. 5, 1926, Mr. Gschwindt was named receiver and a year later Mr. Ellis bought in the properties.

Mr. Ellis retains ownership of the railway at Beloit.

Object to Suspension of Lincoln Interurban

The Omaha, Lincoln & Beatrice Railway, Lincoln, Neb., encountered stiff resistance before the State Railway Commission at the hearing on its application for permission to suspend service and take up its tracks. Patrons from the territory served claimed they had located in that section because of the car service, and business houses objected because the company held out that they would have permanent rail connection with the outside railroad world. It has been suggested that the road be leased to another operator and that service be reduced and that fares be raised.

City Attorney Peterson admitted that if the operation of the road resulted in capital losses its continuance could not be forced, but insisted that it had not been shown that the maximum fare at which

Net Income on Interurban \$253,946

Texas Electric Railway reports decrease in operating expenses in 1927. Cost of improvements higher. Service better. Recommendation for amended charter

GROSS earnings of the Texas Electric Railway, Dallas, Texas, for the year ended Dec. 31, 1927, were \$1,867,063 compared with \$2,038,713 for the preceding year. These earnings for the two years named were made up from the following principal items:

	1927	1926
Passenger.....	\$1,536,342	\$1,692,142
Mail.....	26,521	26,827
Express.....	249,520	258,279
Rents of tracks and terminals	25,270	32,005
Rents of buildings and other property.....	13,549	14,395
Miscellaneous.....	15,357	15,062

The net income after charges but before depreciation was \$253,946 compared with \$250,769 for the year 1926. These facts were contained in the annual report submitted to the stockholders.

Operating expenses for the year totaled \$1,123,169 compared with \$1,260,393 for 1926. Included in this decrease is an allowance of \$52,500 made to the company by the Texas Power & Light Company upon power bills for the year. Included in the operating expenses for the year 1926 was a similar allowance of \$15,000. Taxes assessed against the company for the year 1927 were \$70,776 compared with an assessment for the previous year of \$99,725. Through an act of the State Legislature, effective June 14, 1927, the tax upon the gross receipts of interurban and street railways was repealed and such companies made subject to the franchise tax imposed upon corporations, generally. This change of law effected a substantial saving according to the report of the company. The balance of the decrease was almost entirely due to a reduction in ad valorem taxes. Interest charges for the year amounted to \$419,170 compared with \$427,825 for the previous year.

During 1927 the Texas Electric Railway spent for maintenance of roadway and equipment \$370,400 or \$90,650 in excess of the mortgage requirement, which stipulates 15 per cent of its gross revenue annually for this expense. Since Jan. 1, 1917, the company has spent for maintenance purposes \$4,935,544 or \$903,300 in excess of what it was required to spend under the mortgage requirement.

The management has set aside with the approval of the directors, an additional sum of \$100,000 from surplus into renewal and replacement reserve to be used as found necessary and advisable for further maintenance and up-building of the property. Since Jan. 1, 1917, the surplus earnings and reserves of the company have been largely invested in improvements of and additions to the property, and since that time investments of this kind have been made in the sum of \$2,040,333. Of this amount the sum of \$975,401 represents a fundable investment against which new securities were issuable. Additional bonds in

the amount of \$500,000 have already been issued against these improvements but have not been sold. Additions, improvements, renewals and replacements were made in 1927 costing \$115,881 compared with \$95,477 for the previous year.

The net current indebtedness of the company on Jan. 1, 1927, excluding bonds, debentures and a real estate note but including accumulated interest upon such real estate note and including all other notes and accounts payable less current accounts receivable was \$164,000. On Jan. 1, 1928, such net current indebtedness was approximately \$99,000.

Without considering the floating indebtedness of approximately \$99,000 with which the year 1928 was entered the company will expect obligations during the year as follows:

Operating expenses (estimated by James P. Griffin, vice-president in charge of operation).....	\$1,195,830
This item includes an estimated cost of express operation for the last four months of the year of \$49,730.	
Taxes (estimated).....	66,600
Interest.....	410,824
Sinking fund requirements.....	84,500
Total cash requirements for the purposes named.....	\$1,757,754

In addition cash to the amount of approximately \$110,000 will be required during the year to take care of re-

INCOME ACCOUNT OF THE TEXAS ELECTRIC RAILWAY FOR THE YEAR ENDED DEC. 31, 1927, AND SUMMARY OF SURPLUS ACCOUNT

Gross earnings from operations.....	\$1,864,999
Operating expenses and taxes.....	*1,189,379
Net earnings from operations.....	\$675,619
Add interest on bank balances.....	2,063
Total net earnings before depreciation	\$677,682
Interest deductions.....	419,170
Surplus net income before depreciation	*\$258,512

SUMMARY OF SURPLUS ACCOUNT

Balance Jan. 1, 1927, per previous certificate.....	\$1,484,240
Add:	
Surplus net income before depreciation for the year ended Dec. 31, 1927, as above.....	\$258,512
Less — Provision for depreciation (retirements)....	*104,566
Sundry direct items—	
Discount on Texas Traction Company bonds purchased for sinking fund..	17,205
Surplus balance Dec. 31, 1927, per balance sheet....	\$1,655,391
*Provision for depreciation includes \$4,566 bus retirement expense.	

newals, replacements and new construction. President Jack Beall stated in the report that although receipts for the year declined and the necessity for rigid economy was urgent, substantial improvements were made upon the property resulting in much better service.

The report comments on the bus legislation of 1927 which permits the state to issue to bus lines certificates of convenience and necessity "when the agency of the state is forbidden to consider whether existing railway and in-

Conspectus of Indexes for April, 1928

Compiled for Publication in ELECTRIC RAILWAY JOURNAL by

ALBERT S. RICHEY

Electric Railway Engineer, Worcester, Mass.

	Latest	Month Ago	Year Ago	Since War	
				High	Low
Street Railway Fares* 1913 = 4.84	April 1928 7.61	March 1928 7.61	April 1927 7.43	March 1928 7.61	May 1923 6.88
Electric Railway Materials* 1913 = 100	April 1928 140.0	March 1928 140.1	April 1927 148.0	Sept. 1920 247.5	Feb. 1928 139.5
Electric Railway Wages* 1913 = 100	April 1928 228.8	March 1928 228.8	April 1927 226.9	Sept. 1920 232	March 1923 206.8
Am. Elec. Ry. Assn. Construction Cost (Elec. Ry.) 1913 = 100	April 1928 201.2	March 1928 200.5	April 1927 202.6	July 1920 256.4	May 1922 167.4
Eng. News-Record Construction Cost (General) 1913 = 100	April 1928 206.4	March 1928 204.6	April 1927 209.0	June 1920 273.8	March 1922 162.0
U. S. Bur. Lab. Stat. Wholesale Commodities† 1926 = 100	March 1928 96.0	Feb. 1928 96.4	March 1927 94.5		
Bradstreet Wholesale Commodities 1913 = 9.21	Apr. 1 1928 13.42	Mar. 1 1928 13.34	April 1 1927 12.53	Feb. 1 1920 20.87	June 1 1921 10.62
U. S. Bur. Lab. Stat. Retail Food 1913 = 100	March 1928 151.4	Feb. 1928 151.6	March 1927 153.8	July 1920 219.2	March 1922 138.7
Nat. Ind. Conf. Bd. Cost of Living 1914 = 100	March 1928 161.1	Feb. 1928 161.5	March 1927 164.1	July 1920 204.5	Aug. 1922 151.5
Steel Unfilled Orders (Million Tons) 1913 = 5.91	Mar. 31 1928 4.335	Feb. 29 1928 4.398	Mar. 31 1927 3.553	July 31 1920 11.118	May 31 1922 3.051
Bank Clearings Outside N. Y. City (Billions)	March 1928 19.72	Feb. 1928 16.99	March 1927 19.53	July 1920 20.47	Oct. 1925 10.43
Business Failures Number	March 1928 2007	Feb. 1928 1885	March 1927 1882	Jan. 1924 2231	Aug. 1925 1353
Liabilities (Millions)	51.54	50.62	99.26	122.95	27.22

*The three index 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 136 of the largest street and interurban railways operated in the United States, weighted according to the number of such men employed on these roads.

†This index is changed to a base of "1926 = 100." That notation replaces the former basis of "1913 = 100." Inasmuch as the bureau has not calculated the index on this new base any further back than January, 1923, no figures are shown in this tabulation for the high and low points since the war. It is planned to compute the index on the new basis as far back as January, 1913. Until such time as the bureau makes public these figures for the earlier years this information will be lacking.

terurban lines may not be sufficient to meet completely all transportation needs." Bus competition was extended on the Texas Electric Railway lines during 1927. In most, if not all instances competing bus lines are charging fares substantially less than interurban rates.

President Beall recommends in his report the amendment of the present charter so as to give the company an enlarged corporate authority. Such action will result in placing the company under jurisdiction of the Railroad Commission of Texas and probably under the jurisdiction of the Interstate Commerce Commission.

Beach Property Withdrawn from Sale by Pacific Electric

D. W. Pontius, acting for the Pacific Electric Railway, Los Angeles, Cal., has withdrawn from the market three-quarters of a mile of beach frontage at Redondo Beach, which has been proposed for subdivision. He did so at the request of the citizens' committee on parks, playgrounds and beaches of the Chamber of Commerce. Mr. Pontius was reported to have said:

The Pacific Electric Railway has always felt that this beach frontage should be publicly owned and on several occasions had expressed a willingness to sell to the city or the county at a figure below its actual market value. The present withdrawal of the property from the market, which is for a definite period of months, is a further indication of the recognition by the Pacific Electric of the public need for this beach frontage. The period for which the withdrawal is effective will allow time for the necessary action by the interested public bodies to obtain this beach for the public forever.

Discontinuance Between Warren and Sheffield

The Penn Public Service Corporation, Warren, Pa., operating the Warren & Jamestown Street Railway and the Warren Street Railway, Warren, Pa., on April 1 discontinued service on its interurban line between Warren and Sheffield, Pa., a one-way distance of about 13 miles. Workmen are engaged in removing the tracks and poles along the line.

Another Move Toward Ending Binghamton Receivership

Mortimer B. Fuller, who at the time of the appointment of receivers for the company is understood to have controlled the majority of the stock of the Binghamton Railway, Binghamton, N. Y., is said since then to have acquired additional shares and also bonds of the company, until at the present time he controls practically all outstanding capital stock and bonds. It is thought now Mr. Fuller is anxious to have the sale consummated. Once this is done, he will be in a position to develop the properties, provided he is the successful bidder for the assets of the company. As a move in the direction toward lifting the receivership William

H. Hecox, William G. Phelps, Thomas J. Keenan, F. W. Ogden, W. H. Morse, A. J. Parsons and Frank L. Fuller have all resigned as directors of the company.

System at Akron Does Well

Combined results very satisfactory. Railway revenue holds up, but transportation recovery not so full as expected

BUSINESS conditions in 1927, in the territory served by the Northern Ohio Power & Light Company, Akron, Ohio, were generally favorable and were reflected in the increased sales of electricity by the company. The transportation department, however, suffered a loss in traffic due mainly to the increased use of privately owned automobiles. To meet this situation and to be relieved of heavy replacement expenditures incident to highway improvement where rail lines are located, the management has taken steps to replace certain interurban car routes with bus service and otherwise to devise ways and means of bettering the earnings of the transportation department. The income available for dividends in 1927 was \$2,197,688, compared with \$1,397,208 in 1926.

ONLY SLIGHTLY FEWER PASSENGERS CARRIED

Gross earnings of the transportation department increased \$20,688, or 0.36 per cent over 1926. Partial suspension of transportation service due to a strike of certain employees in May, 1926, adversely affected both passenger riding and revenue in that year and a greater recovery naturally was anticipated in 1927. That this recovery was not realized is accounted for by continued increases in the number and use of privately owned automobiles. However, economies effected in operation, particularly in the transportation department, together with the benefits derived from capital expenditures previously made, resulted, in a substantial increase in total net income for 1927.

The number of revenue passengers carried by the transportation department showed decreases on both the city and interurban systems, as compared with 1926. In the case of the city systems, the decrease was 1,044,393 passengers, or 2.13 per cent, and in the case of the interurban systems, the decrease was 501,390 passengers, or 3.48 per cent.

REVENUE PASSENGERS CARRIED BY N.O.P. RAIL AND BUSES

Years	City Systems	Interurban Systems
1923.....	54,112,423	16,784,535
1924.....	48,563,053	14,478,984
1925.....	51,352,849	14,266,754
1926.....	48,973,671	14,398,663
1927.....	47,929,278	13,897,273

During the year the company handled 140,523 tons of freight, yielding a gross revenue of \$611,696—approximately the same tonnage and revenue as reported for the preceding year.

The capital expenditures of the company in 1927 were \$2,143,913. Of this amount, \$1,372,315, or 64.01 per cent,

STATEMENT OF EARNINGS OF NORTHERN OHIO POWER & LIGHT COMPANY

Gross:	1927	1926
Electric.....	\$6,815,900	\$6,317,554
Transportation.....	5,743,975	5,723,286
Total.....	\$12,559,876	\$12,040,840
Operating expenses and taxes:		
Operating expenses.....	\$7,774,085	\$8,181,133
Taxes.....	890,800	802,200
Total.....	\$8,664,885	\$8,983,333
Gross income.....	\$3,894,990	\$3,057,507
Interest—net.....	\$1,575,677	\$1,527,628
Amortization of debt discount and expense.....	121,624	132,670
Total.....	\$1,697,301	\$1,660,299
Net income available for dividends and retirement reserve.....	\$2,197,688	\$1,397,208
Dividends on preferred stock	\$512,108	\$473,824
Provision for retirement reserve.....	700,000	400,000
Total.....	\$1,212,108	\$873,824
Balance.....	\$985,579	\$523,383
Ratio of operating expenses to gross earnings, per cent.....	61.90	67.94
Ratio of operating expenses and taxes to gross earnings, per cent.....	68.99	74.61

was used in the electric department, \$732,099, or 34.15 per cent, in the transportation department and the remaining \$39,498, or 1.84 per cent, was used for general purposes.

The more important property additions and improvements in the transportation department during the year were as follows:

Purchase of ten 29-passenger and one 44-passenger city type buses for service in Akron and purchase of ten 29-passenger buses and fourteen 29-passenger bus bodies for use in the interurban service.

Renewal and reconstruction of track, both interurban and city, at various places on the system.

During the five-year period ended Dec. 31, 1927, the capital expenditures of the company were \$12,595,297.

The safety and accident prevention department contributed very materially to safe operation during 1927. Total accidents decreased approximately 9 per cent, as compared with results reported in 1926, and the number of vehicle and car collisions was again reduced. The very effective work accomplished in the company's training school for car and bus operators is cited as one of the important factors which contributed to this record.

Wisconsin Public Service Issues Report

Gross earnings of the Wisconsin Public Service Corporation, Milwaukee, Wis., and subsidiary for the year ended Dec. 31, 1927, increased 4.97 per cent, and net earnings 2.07 per cent. According to the report of Halford Erickson, president, the transportation system in Manitowoc and between Manitowoc and Two Rivers was improved by the substitution of buses for railway service. The report referred to the intention of the company to replace the railway system in Marinette-Menominee by modern buses.

Good Year Reported by Ogden Property

An income balance of \$42,476 was transferred to profit and loss by the Utah-Idaho Central Railroad, Ogden, Utah, for its 1927 operations. The company closed the year with a total corporate surplus of \$803,916, which was \$68,997 more than at the close of 1926. A profit of \$6,587 was realized from the 1927 operation of its bus line between Ogden, Utah, and Preston, Idaho.

Redemption of Illinois Power & Light Issue Sanctioned

Stockholders of the Illinois Power & Light Corporation, Chicago, Ill., have approved the creation of an issue of 600,000 shares of no par preferred stock entitled to cumulative dividends up to \$6 annually, and have authorized an increase in the callable price of the present 6 per cent preferred to 110 from 105. The new preferred will rank equally with the 6 per cent issue excepting in

the dividend terms. It is proposed to call for redemption all the outstanding 7 per cent preferred at 105 and accrued dividends, the holders to be given the opportunity to exchange their stock for the new \$6 preferred on a favorable basis.

Abandonment of Indiana Line Approved

The Indiana Public Service Commission has approved an order of the Vanderburg County Probate Court in Evansville, Ind., authorizing William A. Carson, receiver of the Evansville & Ohio Valley Railway, Evansville, Ind., to abandon the Henderson division line of the road.

Short Line in Pennsylvania Abandoned

The Allen Street Railway, Nazareth, Pa., discontinued operation on Jan. 24, 1928. The line was 5 miles long, reaching the towns of Bath and Nazareth.

the company at Providence more than 30 years.

Superintendents of eight divisions which have been created have been appointed as follows: Jacob M. Rounds, Paul T. Breese, Frank H. Brown, George S. Amidon, William A. Andrews, William D. Mathewson, Edward J. Coffield and Eugene E. Hargraves.

Obituary

Elias Elkan Ries

Elias Elkan Ries, long identified with many branches of the electrical industry through his inventions, died on April 20 at his home in New York City at the age of 65. Mr. Ries is credited with having taken out more than 250 patents, mostly in the electrical field. They included equipment for telephones for alternating-current distribution, incandescent lamps and electric motors and energy distribution for electric railways. Many of his basic patents were purchased in 1903 by the Westinghouse Electric & Manufacturing Company.

Mr. Ries was born in Baden, Germany, in 1862. He moved to this country with his parents in 1865. At an early age he was connected with the Western Union Telegraph Company, the Edison Manufacturing Company and others. He studied physics at Johns Hopkins University, Baltimore, Md., and for many years was a resident of that city.

Personal Items

W. J. Beadle Leaves Philadelphia

W. J. Beadle, transportation and traffic consultant for Mitten Management, Inc., Philadelphia, Pa., has accepted a position with E. I. du Pont de Nemours & Company, Wilmington, Del. He will leave Mitten Management on May 1 to assume his new duties in the development department of the du Pont organization. He has been a member of the Mitten Management and Philadelphia Rapid Transit Company organizations for several years, serving first in the traffic department as an assistant to the traffic engineer; later becoming traffic engineer, and then transportation manager. In 1927 he left the operating forces of the latter company to carry on a number of transportation and traffic research problems for Mitten Management.

Before going with the Philadelphia Rapid Transit Mr. Beadle was a member of the engineering department of the National Aniline Company. He was graduated from the Massachusetts Institute of Technology in 1917. During the World War he saw active service in France in the infantry.

F. M. Mills Active Railway President at 97

F. M. Mills, president of the Sioux Falls Traction System, Sioux Falls, S. D., celebrated his 97th birthday recently. Twenty-one years ago at the age of 76, Mr. Mills went to Sioux Falls and started the Sioux Falls Traction Company. Although today a large part of the work is in the hands of his son, Roger Mills, F. M. Mills still takes an

active part in the road's operation. Last June Mr. Mills was given an honorary M.A. degree by his alma mater, Wabash College. In 1921 the college, conferred a B.A. degree on him.

Messrs. Anderson, Lockhart and Hackett Advanced at Providence

R. Roscoe Anderson, for many years superintendent of transportation, has been promoted to the post of general superintendent of operations of the United Electric Railways, Providence, R. I. At the same time, announcement was made by Alonzo R. Williams, general manager, of the promotion of Joseph A. Lockhart to assistant superintendent of transportation and James A. Hackett to supervisor of traffic.

General supervision of all transportation matters, with particular reference to important constructive studies of the system as a whole and the development of plans for the future needs, will be in the hands of Mr. Anderson.

All operations in the transportation department as far as the passenger service is concerned will be supervised by Mr. Lockhart.

All matters pertaining to the various carhouses on the system and all operations of the company will be under the immediate supervision of Mr. Hackett. He will represent the general manager, the general superintendent and the assistant superintendent of transportation throughout the system.

Mr. Lockhart has been with the company 23 years and has been connected with the claim department and various departments in the transportation system. Mr. Hackett has been in the employ of

HARRY C. SANFORD, chief engineer of the Rosoff Subway Construction Company, died on April 22 in the Englewood, N. J., Hospital. Mr. Sanford had directed much of the important subway building in New York in recent years. After he was graduated from Valparaiso University in 1889 he joined John B. McDonald, the contractor for New York's first subway, and later helped him to construct the Akron & Chicago Junction Railway. He moved to Baltimore with the firm of Ryan & McDonald and participated in the construction of the tunnels of the Baltimore Belt Railway. For the Degnon Construction Company of New York City, with which he was associated for many years, he directed as chief engineer the construction of the 42nd Street Subway from Fourth Avenue to Broadway, the Steinway Tunnel under the East River and the Hudson & Manhattan tube under Sixth Avenue from Ninth Street to 33d Street. Mr. Sanford was 58 years old.

WILLIAM JEFFERSON PAYNE, railway investor and newspaper publisher, died recently at a Richmond, Va., hospital. For a number of years, and until 1914, he owned and operated the entire railway system in Newport News, Hampton and Old Point. He built the railway system in Danville. Colonel Payne was 65 years old.

Manufactures and the Markets

D. L. & W. Electrification Orders Likely Soon

Orders for the Lackawanna electrification, mentioned in detail on page 707, will probably be placed within the next 60 days. The Delaware, Lackawanna & Western Railroad, New York, N. Y., has appointed Jackson & Moreland, Boston, Mass., engineers to carry out its electrification program. The electrification as planned will cost approximately \$14,000,000, and if the railroad constructs its own power house the cost will be about \$18,000,000.

New Exhibit Space at A.E.R.A. Convention

To take care of the ever-increasing demand for exhibit space at the Cleveland convention of the American Electric Railway Association, there has been added this year 19,000 sq.ft. of space, making a total of 135,000 sq.ft. net of exhibition floor for the exhibits.

In the exhibition hall new sections have been added in both the north and south ends. The north-end addition includes exhibit space and a new room seating 500 persons for engineers and way and structures meetings. The space formerly occupied by the engineers, accountants and claims meeting

rooms is now devoted to exhibits. The new section on the south end of the hall includes an exhibition hall and dining room.

The registration and information booth has been moved to the new lobby at the entrance of the arena floor on the Lakeside Avenue side. This will be used as the main entrance this year and there will be no entrances on the Sixth Street side of the auditorium proper, as was the case last year. Over the new entrance lobby is a floor of meeting rooms, offices, lounging and rest rooms, etc. Above these there is a ballroom with stage.

The auditorium annex will be divided into three sections, the south end being used for automotive tools and shop equipment, the center being occupied by motor coaches, trucks and chassis exhibits and the north end used for street car and automotive accessories. The space occupied last year as a meeting room for the American Association is now used for exhibits.

It is noted that spaces in the Esplanade, or Section E, have been enlarged. This location proved to be very popular in 1926 and 1927 the space being enclosed and protected from the weather. coupled with the further fact that it is the principal walkway to the Auditorium Annex, makes it particularly desirable from the exhibitors standpoint.

Exhibitograph No. 6

THEY'RE OFF

to a splendid start this year. With applications for exhibit space at the 47th annual convention of the A.E.R.A. in the mails less than two weeks, Director of Exhibits Fred Dell reports

83

applications totaling requests for

51,403

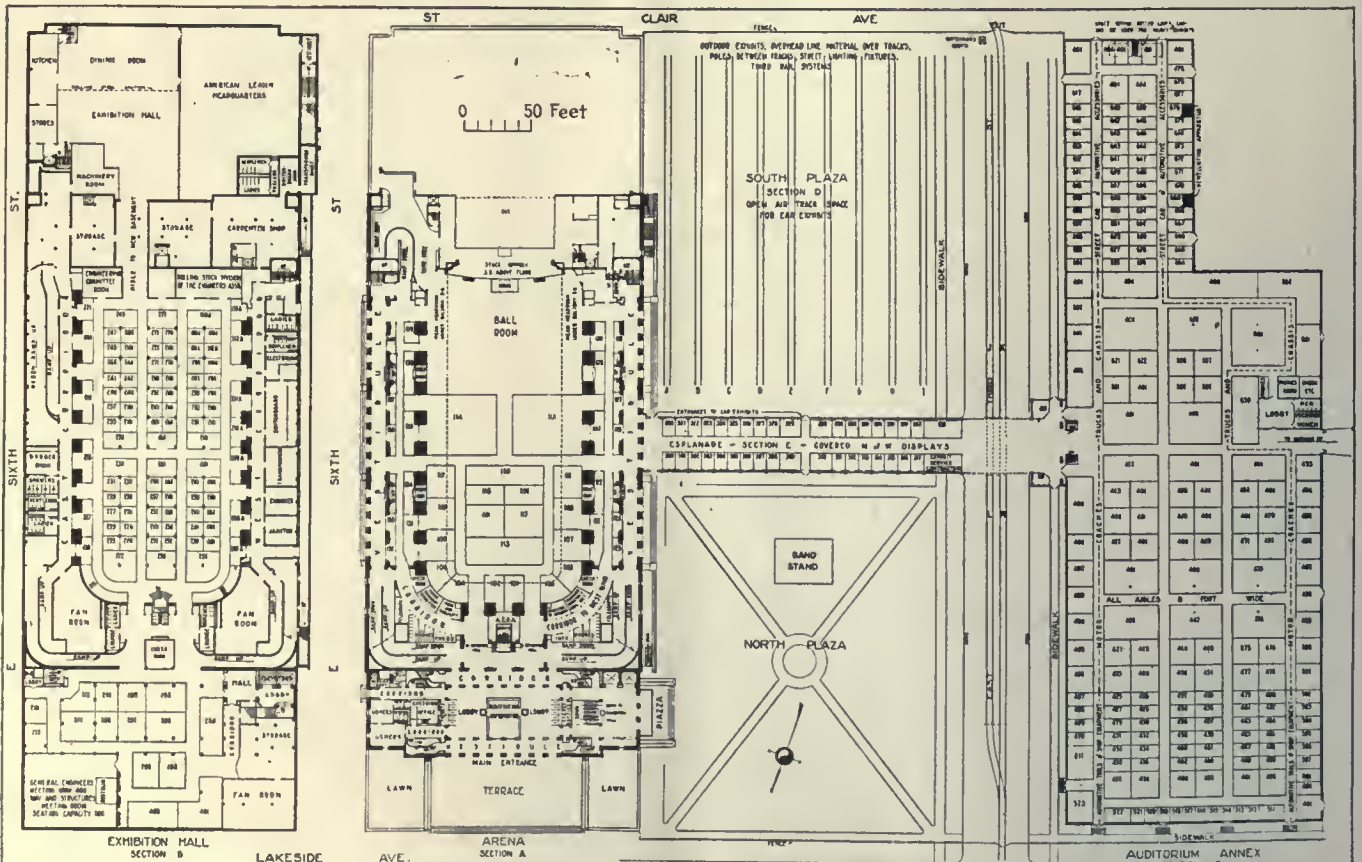
sq.ft. of space

It Won't Be Long Now

Get Your Application In Before
May 14

The South plaza occupied by the outdoor exhibits is similar to last year, there being more than 3,000 lineal feet of track space for car displays. With the exhibitors occupying one-sixth more space than usual, the convention should be the greatest ever held. Fred Dell, director of exhibits, states:

"If you have not yet filed your application for space, don't delay it. A.E.R.A. headquarters report a very heavy space request after the applications are out less than two weeks and it is feared that even with the 19,000 sq.ft. additional provided this year, space will be at a premium and there will be a waiting list of late comers by June 1."



Official floor plan of the Public Auditorium buildings and plaza, Cleveland, Ohio, where the 47th annual convention of the American Electric Railway Association will be held, from Sept. 22 to 28 inclusive



The new steel cars operating on the Shin Keihan lines between Osaka and Kyoto

33 Steel Cars Purchased in Japan

The Shin Keihan, Osaka, Japan, has recently purchased 33 all-steel motor cars from Kisha Seizo Kaisha, Nippon Sharyo. The new cars are to be operated between Osaka and Kyoto, a distance of 28½ miles. The cars are 63 ft. long, 9 ft. 6 in. wide and weigh 122,000 lb.

Each car is equipped with four 200-hp. motors, pneumatic-door engines, MBC type couplers with friction draft gears, and the air brakes are schedule AMU-1612 equipment. Camshaft control and pantographs are used. The track gage is 4 ft. 8½ in. and the line voltage is 1,500. The train make-up is from two to three motor cars and four trailer cars. The express schedule speed between Osaka and Kyoto, with four station stops, is 38 m.p.h. The maximum speed is 65 m.p.h.

International Plans Extension

Extension of the Main Street car line in Buffalo, N. Y., from the city line to Bailey Avenue in the town of Amherst, a residential subdivision, has been proposed to the International Railway by the Buffalo City Planning Committee. Bernard J. Yungbluth, president of the railway company, already has had a conference with the municipal planning commission regarding possible extension of the Main Street line.

Manufacturers of Wrought Iron Form Association

Representatives of the leading manufacturers of wrought iron in various parts of the country met at the Duquesne Club, Pittsburgh, Pa., on April 5, and formed the Wrought Iron Research Association, the principal object of which is to gather and disseminate information about this time-honored metal.

The members of the Association are the American Swedo Iron Company, Philadelphia, Pa.; the Burden Iron Company, Troy, N. Y.; A. M. Byers Company, Pittsburgh, Pa.; Cohoes Rolling

Mill Company, Cohoes, N. Y.; Ewald Iron Company, Louisville, Ky.; Glasgow Iron Company, Philadelphia, Pa.; Highland Iron and Steel Company, Chicago, Ill.; Hughes & Patterson, Philadelphia, Pa.; Logan Iron & Steel Company, Philadelphia, Pa.; Lockhart Iron & Steel Company, Pittsburgh, Pa.; Penn Iron & Steel Company, and Pittsburgh Forge & Iron Company, both of Pittsburgh, Pa.; Reading Iron Company, Reading, Pa.; and Ulster Iron Works, Dover, N. J.

The association will endeavor to furnish engineers and laymen alike, dependable information about the uses and properties of wrought iron, and a publicity campaign will be started immediately, necessary funds having been provided. Headquarters of the association will be in Pittsburgh, Pa.

Third Avenue Railway Receives Buses

The Third Avenue Railway, New York, has received 36 new buses which are all to be used in the Bronx Borough of New York City. The chassis are Safeway Six Wheelers, manufactured by the Six Wheel Company, Philadelphia, Pa. The bodies are of the all-steel frame, 29-passenger type made by the Lang Body Company, Cleveland, Ohio.

These buses are equipped with National Pneumatic treadle-operated double-leaf rear exit doors in which Danger Shield glass is used. Other equipment consists of Flexolite floors,

Nichols-Lintern heaters and ventilators, and Cass step treads. The bodies are 8 ft. wide with 76-in. headroom. They are finished in lacquer, red and cream exteriors with walnut interiors and white ceilings.

American Brake Shoe to Control National Bearing

The proposal of the directors of the American Brake Shoe & Foundry Company to acquire a substantial interest in the National Bearing Metals Corporation was approved by the stockholders at the annual meeting.

It is planned to purchase preferred stock of the National Bearing Metals Corporation for cash and to acquire the common by exchange for Brake Shoe common stock.

American Brake Shoe plans to acquire 30,000 shares of National Bearing Metals common stock on the basis of three shares of Brake Shoe common for four shares of Bearing Metals. This, with a small lot of stock already owned, will give Brake Shoe control of the Bearing Metals Corporation, which has 60,000 common shares.

The transaction will increase Brake Shoe's common capital to 670,624 common shares.

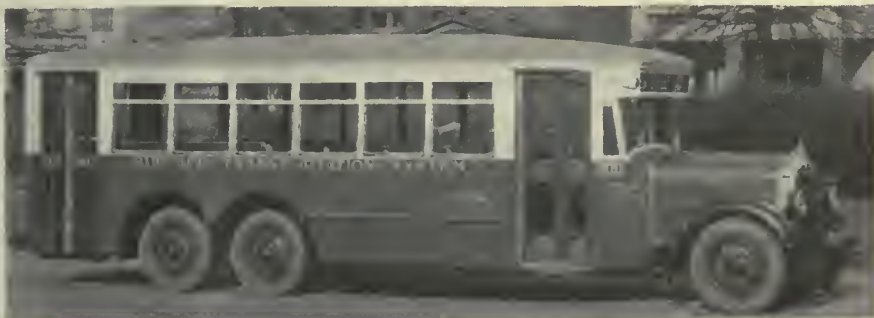
Seattle Considers Bids On Buses

On March 1 the railway division of the Public Utilities Department of the City of Seattle, Wash., called for bids on ten passenger buses, five to be 21-passenger and five to be 29-passenger type. Seven bids have been received and the railway division recommends to the City Council the purchase of five 29-passenger Mack-International buses and five 21-passenger Studebaker buses.

If bus service is to be installed in the Green Lake district, the purchase of seven Studebaker 21-passenger buses is recommended. The City Council has decided to hold the bids under consideration for another week.

Col. Douglas I. McKay Elected to Martin Parry Board

Douglas I. McKay, president of the Standard Coupler Company, was recently elected to the board of directors of the Martin Parry Corporation, manufacturer of commercial auto bodies.



One of the 36 new buses recently delivered to the Third Avenue Railway, New York

Before the war Colonel McKay was vice-president of the J. G. White Company. He is a conspicuous example of a West Point-trained army officer who has attained success not only in the engineering field but also in business life. He has proved his interest in civic matters, having served not only as former Police Commissioner of New York City but also as County Commander of the Westchester post of the American Legion.

\$50,000 Chicago "L" Terminal Under Way

A \$50,000 station at the Logan Square terminal of the metropolitan west side division is being constructed by the Chicago Rapid Transit Company, Chicago, Ill. The exterior of the new terminal building will be white terra cotta, with old English style mission-brick panels and will conform in general style to other new stations recently erected by the company. A. U. Gerber is the architect of the new station, which will be completed about July 1.

ROLLING STOCK

SEATTLE MUNICIPAL STREET RAILWAY, Seattle, Wash., will order 100 cars from the St. Louis Car Company. The cars will be similar to the 1300 series now being used by the St. Louis Public Service Company. The contract for them will probably be signed in June.

NORTHWESTERN PACIFIC RAILROAD, San Francisco, Cal., is preparing specifications for five new motor cars and five new trailer cars.

OHIO VALLEY BUS COMPANY, Huntington, W. Va., has ordered two 20-passenger buses from the Studebaker Corporation, South Bend, Ind.

DETROIT DEPARTMENT OF STREET RAILWAYS, Detroit, Mich., has been authorized by the Street Railway Commission to sell seventeen one-man safety cars, which have been in use seven years, at a price of \$3,000 each. The purchase of a new motor coach at a cost of \$4,000 was also authorized at the same time to supplement the present bus service between the downtown hotel district and the Ford Airport at Dearborn, Mich.

PUBLIC SERVICE CO-ORDINATED TRANSPORT, Newark, N. J., has accepted delivery on three Mack six-cylinder 29-passenger city type buses.

VAN SWERINGENS, identified with the New York, Chicago & St. Louis Railroad, Cleveland, Ohio, have asked for bids on 25 150-ton electric locomotives, the delivery date to be Jan. 30, 1930.

TEXAS MOTOR COACHES, Fort Worth, Texas, a Stone & Webster operation, has accepted delivery of six Mack four-

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

	April 24, 1928
Metals—New York	
Copper, electrolytic, cents per lb.	14.00
Copper wire, cents per lb.	16.00
Lead, cents per lb.	6.10
Zinc, cents per lb.	6.15
Tin, Straits, cents per lb.	52.375
Bituminous Coal, f.o.b. Mines	
Smokeless mine run, f.o.b. vessel, Hampton Roads, gross tons.	4.225
Somerset mine run, Boston, net tons.	1.875
Pittsburgh mine run, Pittsburgh, net tons.	1.95
Franklin, Ill., screenings, Chicago, net tons.	1.825
Central, Ill., screenings, Chicago, net tons.	1.675
Kansas screenings, Kansas City, net tons.	2.50
Materials	
Rubber-covered wire, N. Y., No. 14, per 1,000 ft.	5.30
Weatherproof wire base, N. Y., cents per lb.	16.5125
Cement, Chicago net prices, without bags.	2.05
Linseed oil (5-bbl. lots), N. Y., cents per lb.	10.20
White lead in oil (100-lb. keg), N. Y., cents per lb.	13.25
Turpentine (bbl. lots), N. Y., per gal.	\$0.595

cylinder Parlor Car chassis, 230-inch wheelbase, 25-passenger capacity. The bodies will be built by Lang.

ILLINOIS POWER & LIGHT CORPORATION, Peoria, Ill., has received five 30-passenger A.C.F. urban coaches.

KANSAS CITY PUBLIC SERVICE COMPANY, Kansas City, Mo., will probably purchase some new buses if the rerouting plan, submitted to the City Council, is passed. The Yellow Truck & Coach Manufacturing Company is sending a new single-deck bus to the company for trial purposes.

BOSTON ELEVATED RAILWAY, Boston, Mass., has received four A.C.F. gas-electric metropolitan coaches.

SHOPS AND BUILDINGS

SAN ANTONIO PUBLIC SERVICE COMPANY, San Antonio, Tex., will add a 40,000-hp. unit to its Comal plant.

CHICAGO, SOUTH SHORE & SOUTH BEND RAILROAD, Michigan City, Ind., is planning an addition to its new receiving and shipping station in South Bend, Ind.

TRACK AND LINE

DETROIT DEPARTMENT OF STREET RAILWAYS, Detroit, Mich., will determine the cost of purchasing from the Detroit United Railway, the private tracks on Grand River Avenue between Meyers Road and Redford, the franchise for which expired recently. The Department of Street Railways has been renting these tracks at 7½ cents per car-mile, amounting to about \$75,000 per year.

CHICAGO, SOUTH SHORE & SOUTH BEND RAILROAD, Michigan City, Ind., will spend approximately \$50,000 installing a high-speed passing track at Tamarack, 4 miles west of Michigan City. On the Oak Hill-Sheridan section, track relaying has been started. Ten and a half miles of 100-lb. rail is to be installed before July 1 at a cost of about \$150,000.

TRADE NOTES

VERSARE CORPORATION, Albany, N. Y., has appointed R. A. Nash as special representative with headquarters in Cleveland, Ohio. Mr. Nash is a graduate mechanical engineer from Rutgers and has been for seven years superintendent of equipment for the United Traction Company, Albany, N. Y., for two years sales engineer for the Electric Service Supplies Company, Philadelphia, Pa., and for 2½ years district representative of the Yellow Truck & Coach Manufacturing Company, Chicago, Ill.

WRIGHT MANUFACTURING COMPANY, Lisbon, Ohio, has sold its business and trade name to American Chain Company, Bridgeport, Conn. H. F. Wright and W. F. Wright will continue in their respective divisions of sales and production of Wright products.

THEODORE BERAN, commercial vice-president of the General Electric Company in charge of the New York district, has submitted his application to retire from active business, effective May 1.

C. O. BARTLETT & SNOW COMPANY, Cleveland, Ohio, announces that it has appointed W. H. Norrington as its representative in New York City, and vicinity. Mr. Norrington will maintain his office at 30 Church Street.

TRICO FUSE MANUFACTURING COMPANY, Milwaukee, Wis., announces the removal of its Pittsburgh office to new and larger quarters at 405 Penn Avenue.

TIMKEN ROLLER BEARING SERVICE & SALES COMPANY, Canton, Ohio, announces the appointment of W. H. Post as manager of its Pittsburgh branch office.

MOBILE & OHIO RAILROAD has purchased three motor cars from the St. Louis Car Company and the Electro Motive Company, to replace steam equipment in the Montgomery district. The seats in the new gas-electric units face the rear, giving the passengers an unobstructed view. The cars are equipped with a new type of observation platform finished in brass, with the entire rear end of the car inclosed in glass.

ADVERTISING LITERATURE

PEREY MANUFACTURING COMPANY, New York, has issued a folder on the handling of New York City's after theater crowds with Perey turnstiles.

CROUSE-HINDS COMPANY, Syracuse, N. Y., has issued Bulletin No. 2112 on "Railway Mail Car Lighting and Fan Installations."

QUIGLEY FURNACE SPECIALTIES COMPANY, New York, N. Y., issued a new bulletin describing the Quigley bitumen gun, designed for shooting hot or cold materials as protective coatings on surfaces.



Proved Dependability

of any product is demonstrated by long years of satisfactory performance. This is particularly true of electric railway car equipment. The severe service strains to which such equipment is subjected is the yardstick by which its dependability must be measured.

"PEACOCK" STAFFLESS BRAKES

REG. U. S. PAT. OFF.

have been in use for many years on the cars of electric railways in this country and Canada. During these many years their performance has demonstrated beyond a doubt their superiority to any other hand brake. Their unfailing dependability has been proved by the industry.

Tremendously powerful, yet easy to operate, they are standard equipment on nearly all modern cars.

National Brake Company, Inc.

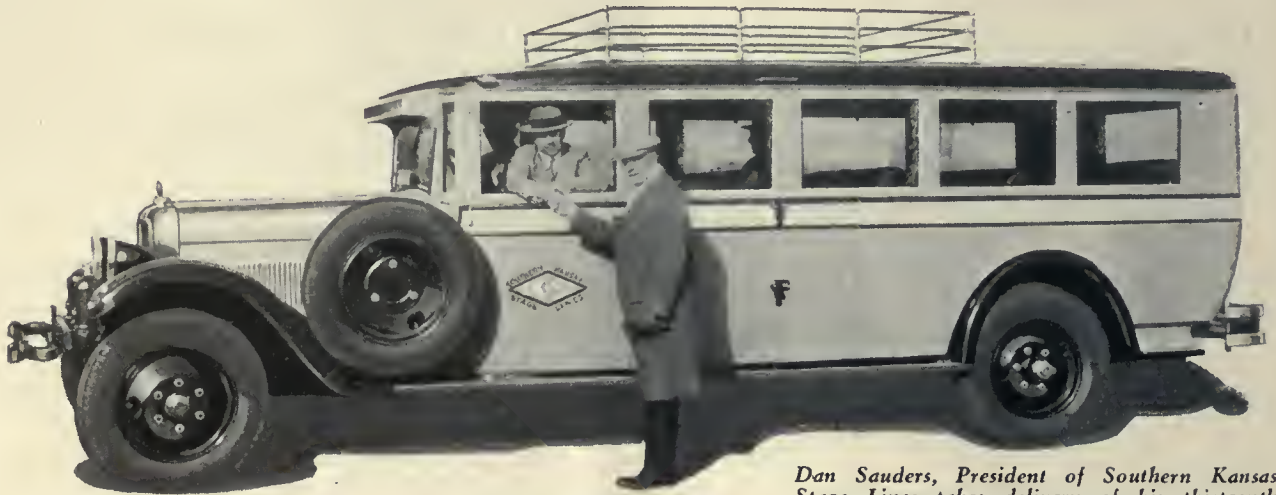
890 Ellicott Square, Buffalo, N. Y.

Canadian Representative

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



Replaces Motors in 5 other Busses with **STUDEBAKER** Engines— *That's what Sauders thinks of Studebakers!!*



Dan Sauders, President of Southern Kansas Stage Lines takes delivery of his thirteenth Studebaker. Southern Kansas Stage Lines' Studebakers are used over the unpaved routes in the territory because of their great power and dependability.

BECAUSE of the demonstrated dependability and great power reserve of the Studebaker six-cylinder motor, the Southern Kansas Stage Lines has replaced motors in five other busses of greater cost with Studebaker power plants. Certainly there can be no stronger testimonial of Studebaker satisfaction than this.

Studebakers used for hard jobs

Tremendous power and unfailling dependability were responsible for the selection of Studebakers for passenger service over 8 of the unpaved routes covered by the Southern Kansas Stage Lines. These routes total 750 miles, fifty per cent of which are dirt roads that offer severe handicap to all-weather operation.

Commenting on his Studebaker equipment, Mr. Dan Sauders, President of the company, says: "We are now operating 13 Studebaker busses on our unpaved routes. These units have mileage records ranging

from 50,000 to 150,000 miles and every bus is in excellent condition. Six of our Studebakers covered over 50,000 miles without one cent of repairs, except valve grinding. In all of our experience, we have yet to find any bus of similar capacity that can equal the downright dependability of Studebakers."

This is but one of the many reports recently received from operators of Studebaker busses—typical evidence of the satisfaction which Studebaker busses are giving.

Studebaker Bus Models and Prices

75 Junior Chassis—158-inch W. B.	
Chassis only, single or dual rear wheels	\$2410
15-Pass. Cross-Seat Sedan	4520
76 Special Chassis—184-inch W.B.	
Chassis only, single or dual rear wheels	\$2775
19-Pass. Cross-Seat Sedan	5275
20-Pass. Parlor Car De Luxe	6395
22-Pass. Seminole Observation Parlor Car	6395
75 Heavy Duty Chassis—181-inch W. B.	
Chassis only, dual rear wheels	\$3275
21-Pass. St. Car Bua	5895
All prices f.o.b. factory.	
Purchase can be arranged on Studebaker's liberal budget payment plan.	

The New **Studebaker BUS CHASSIS**

Co-ordination

Co-ordination of all operating parts is an admitted essential to efficient motor car performance. Long Radiators and Clutches fully demonstrate that they have been correctly designed and engineered to work in perfect harmony with all other operating units, under all conditions.

LONG MANUFACTURING COMPANY,
 Detroit, Michigan

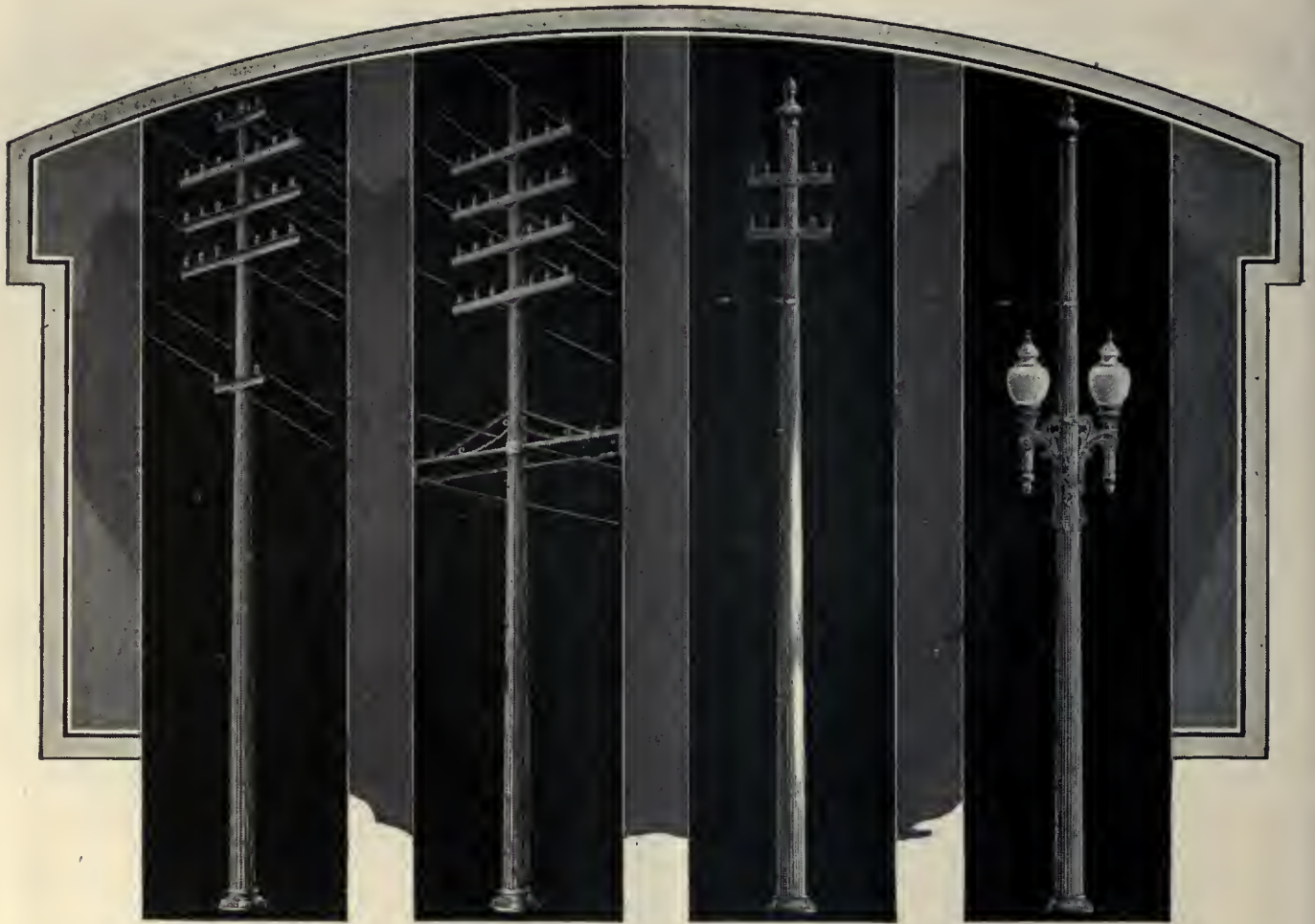


*Radiator Division and
 General Offices:*
 E. Grand Blvd. at Cameron

Clutch Division:
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LONG

LONG PRODUCTS—AUTOMOTIVE CLUTCHES AND RADIATORS



The "Ideal Pole" Becomes a Reality

IF a group of outstanding engineers were to draw up specifications of an "ideal pole" for carrying transmission and distribution lines, the result would be very similar to the Union Metal Fluted Steel Pole.

The greatest engineering advantages have been incorporated in this ornamental pole—and to these has been added beauty. The single shaft, viewed alone, is clean-cut and dignified, while the whole group of poles can be lined up with a result that is a pleasing contrast to the staggered appearance so often associated with old type poles.

It was only after years of research that the construction of Union Metal poles was completely worked out. Greater strength was

combined with light weight and resistance to transverse strains. The anchor rod construction, which does away with the burying of the pole in the ground, increases the speed of erection, allows for quick replacement and eliminates the hazard of ground line corrosion. Another outstanding advantage of this ideal pole is the exclusive Union Metal ventilation feature which guards against condensation and sweating.

Wherever wood, concrete, tubular steel or structural steel poles are used, Union Metal Fluted Steel Poles may be used with better results both structurally and artistically. Let Union Metal engineers consult with you in regard to any contemplated installation.

THE UNION METAL MANUFACTURING COMPANY

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DISTRIBUTION AND TRANSMISSION POLES

102 YEARS OF MANUFACTURING EXPERIENCE



Rattan car seat webbing may be ordered through any H-W sales office

No. 327-M

FOR INTERURBAN NEEDS

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

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

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

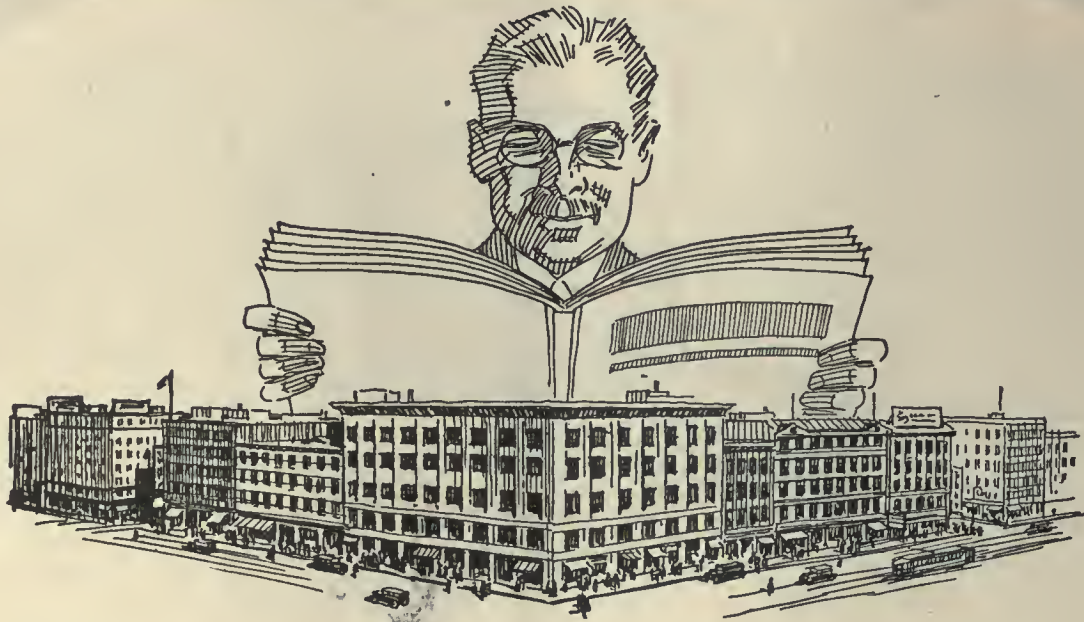


If you have not received a copy of our new Bus Seat Catalogue, write for it.

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Heywood-Wakefield Company, Wakefield, Mass.; 516 West 34th St., New York, N. Y.; 439 Railway Exchange Bldg., Chicago, Ill. H. G. Cook, Hobart Bldg., San Francisco, Cal. The G. F. Cotter Supply Company, Houston, Texas. John R. Hayward, Liberty Trust Building, Roanoke, Va. The Railway & Power Engineering Corp., 133 Eastern Ave., Toronto; Montreal; Winnipeg, Canada.





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He deals with none which has a tendency to mislead or which does not conform to business integrity.

He is a consultant that "sits in" with you regularly. His suggestions are profitable to you.

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900-D
Double Stationary
Chair
(without arm rest)



392-A
Walk Over Seat
with deep spring edge,
divided cushion and
divided concave spring
edge back.

Rider appeal— for the up-to-date city line!

CAR comfort is seat comfort. The car that attracts passengers from other up-to-date forms of transportation is the car that is fitted with seats designed to offer the greatest comfort and luxury.

Here are two of the many designs of H. & K. Seats which have created new passengers for progressive transportation companies. The 900-D Seat was selected for the 10 new Cincinnati, Hamilton and Dayton city cars and the 392-A Seat is installed in the 50 new cars of the Worcester (Mass.) Consolidated Railway.

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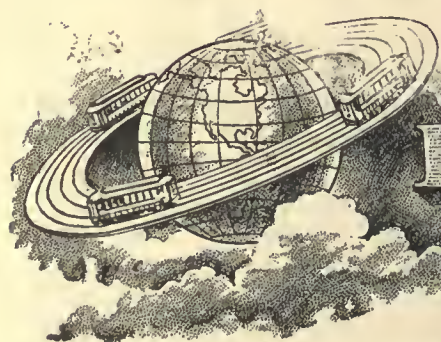
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JUST as the electric railway companies have to compile and be guided by exhaustive statistics as to peak loads, traffic densities, costs per mile, and so forth, we must constantly keep ourselves informed as to purchasing power, density of population and all vital market information in order to maintain our service as an active asset of your service.



Barron G. Collier

INCORPORATED

CANDLER BLDG. NEW YORK

STANDARD SIGNAL-AUTOMATIC GATE

IS DIFFERENT
IN BASIC PRINCIPLE
FROM ANY CROSSING
GATE YOU EVER SAW

IT HAS THE POSITIVE PROTECTIVE FEATURES OF A MANUALLY OPERATED GATE WITH THE LOW OPERATING AND MAINTENANCE COST OF AN AUTOMATIC WARNING SIGNAL. IT IS THE FIRST GATE EVER DESIGNED THAT CAN BE SATISFACTORILY CONTROLLED BY TRACK CIRCUIT

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The Arabian flower vender pleases some and annoys others by his sales phrase "Appease your mother-in-law" (Salih Hamatak).

It's impossible to find a standard phrase to please everyone, because humans are just as temperamental as electric machines.

And long ago operators learned that no standard carbon brush would make all machines work right.

They learned it through reading how Morganite provides a special grade for each service—that is guaranteed to make any machine turn from mother-in-law to mother.



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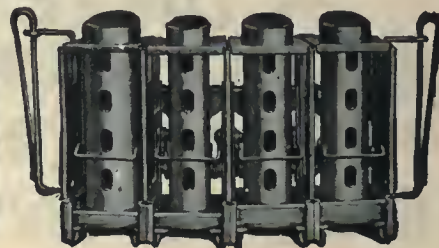
JOHNSON FARE COLLECTING SYSTEMS



Johnson Electric Fare Boxes and overhead registers make possible the instantaneous registering and counting of every fare. Revenues are increased 1½ to 5% and the efficiency of one-man operation is materially increased. Over 4000 already in use.

When more than two coins are used as fare, the Type D Johnson Fare Box is the best manually operated registration system. Over 50,000 in use.

Johnson Change-Makers are designed to function with odd fare and metal tickets selling at fractional rates. It is possible to use each barrel separately or in groups to meet local conditions. Each barrel can be adjusted to eject from one to five coins or one to six tickets.



Johnson Fare Box Co.

4619 Ravenswood Ave., Chicago, Ill.

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INDIVIDUAL items of used equipment, or surplus new equipment, or complete plants, are disposed of (and found) through advertising in the *Searchlight* Section of this paper.

This is the section which so effectively aided the Government in selling the many millions of dollars worth of surplus material and equipment accumulated during the war without disturbing the market.

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The ends require no seizing



Cuts like bar!

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Think what it means to have Siemens Martin, High Strength and Extra High Strength strand that can be cut and handled like a single wire. No salvaging of the ends—no seizing—no kinking and unstranding. Splicing is much simpler. Dead end fasteners are more easily attached.

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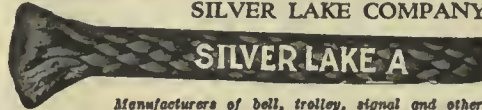
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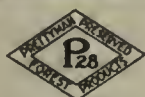
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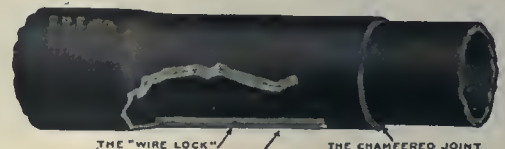
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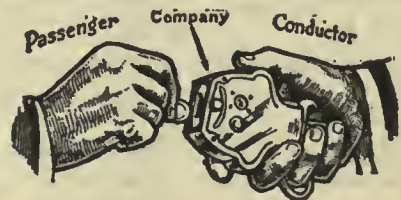
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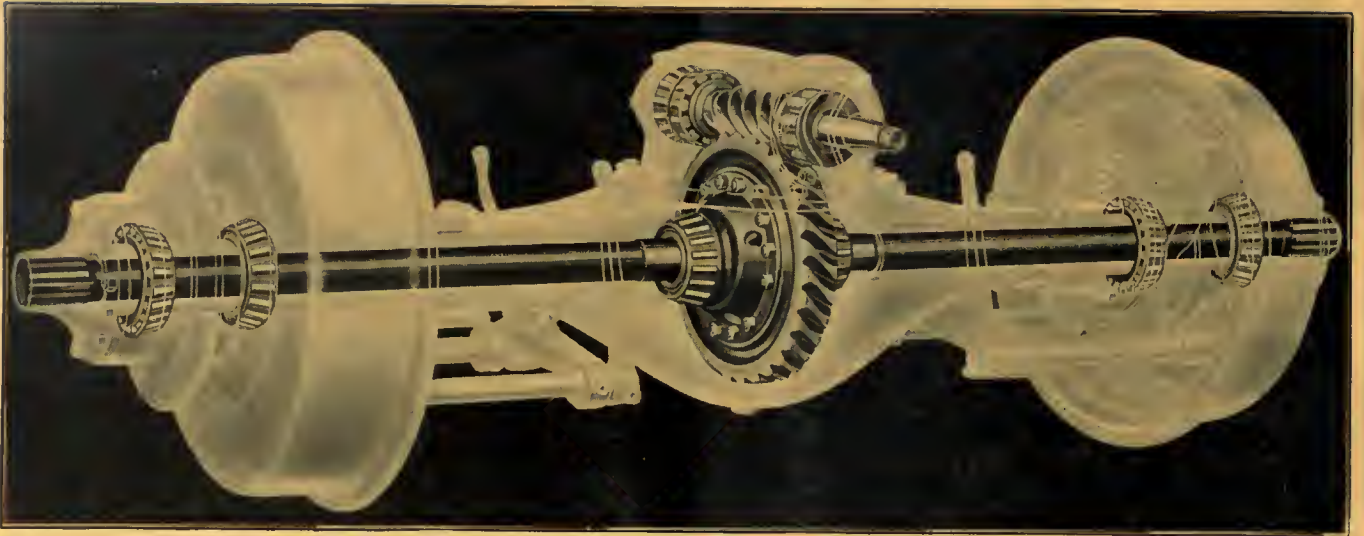
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